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Local Government Adoption of Aging-Friendly Policies and Programs:

A Mixed Methods Approach

By

Amanda J. Lehning

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Social Welfare

in the

Graduate Division

of the

University of California, Berkeley

Committee in Charge:

Professor Andrew Scharlach, Chair

Professor Michael Austin

Professor Frederick Collignon

Spring 2010

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by Amanda J Lehning

Abstract

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Amanda J. Lehning

Doctor of Philosophy in Social Welfare

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Professor Andrew Scharlach, Chair

In recent years a growing number of international, national, state, and local initiatives have started working to make existing communities more aging friendly. This interest in changing the physical and social environment of existing communities to improve the health and well-being of older adults and help them age in place is a reaction to a confluence of factors, including the aging of the U.S. population, a projected increase in disability and chronic disease in future cohorts of older adults, and an inadequate long-term care system. Aging-friendly communities share three characteristics: 1) individuals can continue to pursue and enjoy interests and activities, 2) supports are available so that individuals with functional disabilities can still meet their basic health and social needs, and 3) older adults can develop new sources of fulfillment and engagement (Lehning, Chun, & Scharlach, 2007). Framed by an internal determinants and diffusion model, this study uses a sequential explanatory mixed methods research design to explore 1) the extent to which 101 cities in 9 counties in a geographically and economically diverse metropolitan area have adopted aging-friendly policies, programs, and infrastructure changes in the areas of community design, housing, transportation, health care and supportive services, and opportunities for community engagement, and 2) the diffusion factors, community characteristics, and government characteristics associated with such adoption.

The researcher collected and analyzed quantitative and qualitative data from four types of respondents: city planners/community development directors, directors of county adult and aging services, county transportation authority employees, and public transit officials. In the quantitative phase, the researcher combined primary data collected via online surveys with secondary data from the 2000 U.S. Census and the 2000 California Cities Annual Report. In the qualitative phase, a subsample of 18 survey respondents participated in open-ended telephone interviews to provide a more in-depth understanding of the process of the adoption of aging-friendly innovations and expand on the quantitative findings.

For the first research question, the most common aging-friendly innovations adopted by local governments include those that target alternative forms of mobility, including incentives for mixed use neighborhoods, infrastructure changes to improve walkability, discounted public transportation fares, and changes to improve accessibility of public transit. The least common policies and programs are those that aim to help older adults continue driving and those that provide incentives to develop accessible new housing for older adults. For the second research question, bivariate analyses of city-level data provide partial support for an internal determinants

and diffusion model. Cities with a larger total population, larger percent of the population with a disability, and have experienced public pressure or individual advocacy for aging-friendly innovations adopted more aging-friendly policies, programs, and infrastructure changes. Contrary to hypotheses, cities with higher population educational attainment, higher median household income, and a larger proportion of the population age 65 and older adopted fewer aging-friendly innovations. Qualitative interviews offered potential explanations for these results. First, disability groups may be more active than older adults in terms of advocating for the adoption of certain aging-friendly innovations, such as accessible housing and walkable neighborhoods. Second, communities whose population enjoys a higher socioeconomic status may not perceive a strong role for local government in terms of creating more aging-friendly communities, and these residents may get their needs met through nongovernmental sources. Third, while there was no significant association between per capita government spending and the adoption of aging-friendly innovations, interviews suggest that funding plays an important role, and perhaps grant funding, slack resources, and recent increases or decreases in local government financial resources are a better measure of this factor. Finally, qualitative interviews indicate that future studies should explore additional factors, including communication, collaboration, and state and federal mandates.

The findings of this study suggest a number of research and practice implications that should be further explored in future research. First, the results and limitations of this research suggest that it should be replicated to determine whether the findings explain local government adoption of aging-friendly innovations in general or are specific to the population and methods used in this study. This replication should not only expand the sample size and explore the generalizability of findings to other geographic regions, but use a modified internal determinants and diffusion model that takes into account findings of the present study. Second, given the limitations of the current study, results offer a number of strategies that residents, advocates, service providers, and policymakers could employ in their efforts to create more aging-friendly communities. These strategies include mobilizing public support of and pressure for aging-friendly innovations, targeting advocacy efforts at individuals working within government who could become policy entrepreneurs, and working towards vertical diffusion of innovations via state and federal mandates and funding. Finally, survey and interview results hint at additional lines of inquiry that should be pursued as part of a larger aging-friendly communities research agenda. First, what exactly is an aging-friendly innovation or an aging-friendly community? Second, how can communities change their physical and social environment in such a way that the needs and wants of older residents do not impede those of other residents? Finally, and perhaps most importantly, what impact do these policies, programs, and infrastructure changes on the health and well-being of older adults and their ability to age in place?

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	iii
INTRODUCTION	1
What is an “Aging-Friendly” Community?	1
The Need for More Aging-Friendly Communities	2
Demographic Changes	2
Long-Term Care in the United States.....	3
Purpose of the Study	4
LITERATURE REVIEW	5
Conceptual Background for Aging-Friendly Communities	5
Ecological Model of Aging	5
The Disablement Process.....	6
Geographical Pragmatism.....	6
Local Government Aging-Friendly Policies, Programs and Infrastructure Changes.....	7
Community Design.....	7
Housing.....	9
Transportation/Mobility.....	11
Health and Supportive Services.....	16
Opportunities for Community Engagement	17
Summary	20
THEORETICAL FRAMEWORK AND HYPOTHESES	21
Combined Internal Determinants and Diffusion Model.....	21
Hypothesis One: Diffusion Factors	22
Hypothesis Two: Community Characteristics	23
Hypothesis Three: Government Characteristics	23
METHODS	25
Design.....	25
Phase One: Quantitative Methods	26
Sample	26
Procedures/Data Collection Techniques.....	28
Measures	31
Analysis	33
Phase Two: Qualitative Methods	35
Sample	35
Procedures/Data Collection Techniques.....	36
Data Analysis.....	37
Human Subjects.....	37
PHASE ONE: QUANTITATIVE RESULTS	39
Local Government Adoption of Aging-Friendly Innovations.....	39
Factors Associated with the Adoption of Aging-Friendly Innovation.....	43
Bivariate Analyses of Individual Aging-Friendly Innovations	43
Logistic Regression by Individual Aging-Friendly Innovation.....	47
Bivariate Analyses of Level of Aging-Friendly Innovations	49
Ordered Logistic Regression of Category of Aging-Friendly Innovations	50
PHASE TWO: QUALITATIVE RESULTS	52

Results	52
Advocacy and Civic Engagement.....	52
Funding.....	54
Community Characteristics	59
Collaboration and Communication.....	65
State and Federal Mandates	68
DISCUSSION	71
Research Question One: Adoption of Aging-Friendly Innovations.....	71
Research Question Two: Factors Associated with the Adoption of Innovations.....	73
Hypothesis One: Diffusion Factors	73
Hypothesis Two: Community Characteristics	74
Hypothesis Three: Government Characteristics	75
Limitations	77
Implications and Future Research	78
Replication of the Current Study	78
Strategies to Create More Aging-Friendly Communities.....	81
Developing an Aging-Friendly Communities Research Agenda	83
CONCLUSION.....	85
REFERENCES	87
APPENDIX A: ONLINE SURVEYS.....	98
City Planner/Community Development Director Survey	98
Director of County Adult and Aging Services	109
County Transportation Authority	118
Public Transit Agency.....	123
APPENDIX B: TELEPHONE INTERVIEW GUIDE	126

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INTRODUCTION

What is an “Aging-Friendly” Community?

The idea of a community becoming more “aging friendly” is relatively new, and there is still some disagreement regarding this concept. Researchers, policymakers, advocates, and service providers have given this concept a variety of labels, including age friendly (e.g., World Health Organization’s (WHO) Age-Friendly Cities Initiative), livable (e.g., AARP), elder-friendly (e.g., Visiting Nurse Service of New York’s AdvantAge Initiative), communities for all ages (e.g., National Association of Area Agencies on Aging (N4A) and Partners for Livable Communities’ Aging in Place Initiative: Developing Livable Communities for All Ages), and communities for a lifetime (e.g., Florida Department of Elder Affairs’ Communities for a Lifetime Initiative). An aging-friendly community has been defined as one in which “older adults are actively involved, valued and supported with infrastructure and services that effectively accommodate their needs” (Alley, Liebig, Pynoos, Benerjee, & Choi, 2007, p.5). Using information gathered during focus groups with older adults, Feldman, Oberlink, Simantov, and Gursen (2004) propose that an aging-friendly community maximizes independence, optimizes health and well-being, promotes community engagement, and addresses basic needs. The definition put forth by AARP (2005a) focuses on maintaining independence and facilitating engagement. The current study uses the term aging-friendly and is guided by the definition supplied by Lehning, Chun, & Scharlach (2007), which posits that aging-friendly communities have three characteristics: 1) continuity (i.e., individuals can continue to pursue and enjoy interests and activities), 2) compensation (i.e., supports are available so that individuals with functional disabilities can still meet their basic health and social needs), and 3) challenge (i.e., older adults can develop new sources of fulfillment and engagement) (Lehning, et al., 2007).

In recent years a growing number of international, national, state, and local initiatives have started working to make existing communities more aging friendly. WHO’s Age-Friendly Cities Initiative, for example, provided funding and expert assistance to 33 cities throughout the world, including Portland, Oregon, and New York City, to help them respond more effectively to the aging of their residents (World Health Organization, 2007). The Robert Wood Johnson Foundation’s Community Partnerships for Older Adults awarded grants to 16 communities across the United States to develop partnerships for the planning and implementation of strategies to meet the needs of their elderly populations (Community Partnerships for Older Adults, nd). AARP Public Policy Institute (2005b) developed Livable Communities: An Evaluation Guide, which includes a checklist to assess a community’s livability, as well as resources, tips, and success stories. Aging Indiana recently completed a statewide survey of residents age 60 and older, and is using this data to develop a strategic plan that will make the state more elder friendly (Aging Indiana, 2009). Some major cities (e.g., Atlanta, Baltimore, and San Francisco) are working with partners in the nonprofit and for-profit sectors to make their communities more aging friendly. Some county governments (e.g., Boulder County, Colorado, and Montgomery County, Pennsylvania) have recently completed strategic plans for their aging population that incorporate recommendations from service providers, older adults, and government employees. Older adults are forming neighborhood membership associations in cities (e.g., Boston and Washington, DC) to help seniors access the services and support they need to remain in their own homes and communities.

This growing interest in changing the physical and social environment of existing communities to improve the health and well-being of older adults and help them age in place is a reaction to a confluence of factors, including the aging of the U.S. population, a projected increase in disability and chronic disease in future cohorts of older adults, and an inadequate long-term care system.

The Need for More Aging-Friendly Communities

Demographic Changes

In 2007, 13% of the U.S. population, representing 38 million people, was age 65 and older (U.S. Census Bureau, 2009). This number will more than double over the coming years as members of the Baby Boom generation, the 80 million individuals born between 1946 and 1964, begin turning sixty-five (Frey, 2007). In addition, people are living longer than ever before, and those who reach the age of 65 can expect to live for almost 19 additional years (Federal Interagency Forum on Aging-Related Statistics, 2008), making those age 85 and older the fastest growing segment of the population. This combination of the size of the Baby Boomer generation and increased longevity means that by 2050 88.5 million Americans, or 20% of the population, will be age 65 and older (U.S. Census Bureau, 2009), 19 million of whom will be age 85 and older (U.S. Census Bureau, 2008).

In 2005, about 12 million adults age 65 and older had some type of activity limitation, and half of this group required assistance to perform everyday activities (AARP PPI, 2007). The number of older adults with a disability decreased in recent years, but there is concern that future cohorts will need more assistance than today's elderly population. First, data indicate that improvements in disability rates at the end of the twentieth century are due primarily to a drop in limitations in instrumental activities of daily living (IADLs) (e.g., shopping, doing household chores) and not in the basic activities of daily living (ADLs) (e.g., eating, toileting, dressing) that represent a more severe indicator of disability (Schoeni, Freedman, & Wallace, 2001). Second, the incidence of functional and cognitive impairment increase with age, and the 85 and older population is expected to more than triple over the next forty years (U.S. Census Bureau, 2008). For example, 46% of individuals age 85 and older have difficulty walking, compared to 18% of those ages 65 to 74 (Administration on Aging, 2008). In addition, the annual number of individuals diagnosed with Alzheimer's disease will reach almost 1 million by 2050, and 60% of these new cases will be at least 85 years old (Hebert, Beckett, Scherr, & Evans, 2001). Third, the Baby Boom cohort appears to be in poorer health than the current cohort of older adults was at a similar stage of life. Between 1984 and 1996, for example, while disability rates were declining for the elderly, they grew by 40% among those in their 40s (Lakdawalla, Bhattacharya, & Goldman, 2001). Adults age 40 to 59 years between 1997 and 2006 report an increase in lung disease, diabetes, obesity, and cardiovascular disease compared to adults in this age group in the 1980s and early 1990s (Martin, Freedman, Schoeni, & Andreski, 2009), suggesting that improvements in morbidity and disability rates will reverse in the near future.

Compounding these projections of a growing number of older adults who require assistance with activities and functioning is the long-term care system in the United States, which is characterized by high costs, unmet need, and poor quality.

Long-Term Care in the United States

The Institute of Medicine (1986) defines long-term care as “a variety of ongoing health and social services provided for individuals who need assistance on a continuing basis because of physical or mental disability” (p. 398). Long-term care in this country is a patchwork of different services and providers of care, rather than a comprehensive system. Long-term care includes institutional care (e.g., nursing home care), in-home services (e.g., home health aides), community care (including adult day health care), and material supports (e.g., wheelchairs and other assistive devices) (Ikegami & Campbell, 2002).

People turning 65 can expect to receive an average of three years of long-term care, including one year of institutional care (Robert Wood Johnson Foundation, 2009). Currently, about 4% of older adults reside in a nursing home (U.S. Census Bureau, 2009) and about 12.5% receive home- and community-based services such as adult day health care, personal assistance, and home health care (AARP PPI, 2007). A substantial number of older adults receive informal assistance that supplements or substitutes for formal long-term care, as a recent survey estimates that 44 million Americans provide care to a friend or family member (National Alliance for Caregiving (NAC) and AARP, 2004).

Long-term care is expensive for consumers, families, and local, state, and federal governments. In 2005, public and private spending for formal long-term care totaled almost \$207 billion (Komisar & Thompson, 2007), and costs would be even higher without the unpaid assistance of family members and friends, whose care is valued at \$375 billion per year (Houser & Gibson, 2008). Only 10% of individuals age 55 and older are covered by long-term care insurance (Feder, Komisar, & Niefeld, 2000) and Medicare coverage is restricted to temporary skilled or rehabilitative care (Edlund, Lufkin, & Franklin, 2003). It has been estimated that 73% of older adults would need to impoverish themselves to pay for long-term care, with 45% relying on Medicaid immediately and 18% having moderate financial resources that they would quickly exhaust (Knickman & Snell, 2002). These high costs are attributed to the dominance of nursing homes in the current long-term care system, accounting for 70% of public long-term care expenses (Harrington, Ng, Kaye, & Newcomer, 2009). In an effort to reduce these costs, state and federal governments have employed a number of strategies to limit access to nursing homes and increase the supply of home- and community-based services. Even as 93% of older adults express the desire to remain in their own homes (Feldman, et al., 2004), however, public reimbursement continues to favor institutional care. In 2005, states spent an average of \$12,627 per person on Medicaid-funded community based care and over \$60,000 per person for nursing home care (Harrington, et al., 2009).

Despite these high public and private expenditures for long-term care, consumers experience unmet need and poor quality care. Approximately 30% of disabled older adults report unmet needs for personal care (Zarit, Shea, Berg, & Sundstrom, 1998), and those within the system receive care of a questionable quality. The Omnibus Budget Reconciliation Act of 1987 (OBRA 87) mandated substantial reforms in the nursing home industry, yet one out of every six nursing homes continues to experience serious quality problems (U.S. Government Accountability Office, 2005). In 2001, the Institute of Medicine (IOM) Committee on Improving the Quality of Long-Term Care described the impact of this poor quality on residents, including malnutrition, pressure sores, and pain. There is minimal federal, state or local oversight of assisted living and home- and community-based services.

Helping communities become more aging friendly potentially offers an alternative to the current residual long-term care system that provides care of a questionable quality to those who have exhausted their own financial and social resources.

Purpose of the Study

This study examines local government adoption and implementation of aging-friendly innovations, defined as the policies, programs, and changes in infrastructure that offer the promise of improving the health and well-being of older adults and helping them age in place (see Table 2 in Chapter 3 for a complete list of the twenty-two aging-friendly innovations included in this study). There are two specific aims of this study. The first aim is to assess the extent to which cities are adopting innovations designed to meet the needs of their older residents. While the concept of aging-friendly communities has received increasing attention in recent years, there is little research that has explored the specific policies, programs and changes in infrastructure being adopted at the local level. The second aim is to examine the potential characteristics associated with such adoption. This study will explore whether an internal determinants and diffusion model is an appropriate framework to guide investigations into local government aging-friendly innovations, and perhaps suggest ways in which the model can be refined to describe this particular phenomenon. In addition, understanding these factors will aid other researchers, community organizers and policy advocates attempting to create more aging-friendly communities.

This study investigates local government efforts to make communities more aging-friendly in all 101 cities located within 9 counties in a racially, ethnically and economically diverse area. This research used a sequential explanatory mixed methods research design to address the following research questions and hypotheses:

Research Question One: What policies, programs and infrastructure have local governments adopted to promote the health and well-being of their older residents?

Research Question Two: What factors are associated with the adoption of these policies, programs and changes in infrastructure?

Hypothesis One: Three diffusion factors will be positively associated with the adoption of aging-friendly innovations: 1) knowledge of successful outcomes associated with these types of policies in other cities; 2) belief that other cities gain an advantage by adopting these types of policies; and 3) public pressure from citizens to adopt these types of policies.

Hypothesis Two: Six community characteristics will be positively associated with the adoption of aging-friendly innovations: 1) size; 2) educational attainment of the population; 3) per capita income; 4) percent of adults 65 and older; and 5) cities with a higher percentage of individuals of any age with a disability.

Hypothesis Three: Two government characteristics will be positively associated with the adoption of aging-friendly innovations: 1) higher per capita government spending and 2) the existence of policy entrepreneurs.

LITERATURE REVIEW

Conceptual Background for Aging-Friendly Communities

The concept of an aging-friendly community rests on the assumption that the physical and social environment influences whether older adults can age in place and maintain a high quality of life in their later years. This assumption is based on three overlapping theoretical foundations: 1) the ecological model of aging, 2) the disablement process, and 3) geographical pragmatism.

Ecological Model of Aging

The philosophical underpinning of environmental gerontology, which studies the relationship between aging and the environment, is the ecological model of aging articulated by Lawton and Nahemow in 1973. This model posits that a behavior or response, such as well-being, is the result of the competence of the older individual and the environmental press of the situation. Competence is defined as a characteristic of the individual, including such attributes as biological health, sensory capacity, motor skills, ego strength, and cognitive functioning (Lawton, 1982). Environmental press is comprised of the characteristics of the physical and social environment that place demands on the individual. As an individual experiences the declines in health and functioning that often accompany old age, environmental press may exceed competence, potentially resulting in negative outcomes (e.g., depression, limited mobility, institutionalization) (Lawton, 1982). The goal is to then modify environmental press (i.e., reduce demands from the physical and social environment) to move the individual into the “zone of maximum performance potential” (Lawton, 1982, p.46). The challenge is to adjust environmental demands to the point at which the individual will engage in adaptive behavior and enjoy reasonably good health and a high quality of life without reducing it to the point at which the individual is understimulated.

M. Powell Lawton (1988) further stipulated that the residential environment, which is comprised of both the home and the local community, serves three functions in terms of moving an individual into this ideal zone. First, the residential environment serves a maintenance function; when an older adult is familiar with his or her environment, he or she can pursue activities and goals in a more focused way (Lawton, 1988). This idea is analogous to the concept of ‘aging in place’, which proposes that older adults benefit from remaining in their own homes and/or communities because of the familiarity and knowledge they have accumulated of these places over the years and the incorporation of that knowledge into their identity (Rosel, 2003; Rowles, 1993). Second, the residential environment provides stimulation, introducing novelty and surprise to the extent that the individual can experience a sense of competence in daily life without feeling overwhelmed (Lawton, 1988). According to Lawton, a stimulating environment gives people a reason for living. Finally, the residential environment offers support when necessary (Lawton, 1988). It appears, therefore, that similar to Lehning and colleagues (2007),

Powell Lawton defines an aging-friendly environment as one that provides continuity, challenge, and compensation.

The Disablement Process

One can see the influence of Lawton and Nahemow and their focus on adaptation in the disablement process, first articulated by Verbrugge and Jette in 1994. They conceptualize disability as a product of personal capabilities and environmental demand (Verbrugge & Jette, 1994), or in Lawton's terminology, behavior is the product of competence and environmental press. The pathway to disablement begins with the presence of disease (e.g., arthritis), potentially followed by impairments (e.g., inflammation and pain in the knees), which could lead to functional limitations (e.g., difficulty bending the knees), which then may result in disability (e.g., inability to walk up stairs or stand up from a sitting position) (Verbrugge & Jette, 1994). Three types of personal and environmental factors can impact the disablement process (Verbrugge & Jette, 1994). Risk factors are predisposing characteristics of the individual and the environment, such as genetics, lifestyle and social support, which spur on the onset of disablement. Interventions are personal and environmental changes, such as behavior alterations, medical care, and home modifications that slow down, reverse, or even prevent disablement. Finally, exacerbators, such as architectural barriers and limited transportation options, speed up the disablement process. The theoretical propositions of the disablement process suggest that changes in the physical and social environment can reduce the level of disability associated with chronic diseases.

Geographical Pragmatism

The ecological model of aging has been criticized for taking a mechanistic view of the person-environment interaction (Cutchin, 2003). In recent years, researchers on aging and the environment have incorporated ideas from the field of geography to provide a theoretical justification for the creation of more aging-friendly communities. These scholars propose a more holistic view of the person-place connection, calling for increased attention to space and place to complement the attention to individual-level factors in the ecological model of aging. According to Cutchin (2003), geographical pragmatism links aging in place to place integration, a process in which the aging individual is continuously working to reintegrate the "person-place whole" in the face of difficulties that arise out of evolving conditions. Hodge (2008) calls attention to the activity patterns, or everyday activities, of older adults. These activity patterns help form an individual's life space, defined as the places, people, and objects that fall within an individual's familiar spatial realm (Hodge, 2008). As the individual ages, his or her activity patterns, and therefore his or her life space, become restricted through a complex decision-making process motivated by changes in competence, needs, preferences, and the environment (Hodge, 2008). Older adults are not simply reacting to their surrounding environment, but actively changing it, even as they change themselves.

The aging-friendly community concept combines propositions from the Lawton-Nahemow model, disablement process, and geographical pragmatism by proposing that the environment not only places demands on the individual, but also provides developmental opportunities. While some individual characteristics, such as physical functioning, may decline with age, other characteristics, such as wisdom, may continue to develop. In addition, because

older adults differ in terms of their levels of competence and preferences, the dynamic interface between individuals and their physical and social environments ultimately determines a community's aging-friendliness.

Local Government Aging-Friendly Policies, Programs and Infrastructure Changes

While recognizing that the needs of older individuals and their communities produce variations in the strategies employed to create more aging-friendly communities, recent research studies by AARP's Public Policy Institute (2005b), Hanson and Emlet (2006), and N4A and Partners for Livable Communities (2005) suggest that there is an emerging consensus among older adults, service providers, advocates, and researchers on the components of an aging-friendly community. These components include community design, a wide range of housing options, adequate forms of transportation and mobility, access to health and supportive services, and opportunities for community engagement. A number of policies, programs and changes in infrastructure proposed to lead to more aging-friendly communities have been linked to improved health and well-being for residents.

Community Design

Current community design dates back to the end of the nineteenth century, when urban areas encountered an influx of residents, poor sanitation, the growth of industry, and high rates of infectious diseases (Schilling & Linton, 2005). To address this public health crisis, cities and towns used zoning restrictions, such as the separation of residential, commercial, and industrial uses (Schilling & Linton, 2005). In 1926, the Supreme Court provided a legal rationale for this application of zoning in Ambler Realty v. Village of Euclid, holding that zoning can improve quality of life by creating separate residential districts (Schilling & Linton, 2005). While the Court cited the importance of public health, subsequent legal decisions focused more on the protection of property rights and the maintenance of purely residential neighborhoods to justify what is known as Euclidean zoning (Schilling & Linton, 2005). Developments throughout the 20th century, spurred on by the automobile, including federal highway construction and subsidized mortgages, contributed to the suburban sprawl that characterizes much of the United States (Jackson, 2003).

This has created a situation in which access to the community is severely restricted for those residents who no longer operate their own vehicle, such as the 25% of older adults who do not drive (Feldman, et al., 2004). In a recent survey conducted by AARP, 40% of respondents report that the sidewalks in their neighborhoods are inadequate and 47% are unable to safely cross main roads (Lynott, Haase, Nelson, Taylor, Twaddell, Ulmer, McCann, & Stollof, 2009). In terms of the disablement process, community design presents barriers that act as exacerbators, limiting the ability of individuals with functional impairments to engage in everyday activities (Clark & George, 2005). In addition, the physical layout of communities may prevent future disability by providing opportunities for physical activity, such as walking. Walking is the preferred form of exercise for older adults (Clark, 1999), and previous studies have documented the positive impact of walking on the health and well-being of older adults. Regular walking is associated with a decreased risk of mortality, limitations in physical functioning (Simonsick, Lafferty, Phillips, Mendes de Leon, Kasl, Seeman, et al., 1993), cognitive impairment (Yaffe,

Barnes, Nevitt, Lui, & Covinsky, 2001), and loss of mobility (LaCroix, Guralnick, Berkman, Wallace, & Satterfield, 1993).

Aging-Friendly Innovations

Incentives to create mixed-use neighborhoods. Mixed-use neighborhoods contain streets and/or buildings that allow both residential and commercial uses. Mixed-use neighborhoods typically allow alternative development, including higher than usual densities, a variety of housing types, transit-oriented or pedestrian design, and easy access to destinations (Inam, Levin, & Werbel, 2002). Cities can offer developers a number of incentives to incorporate mixed-use and alternative development into projects, such as waiving parking requirements, subsidizing or providing infrastructure for the project, fast-track permits, allowing higher densities, waiving permit fees, or local tax subsidies. The call for a return to mixed-use design harkens back to the history of zoning. At the end of the 19th century, cities employed zoning restrictions to address the spread of infectious diseases (e.g., tuberculosis and cholera) that posed the greatest public health risks (Satariano, 1997). At the beginning of the 21st century, cities can alter their zoning practices and offer incentives for mixed-use development to create more physically active environments and address the spread of chronic conditions (e.g., obesity, diabetes, and chronic heart disease) that pose the greatest public health risks and restrict the independence of the elderly (Satariano, 1997; Schilling & Linton, 2005).

Infrastructure changes to improve walkability. There is a great deal of overlap between mixed-use and walkable neighborhoods. Walkable neighborhoods, for example, include higher densities (e.g., multi-family housing) and commercial land uses (e.g., grocery stores, pharmacists, retail). Walkable neighborhoods are also comparable to Complete Streets initiatives. Complete Streets advocates call attention to the importance of designing streets not just for automobiles but for all users (Lynott, et al., 2009). Complete Streets advocates have proposed three principles to guide street design: 1) reducing vehicle travel speeds, particularly in areas used by both automobiles and pedestrians; 2) improving the physical layout of streets to make it easier for drivers and pedestrians to navigate; and 3) enhancing visual cues and information for drivers and pedestrians (Lynott, et al., 2009). Specific infrastructure changes to improve walkability include sidewalk repair, widening existing sidewalks to improve accessibility for those who use wheelchairs, new pedestrian pathways or sidewalks, improved street lighting (Heath, 2006), and traffic calming measures (e.g., narrowing lanes, raised crosswalks, and speed humps (Retting, Ferguson, & McCartt, 2003).

Evidence of Benefits

Researchers frequently evaluate the impact of mixed-use and walkable neighborhoods in tandem. Research on “activity-friendly” (Ramirez, Hitchener, Brownson, Cook, Orleans, Hollander, et al., 2006) or walkable neighborhoods are typically cross-sectional and correlational rather than causal (Satariano & McAuley, 2003). In addition, the majority of studies look at all age groups, rather than focusing on the effects of community design on the elderly population. Empirical studies report a consistent association between aspects of community design (e.g., mixed-use neighborhoods, higher density, sidewalk continuity, traffic calming, and improved street lighting) and increased physical activity for individuals of all ages (Aytur, 2007; Heath,

2006; Sallis & Kerr, 2006). Walking for transportation or leisure-time physical activity is also related to an individual's proximity to a mix of destinations, such as shopping centers, post offices, and parks (Frank, Schmid, Sallis, Chapman, & Saelens, 2005; King, Brach, Simkin-Silverman, Soska, & Kriska, 2005; McCormack, Giles-Corti, & Bulsara, 2008). Using concepts from geographical pragmatism, research suggests that mixed-use and walkable neighborhoods help individuals maintain or increase their life space (Beard, Blaney, Cerda, Frye, Lovasi, Ompad, Rundle, & Vlahov, 2009). While there are fewer studies of the relationship between community design and health and well-being in older adults, studies indicate mixed-use and walkable neighborhoods are associated with an increase in physical activity (Berke, Koepsell, Moudon, Hoskinds, & Larson, 2007; Sallis & Kerr, 2006), a decrease in limitations in IADLS (Freedman, Grafova, Schoeni, & Rogowski, 2008), and fewer symptoms of depression (Berke, Gottlieb, Moudon, & Larson, 2007) in this population. Berke and colleagues (2007) hypothesize that the relationship with depression may reflect older adults' ability to remain connected to the community when they can access goods and services within walking distance of their home.

Housing

Over 90% of older adults would like to remain in their own homes for as long as possible (Feldman, et al., 2004; AARP PPI, 2005a). Older adults perceive a number of benefits associated with staying in their current home, including privacy, personal control over their own lives, and proximity to neighbors and friends (Means, 1997). Further, according to the aging in place literature, aging in one's familiar home contributes to well-being through the symbolic meanings older adults place on the home and its objects (Gitlin, 2003). The likelihood that older adults will be able to remain in their current residences, however, is limited and decreases with age. A recent nationally-representative study reports that over the course of twenty-one years, only 31% of individuals age 50 to 60 years, 20% of those age 61 to 70, and 5% of those 71 to 85 aged in their own home (Sabia, 2008). The costs of maintaining a home present a significant barrier to aging in place. While many older adults own their homes free and clear and do not have to make mortgage payments, they also tend to live in older homes that may require more maintenance (Daniels, 1994). In addition, as their household sizes shrink, many elders live in dwellings that are too large for their current needs, resulting in excessive costs in terms of property taxes, housekeeping, and heating and cooling (Golant, 1992). Therefore, more than 50% of adults age 65 and older spend more than 30% of their income on housing, thus crossing the traditional threshold of affordability (Feldman, et al., 2004).

The absence of accessibility and usability features in both existing and new housing also creates a barrier to the ability of older adults to remain in their own homes and communities. Accessibility is an objective measure of environmental features, while usability refers an individual's subjective assessment of their capability to move around and use the physical environment (Iwarsson & Stahl, 2003). Federal laws, such as the Fair Housing Amendments of 1988 and the Fair Housing Act, mandate the inclusion of accessible features (i.e., wide entrances and interior doors, accessible light switches, and bathroom walls reinforced to accommodate grab bars) in new multi-family housing (Kochera, 2002). These provisions, however, do not apply to single-family dwellings or multi-family buildings with less than 4 units (American Planning Association, 2006). Developers are incorporating some design features, such as wide doorways, large bathrooms, and sloped entry paths, which may increase a home's market value (Connell & Sanford, 2001). Features aimed specifically at individuals with a disability, such as

grab bars and wheelchair lifts, are much less common (Connell & Stanford, 2001). The result is that more than 90% of housing in the United States is estimated to be inaccessible to individuals with disabilities (Steinfeld, Levine, & Shea, 1998).

Zoning ordinances create additional restrictions on housing options for older adults and individuals with disabilities. As described above, Euclidean zoning protects residential neighborhoods by restricting land use to single-family housing (Pollack, 1994). Cities and towns often limit the number of unrelated people who can live together (Daniels, 1994) and restrict land use to one single-family home per lot (Pollack, 1994). Regulatory barriers such as maximum floor-area ratios, minimum square footages and lot size, and limits to converting a garage or basement into a dwelling unit also keep densities low and limit the housing options of older adults in most communities (Rosenthal, 2009). This may be motivated by financial reasons, as large homes increase tax revenues while dense, multi-family housing increases demand for resources, such as schools and social services (Schill, 2005).

Aging-Friendly Innovations

Accessory dwelling units. An accessory dwelling unit (ADU), also called a second unit, elder cottage, or mother-in-law apartment, is an attached or detached unit located on the same lot as a single-family home (Pynoos, Nishita, Cicero, & Caraviello 2008). It is a permanent structure with a private kitchen and bathroom, thereby allowing the occupant to maintain privacy (Liebig, Koenig, & Pynoos, 2006). For older adults who can no longer remain in their own home, ADUs serve as an alternative form of housing, allowing them to downsize and/or be closer to family members (Pynoos, et al., 2008). For older adults who can remain in their own home but require some financial or care assistance, adding their own ADU creates a rental unit or a living space for an informal caregiver (Pynoos, et al., 2008). While a bias in favor of single-family housing impedes the development of ADUs in some communities (Pollack, 1994), a growing number of cities and towns have adopted an accessory dwelling unit ordinance since the 1980s as they address sprawl and the need for affordable housing (Chapman & Howe, 2001).

Incentives for developers who guarantee units for seniors. As the percentage of the population age 65 and older increases, governments have recognized the need to create specialized housing for this age group (Daniels, 1994). The federal Section 202 housing program of the U.S. Department of Housing and Urban Development (HUD), for example, provides subsidized, supportive housing to low-income seniors. Numerous state mandates provide incentives for developers who designate a certain percentage of new units to older adults. In California, for example, the state density bonus law requires cities to grant a density bonus (i.e., allow more units per lot) when a new residential development set aside 50% of the unit for seniors. Cities can call for an increased percentage of units dedicated to seniors and offer additional incentives, including their own density bonus or increased densities, fast-track permitting, subsidization or provision of infrastructure for the project, waiver of permit fees, and local tax subsidies.

Incentives for developers to make new housing accessible. Based on focus groups with older adults, important design features in new housing include a driveway/parking space immediately outside the home, a full bathroom on the main level, a bedroom on the main level, an attached garage or covered parking, wide doorways, entrances without steps, and bathroom

aids (AARP PPI, 2005b). The American Planning Association (2006) calls for improved enforcement of federal and state accessibility laws at the city level, as well as the adoption of codes mandating visitability and universal design in new construction. Universal design environments are those that can be used by all people of all abilities (Center for Universal Design, 1997). Visitability refers specifically to removing barriers that prevent individuals with disabilities from entering homes, specifically front entrances with steps, narrow interior doorways, and the absence of a bathroom on the first floor (Pynoos, Caraviello, & Cicero, 2009). Incentives such as loans, grants, and tax credits to developers could speed up the incorporation of these features in new housing.

Home modification assistance. The three greatest unmet needs in terms of accessible features in the homes of elders with functional impairments are accessible bathrooms, ramps, and handrails and grab bars (U.S. Department of Housing and Urban Development and U.S. Department of Commerce, 2001). Older adults report that high costs are one of the top barriers to incorporating accessibility features in their existing homes (Bayer & Harper, 2000). For older adults who wish to remain in their own homes, home modification assistance may help them make adaptations. Older adults can access limited federal assistance for home modifications through HUD, the Department of Energy, the Administration on Aging, the Department of Veterans Affairs, and the Social Security Administration (Smith, Rayer, & Smith, 2008). Cities can also use money from the Community Development Block Grant for modification assistance (Pynoos, et al., 2009). In addition, cities can offer elderly homeowners loans, grants, and tax credits to alleviate the financial pressure of making changes to their existing homes.

Evidence of Benefits

A review of the literature reveals a paucity of studies that examine the impact of these housing innovations on the health and well-being of older adults. It is not yet possible to ascertain if, for example, cities that adopt an accessory dwelling unit ordinance or increase the supply of affordable housing for seniors see a reduction in institutionalization or social isolation in their elderly population. Several researchers have explored the effects of the home environment, although according to a recent review of the literature, the bulk of these studies use a cross-sectional design and hence do not provide any empirical evidence in terms of causal inference (Wahl, Fange, Oswald, Gitlin, & Iwarsson, 2009). According to this same literature review, however, the majority of existing studies suggest that changing the home environment is associated with improved outcomes for individuals with a disability (Wahl, et al., 2009). Specifically, home modifications and environmental adaptations are associated with a lower risk of experiencing health problems (Liu & Lapane, 2009), slower decline in IADL independence, improved self-efficacy for informal caregivers (Gitlin, Corcoran, Winter, Boyce, & Hauck, 2001) and a reduction in health care expenses (Stearns, Bernard, Fasick, Schwartz, Konrad, Ory, & DeFriese, 2000).

Transportation/Mobility

There is a close relationship between community design and transportation patterns. Transportation policies and programs influence land use, as shown by the development of housing subdivisions and shopping centers along highway corridors (Handy, 2005). Land use

policies also influence transportation, demonstrated by the barriers to public transportation and walking presented by suburban neighborhoods in which residential zones are separated from commercial and industrial zones (Handy, 2005). This has created a situation in which mobility rates drop greatly once individuals pass the age of 65 (Pucher & Renne, 2005).

As with Americans of all ages, the bulk of older adults get around their communities in a car, with three-fourths as the driver and 18% as a passenger (Feldman, et al., 2004). In focus groups with older adults, driving is the overwhelmingly preferred mode of transportation (Burkhardt, McGavock, & Nelson, 2002; Rudman, Friedland, Chipman, & Sciortino, 2006). Driving not only offers convenient and flexible mobility but, as a dominant symbol in American culture, provides a sense of freedom, independence, and even becomes a part of one's identity (Burkhardt, et al., 2002; Glasgow & Blakely, 2000). Older adults believe that giving up the car keys means defeat and a loss of independence (Glasgow & Blakely, 2000), and the majority plan to continue driving for as long as possible (Kostyniuk & Shope, 2003). Functional and cognitive impairments, however, hamper the ability of many older adults to safely operate behind the wheel. Declining vision, for example, can make it difficult for an older adult to read road signs and see pavement markings, curbs, pedestrians, and other cars (Lynott, et al., 2009), and has been cited by former drivers as the impetus behind their decision to stop driving (Dellinger, Sehgal, Sleet, & Barrett-Connor, 2001). Impaired cognitive functioning, which can decrease information processing speed, attention, and reaction time, can also impair a driver's ability (Brenner, Homaifer, & Schultheis, 2008), although research has found that more than one-third of drivers with a decline in cognitive functioning continue to drive (Freund & Szinovacz, 2002). Many older drivers self-regulate their driving habits as a strategy to remain on the road for as long as possible (Adler & Rottunda, 2006), which may include avoiding highways, driving during the day, staying off the road during rush hour, and travelling only along familiar routes. Despite these efforts to avoid dangerous situations, according to the 1990 National Personal Transportation Survey (as described in Rosenbloom, 2004), older adults experience more accidents per trips made than any other age group and account for 18% of all motor vehicle deaths, even though they currently comprise 13% of the population. Older adults are involved in a high number of traffic accidents while turning left (National Highway Traffic Safety Administration, 2007), which can be particularly difficult when taking into account the declining vision, decreased ability to pay attention, and increased reaction time that can afflict older drivers (Lynott, et al., 2009).

The second most common form of transportation for older adults is through ride sharing or as a passenger in an automobile (Ritter, Straight, & Evans, 2002). While this mode of transportation provides door-to-door service to a wider range of destinations than offered by public transportation (Burkhardt, et al., 2002), it presents its own set of limitations. Elders express dissatisfaction with travelling at the convenience of the driver, and express feelings of obligation (Burkhardt, et al., 2002), imposition, and dependency (Ritter, et al. 2002). Further, drivers themselves may experience a negative impact of providing rides. In a recent study, 42% of caregivers reported missing work occasionally and another 13% decide to give up work entirely in order to provide transportation to an older care recipient (Taylor & Tripodes, 2001). In addition, transportation provided by family, friends, and neighbors may be inadequate to meet elders' needs, as those who depend on others for rides travel less than any other group, including those who use public transportation (Burkhardt, 2000).

Only about 5% of adults age 50 and older regularly use public transportation (Ritter, et al., 2002), and less than 1/8 of older adults have used public transportation at all in the past year

(Burkhardt, et al., 2002). One significant barrier is the absence of public transit services, particularly in non-metropolitan areas. According to Rosenbloom and Herbel (2009), about 33% of older adults do not have public transit in their communities, and many of those who do experience inadequate public transportation that offers frequent service to destinations targeted at commuters, such as office parks, rather than the elderly, such as medical complexes and senior centers. Public transit is therefore seen as unsafe, unresponsive, and inconvenient to older adults (Adler & Rottunda, 2006), and complaints include long travel times, limited weekend services, unreliable arrival times, and difficulty obtaining and understanding transit information (Burkhardt, et al., 2002). Older adults with functional limitations also have difficulty accessing public transit (Cobb & Coughlin, 2000), and concerns include malfunctioning elevators and wheelchair lifts (Wachs, 2001) and the embarrassment of struggling to walk up steps into vehicles (Burkhardt, et al., 2002). Many older adults without access to an automobile, therefore, chose alternative transportation services over the fixed-route system (Burkhardt, et al., 2002).

Alternative transportation services include paratransit, senior vans, and taxis. The Americans with Disabilities Act of 1990 mandates that all public transit agencies provide complementary paratransit services for those who are unable to use fixed-route services due to a disability (Koffman, Raphael, & Weiner, 2004). These complementary services, however, are accompanied by a number of restrictions. Paratransit trips, for example, are only available in areas that are already served by public transportation, often require reservations 24 hours in advance, and may involve multiple transfers when the individual needs to cross into other service areas (Nelson\Nygaard Consulting Associates, 2002). Paratransit travel is also considerably more expensive than fixed-route services, costing public transit agencies an average of \$29.28 for a one-way trip in 2007 (Rosenbloom & Herbel, 2009). In response to these high costs, transit providers have been following ADA eligibility criteria more strictly in recent years (U.S. Government Accountability Office (GAO), 2004), limiting the availability of paratransit to older adults with a disability, 42% of whom do not qualify under the ADA (Rosenbloom, 2009). Alternative community-based transportation services, which share some of the limitations of paratransit (e.g., advance reservations, transportation provided only within a specific city or county), tend to help older adults travel to life-sustaining destinations (e.g., doctors offices, pharmacies, and nutrition programs), rather than life-enhancing destinations (e.g., shopping malls, movie theaters, and churches) (U.S. GAO, 2004).

Aging-Friendly Innovations

Driver education and driver assessment programs. Both policymakers (e.g., the U.S. Department of Transportation) and older adults recommend driver education and assessment programs to ensure that older adults are operating their own vehicles in a safe manner. The AARP offers the 55 Alive Mature Driver Program and the National Safety Council offers a similar course called Coaching the Mature Driver (Stutts, 2003). Both of these programs, however, provide only classroom training. Cities and counties can supply funding to bring these programs into their communities and offer their own programs that include a road training component. In focus groups, older adults have recommended a number of components for driver assessment programs, including mandated road tests after a certain age, vision exams, a written exam on traffic laws, and an evaluation of flexibility, cognitive functioning, and reflexes (Adler & Rottunda, 2006).

Slow-moving vehicle ordinance. As described above, the mobility of older adults is severely curtailed once they give up their car keys. One policy that could alleviate this problem is for cities to allow individuals to operate slower-moving vehicles, such as electric wheelchairs or golf carts, on roads. While the National Highway Traffic Safety Administration has not yet issued guidelines on this topic because of the relatively small number of individuals who own golf carts (Suen & Sen, 2004), a growing number of cities, such as North Port, Florida, are considering passing ordinances that would permit these slower-moving vehicles on roadways, albeit with restrictions (e.g., only on streets with speed limits at or below 30 miles per hour (Bryce, 2006).

Infrastructure changes to improve older driver safety. The federal government has recognized the importance of improving roadway design for older drivers, as shown by the Federal Highway Administration's Older Driver Highway Design Handbook (1997). While states are typically responsible for the design, construction and maintenance of rural and major urban roads, cities have jurisdiction over local urban streets (Lynott, et al., 2009). Recommended road improvements by policymakers, researchers, and older adults include: improving the visibility of road markings (e.g., using reflectorized paint), increasing the size of letters on street signs (Herbel, Rosenbloom, Stutts, & Welch, 2006; Rudinger, Donaghy, & Poppelreuter, 2004; Wachs, 2001), and simplifying intersections (Rudinger, et al., 2004). As left-hand turns prove particularly difficult for older adults, who may not accurately assess the position and speed of oncoming traffic (Jovanis, 2003), added left hand turn lanes would also improve older driver safety. This could involve adding a protected left-hand turn phase with a green arrow (Lynott, et al., 2009) or constructing an offset left turn lane, which affords an unobstructed view of oncoming traffic (Jovanis, 2003).

Alternative transportation. According to Davey (2007), the goal of alternative transportation should be to replicate the characteristics of automobile travel, including door-to-door service and 24-hour availability. Alternative or supplemental transportation serves those whose mobility needs are not being met by existing public transportation and paratransit services (Nelson\Nygaard Consulting Associates, 2002). First, cities and counties could provide paratransit to older adults who do not qualify for ADA complementary paratransit (Koffman, et al., 2004). These services could also address some of the limitations of ADA paratransit, including limited or nonexistent evening and weekend service (Burkhardt, et al., 2002) and the need to make reservations 24 hours in advance. Local governments could also offer senior vans or shuttles that provide trips to medical appointments, shopping centers, senior centers, and other destinations frequented by older adults. Finally, research suggests that 90% of the trips taken by individuals who are unable to use fixed route buses could be made by taxis, the subsidies for which are less expensive than paratransit and other door-to-door services (Burkhardt, et al., 2002).

Mobility management. Mobility management involves coordinating and brokering all types of transportation services available in a community (Sterns, Antenucci, Nelson, & Glasgow, 2003). Older adults can access the optimal service for their mobility needs when working with an individual or organization familiar with all the fixed-route, paratransit, demand-responsive, and volunteer transportation services offered in the area.

Measures to increase transit accessibility. According to Kerschner (2006, p.5), “providing good transportation for the public does not necessarily result in good transportation for seniors, but improving transportation for seniors will improve transportation for everyone.” The ADA mandates that public transit agencies engage in actions that will increase the accessibility of their fixed-route services, such as adding lifts or ramps to buses and modifying stations so that they are accessible to those in a wheelchair (Koffman, et al., 2004). Public transit agencies could also purchase low-floor buses (i.e., with a first step three inches from the curb) (Burkhardt, et al., 2002); add bus and train stop amenities (e.g., benches and protective covering from the weather); train drivers to be sensitive to and aware of the needs of individuals with disabilities (Burkhardt, et al., 2002; GAO, 2004); offer frequent service (e.g., during evenings and weekends) (Kerschner & Aizenberg, 2001); provide large-print schedules and maps; and offer travel training programs to help elders new to public transit navigate the system.

Discounted transit fares. Federal law requires public transit agencies to reduce fares for older adults and individuals with disabilities by at least 50% during off-peak hours (Koffman, et al., 2004). Public transportation providers could further increase the affordability of fixed-route buses and trains by extending this discount to peak hours.

Evidence of Benefits

Numerous studies have documented the detrimental impact of driving cessation on older adults, thus suggesting that policies and programs that help elders continue to drive safely could positively affect health and well-being. Non-drivers make 15% fewer trips for medical appointments and 65% fewer trips for religious, social, or community activities compared to their driving counterparts (GAO, 2004). This could potentially explain findings that former drivers experience loneliness (Johnson, 1998), decreased social integration (Mezuk & Rebok, 2008), and a decline in well-being (Siren, Hakamies-Blomqvist, & Lindeman, 2004). It appears there have been no evaluations of older driver education programs or infrastructure changes to improve older driver safety. In British Columbia, however, drivers age 80 and older must undergo a medical assessment of their driving abilities, and may have their licenses revoked or restricted (e.g., to specific areas, speed zones, times of day) (Nasvadi & Wister, 2009). An evaluation of this program reported a 17.4% reduction in vehicle crashes and an 11% reduction in at-fault crashes (Nasvadi & Wister, 2009).

A recent study indicates that the negative impact of driving cessation on elder well-being can be avoided if transportation needs are met through other modes of travel (Cvitkovich & Wister, 2001). Research on public and alternative transportation, however, is quite sparse. Mezuk and Rebok (2008) report that an inability to use fixed-route public transit is related to shrinking social network size, suggesting potential beneficial effects of improving the accessibility of public transit and providing alternative transportation services. Further, among all age groups, the switch from driving to using public transit is associated with an increase in physical activity, a decrease in obesity, and a subsequent reduction in medical expenses by \$5500 (Edwards, 2008). It is possible that older adults living in communities with affordable and accessible public transit can experience improved physical health when they stop driving. There is some evidence that accessibility features can increase ridership, as the introduction of low-floor buses in Britain lead to a 10% increase in the number of people taking public transit (Suen & Sen, 2004).

Health and Supportive Services

According to a recent survey, approximately 7% of older adults require assistance with ADLs and another 17% need help with IADLs, but more than half of these older adults with functional limitations do not receive the assistance they need (Feldman, et al., 2004). One possible partial explanation for this high level of unmet need rests in the recent finding that 20% of older adults do not know where to find information about the health and supportive services available in their community (Feldman, et al., 2004). Another explanation is that the supply of home- and community-based services, such as adult day health care, senior companion, and home health care, is not meeting the demand. In the 1999 Supreme Court case Olmstead vs. L.C., the court ruled that states have an obligation to provide individuals care in the least restrictive setting possible. As described above, state and federal governments have been attempting to reign in the high costs of long-term care for the elderly by restricting nursing home admissions and increasing the supply of home- and community-based services. For example, the federal Center for Medicare and Medicaid Services (CMS) and the Office of the Assistant Secretary for Planning and Evaluation (ASPE) developed the Nursing Home Transition program to help states discharge nursing home residents who could be served in the community (Mollica, 2003). Currently, over 70% of funding for home and community-based services comes from Medicaid (Miller, 2003), the public insurance program funded jointly by the states and the federal government. However, nursing home care is a mandatory benefit under Medicaid, while most home- and community-based services are offered through the Sec. 1915(c) HCBS waiver program (Summer, 2007), which are optional and can adopt stricter eligibility standards than required for admission into a nursing home. Thus, in 2007 Medicaid spent \$47 billion on institutional care compared with \$17 billion for home- and community-based services (AARP PPI, 2009).

Research also finds high levels of unmet needs in older adults for services that can improve their physical health and well-being. For example, more than one-third of men and half of women over the age of 75 never engage in exercise (Feldman, et al., 2004). Influenza and pneumonia are among the leading causes of death for individuals age 65 and older (Heron, Hoyert, Murphy, Xu, Kochanek, & Tejada-Vera, 2009), almost one-third never receive an annual influenza immunization (Sambamoorthi & Findley, 2005) and many do not receive a vaccination against pneumonia (Pham, Schrag, Hargraves, & Bach, 2005). In addition, older adults do not receive the clinically recommended amount of preventive services, such as cancer screenings, eye examinations, and diabetic monitoring, particularly if they are covered by Medicaid (i.e., low income) (Pham, et al., 2005).

Aging-Friendly Innovations

Information hotline or directory. In a recent survey, 28% of elderly respondents indicated that city and county offices on aging are the best source of information on available health and social services (Feldman, et al., 2004). Counties could provide an information directory in either a telephone, online, or printed format.

Home- and community-based services. Older adults prefer to receive long-term care in their homes or communities, rather than in a nursing home (N4A and Partners for Livable Communities, 2005). Counties could offer services such as nutrition programs (e.g., home

delivered or congregate meals (N4A and Partners for Livable Communities, 2005), care management (e.g., coordinating home health care and physician services), legal services, dementia day health programs, adult day health programs, medication management and/or assistance, volunteer senior companion programs, mental health services, and in-home services (e.g., home health aides and homemaker services).

Fitness programs for older adults. Counties can offer fitness programs targeted specifically to older adults to increase their amount of exercise and subsequently improve their health and well-being (N4A and Partners for Livable Communities, 2005).

Preventive health programs. In focus groups, older adults have expressed a need for preventive health programs, such as immunizations and health clinics for low-income seniors, in their communities (AARP PPI, 2005a).

Evidence of Benefits

There is limited empirical evidence on the relationship between health and supportive services and the health and well-being of older adults. According to one recent study (Chapman, et al., 2003), access to health care and community-based services is associated with aging in place. However, it is not possible to locate any research regarding the impact of providing an information hotline or directory of supportive services on older adults. Research on home- and community-based services has produced mixed results. For example, according to a recent review of the literature, research on nutrition programs tend to use convenience samples and only monitor outcomes over a short period of time, making it difficult to assess their impact (Sahyoun, Pratt, & Anderson, 2004). In-home services (e.g., home health care, case management, and homemaker services) are associated with improved physical functioning (Hadley, Rabin, Epstein, Stein, & Rimes, 2000), reduced depressive symptoms, increased life satisfaction, and a greater sense of mastery (Shapiro & Taylor, 2002). In one evaluation of adult day health care, participation was associated with a reduction in long-term care costs and perceived feelings of anxiety or depression, but there was no evidence of an effect on anxious or depressive symptoms or functional status (Baumgarten, Lebel, Laprise, Leclerc, & Quinn, 2002). While physical activity is associated with lower mortality, decreased risk for functional impairment among older adults (Simonsick, Lafferty, Phillips, Mendes de Leon, Kasl, Seeman, et al., 1993), research on the impact of fitness programs appears to be nonexistent. There is a similar gap in the literature in terms of preventive health services for elders, although one recent study found that individuals with fair or poor health are less likely to obtain needed health care (Okoro, Strine, Young, Balluz, & Mokdad, 2005).

Opportunities for Community Engagement

Between 1910 and 1999, the average age of retirement dropped from age 74 to age 63 (Burtless & Quinn, 2000), and today an individual who retires can expect to live for at least another twenty years (National Center for Health Statistics, 2006). Older adults report that their post-retirement activities, when compared with their activities during their working years, offer fewer opportunities for social interaction, are more routine, and rarely allow them to learn new things (Ross & Drentea, 1998). According to the AARP Public Policy Institute (2005b), community engagement consists of attachment to the community (e.g., social ties to the

community), informal assistance (e.g., reciprocal helping relationships with neighbors), membership in organizations (e.g., churches), formal volunteering, charitable giving, and involvement in community affairs (e.g., political participation).

Providing older adults with opportunities to engage in productive activities and remain connected to their community, however, has not historically been a high priority. Federal, state, and local policymakers, for example, have rarely addressed the need for adult education programs (Peterson & Masunaga, 1998). In the 1970s, a majority of states passed laws that allowed older adults to enroll, for free, in public colleges and universities, but many were unfunded mandates and few older adults were even aware of these programs (Manheimer, 2005). The bulk of adult learning programs today, therefore, are available in a wide range of settings, including senior centers, schools, churches, and community organizations, but are primarily offered by for-profit organizations that charge for their services (Peterson & Masunaga, 1998), which could account for the fact that only about 6% of older adults enroll in adult education programs (Manheimer, 1998). Slightly less than one quarter of adults age 65 and older engage in formal volunteering (Johnson, Cobb, Parel, Bouvier, & Fauss, 2004), and volunteerism reaches its highest level during middle age rather than post-retirement (Center for Health Communications, 2004). While older volunteers typically devote more time to volunteer activities, this age group volunteers less than every other segment of the population (Johnson, et al., 2004). Volunteer work is accorded little value by organizations, which invest limited time and resources into training and managing volunteers (Center for Health Communications, 2004). Volunteer positions are therefore often inflexible and involve simple tasks that fail to utilize the skills and experience of older adults (Center for Health Communications, 2004).

Aging-Friendly Innovations

Education programs for older adults. In the last decade of the twentieth century, an increasing proportion of older adults participated in adult education programs (Hamil-Luker & Uhlenberg, 2002), suggesting market demand for these types of community engagement programs. To compensate for cuts in funding for adult education programs at the state and federal level (Eisen, 1998), counties can supply funding for discounted or free educational programs at local community colleges, senior centers, and community-based organizations to increase participation for those who are unable to pay.

Senior centers/community centers with programs for older adults. Senior centers have received some federal funding since the Older Americans Act amendments of 1978 (Cohen-Mansfield, Parpura-Gill, Campbell-Kotler, Vass, & Rosenberg, 2005), yet many rely on local government financial support in order to adequately serve the vulnerable elderly who most require their assistance (Turner, 2004). According to a recent ethnographic study of senior centers, participants place a high priority on the opportunities for socialization afforded by senior centers (Eaton & Salari, 2005). Senior centers and community centers can also offer a wide variety of services that can help older adults remain in their homes and communities, including health and wellness programs, meals and nutrition, recreation, transportation, arts and cultural programs, and information and referral to other home- and community-based services (Turner, 2004).

Intergenerational programs. The Center for Health Communications (2004) at the Harvard School of Public Health calls for increased attention and prioritization of programs that

promote intergenerational interaction. Intergenerational programs can be part of senior center activities (Turner, 2004), adult education or co-learning programs, and volunteer or community service programs (Manheimer, 1998). Advocates of intergenerational programs believe these interactions benefit older adults by increasing feelings of belonging to the community (Manheimer, 1998), and benefit children, adolescents, and younger adults by offering a positive view of old age (Dellman-Jenkins, Fowler, Lambert, Fruit, & Richardson, 1994).

Efforts to improve volunteer/work opportunities for older adults. According to Butler, the United States needs to make two major changes to adapt to the aging of the population: extend the number of working years and improve volunteer opportunities for older adults. County governments, for example, could offer incentives to organizations to offer jobs with part-time or flexible hours (Barusch, Luptak, & Hurtado, 2009) and develop bridge jobs to help older workers transition to retirement or even begin completely new careers (Casner-Lotto, 2007). To increase participation in volunteer activities, counties could fund public awareness campaigns to provide information about options for volunteering, offer programs matching the skills of older adults with available volunteer opportunities (Smith & Gay, 2005), or supply funding to programs, such as the Experience Corps, that target elder volunteers.

Evidence of Benefits

It is difficult to assess the effects of many of these policies and programs that aim to increase the community engagement of older adults. There are no evaluations of the impact adult education programs and policies on individuals age 65 and older. The senior center literature is small and inconclusive given the lack of studies using a pre- and post-test design with a comparison group (Krout, 1996). Senior centers, however, appear to be successful in terms of serving the socially and economically vulnerable elderly, as participants have lower incomes and are more likely to live alone compared to nonparticipants (Krout, Cutler, & Coward, 1990). While those who attend senior centers have a smaller average number of ADL limitations (Krout, et al., 1990), about 15% of senior center participants have a physical, cognitive, or sensory impairment (Krout, 1996), suggesting these centers are not just serving the well elderly. Research on intergenerational interaction tends to focus on the impacts of specific programs, thereby limiting generalizability. For instance, in one formal volunteer program, older adults who interacted with individuals in younger age groups were more content than those who only interacted with other older adults (Jirovec & Hyduk, 1998). Following an intergenerational learning program, older participants were more likely to report positive attitudes about younger generations and younger adults were more likely to express a willingness to pursue a career in gerontology (Dellman-Jenkins, et al., 1994).

In contrast, many researchers have explored the impact of formal volunteering on the health and well-being of older adults. Much of this work is guided by role theory, and this research suggests that a new role identity as a formal volunteer may protect against the detrimental effects of major role-identity absences (e.g., as a partner, parent, or employee) that often accompany old age (Greenfield & Marks, 2004). Formal volunteering is associated with longer survival (Glass, Mendes de Leon, Marottoli, & Berkman, 1999; Musick, Herzog, & House, 1999; Oman, Thoresen, & McMahon, 1999), lower levels of functional impairment (Lum & Lightfoot, 2005; Mendes de Leon, Glass, & Berkman, 2003), fewer depressive symptoms (Li, 2007; Morrow-Howell, Hinterlong, Rozario, & Tang, 2003), and better self-rated health

(Hinterlong, 2006; Morrow-Howell, et al., 2003). In addition, older volunteers report a belief that volunteering has improved their lives and cite their contribution to the community as a major benefit of their work (Morrow-Howell, Hong, & Tang, 2009).

Summary

Policymakers, researchers, advocates, and older adults tend to agree on the policies, programs, and infrastructure changes that could create more aging-friendly communities. These innovations include those within the domains of community design (i.e., incentives for mixed-use development, infrastructure changes to create walkable neighborhoods), housing (i.e., accessory dwelling units, incentives for developers to guarantee units for seniors, incentives for developers to make new housing accessible, home modification assistance), transportation (i.e., driver education programs, driver assessment programs, slow-moving vehicle ordinances, alternative transportation, mobility management programs, measures to increase transit accessibility, discounted transit fares), health and supportive services (i.e., information directory, home- and community-based services, fitness programs, preventive health programs), and opportunities for community engagement (i.e., education programs, senior centers, intergenerational programs, efforts to improve volunteer and work opportunities). These aging-friendly innovations may change the physical and social environment of existing communities by potentially promoting community design that could allow older adults to remain mobile and connected to their community, creating a wide variety of housing supports and choices, developing a range of transportation services and mobility options, improving access to home- and community-based health and social services, and fostering opportunities for community engagement. While no studies have yet investigated the impact of more aging-friendly communities in a holistic way, evaluations of specific aging-friendly innovations suggest that these changes can improve the health and well-being of older adults and help them age in place.

In this study, local government employees were asked about the existence of the twenty-two aging-friendly innovations described above. This research, however, focuses not only on what local governments are doing, but also why they are doing it. As such, using an internal determinants and diffusion model framework, this study combined survey data with secondary data from the U.S. Census and the California Cities Annual Report to explore the factors associated with the adoption of these aging-friendly policies, programs, and infrastructure changes.

THEORETICAL FRAMEWORK AND HYPOTHESES

Combined Internal Determinants and Diffusion Model

A combined internal determinants and diffusion model serves as the conceptual framework for this examination of the factors that contribute to the decision to adopt aging-friendly innovations. An innovation has been defined as an idea, program, policy, or process that is new to the adopting unit (e.g., a city, county, or public transit agency) (Aiken & Alford 1970; Berry & Berry, 1999; Walker, 1969; Wolman, 1986). This idea, program, policy, or process must be adopted, rather than merely discussed, in order to be classified as an innovation (Walker, 2006). An innovation need not be a novel idea to everyone, but it must be different from the “standard operating procedure” of the government or organization (Roberts, 1992). Mixed-use neighborhoods, for example, existed across the United States until zoning laws in the nineteenth century separated industrial, commercial and residential zones in an effort to combat the spread of infectious diseases (Jackson, 2003). Enacting ordinances that permit and incentivize mixed use development as a strategy to improve the mobility of older adults and prevent chronic diseases, however, is an innovation of the late twentieth and early twenty-first centuries.

Internal determinants and diffusion models were first introduced in a 1969 article by Walker that looked at the adoption of innovative policies at the state level. In the intervening years, researchers from a wide variety of disciplines, including political science, sociology, economics, and geography, have sought to explain the adoption of innovations by a wide variety of units, including federal governments, state government, local governments, and organizations (Wolman, 1986). Diffusion models posit that governments adopt innovations because they are influenced by other governments, and early studies of policy innovation focused on how new policies spread or diffuse across a system (Gray, 1973). Policymakers often must devise solutions to problems quickly and in the context of limited resources, and therefore look to other adopting units as they chose the appropriate policy response (Colvin, 2006). Internal determinants models propose that factors within a government jurisdiction, such as social, economic, and political characteristics, determine whether the government will adopt innovative policies (Berry & Berry, 1999). Mohr (1969) proposed that internal characteristics are comprised of the obstacles to innovation, the resources available to overcome these obstacles, and the motivation to innovate within the potential adopting unit. Since the 1990s, policy innovation researchers have acknowledged the importance of examining both internal determinants and diffusion facilitators of policy innovation.

A combined internal determinants and diffusion model proposes that governments will be aware of and feel pressure to adopt policy innovations of other jurisdictions (Berry & Berry, 1999). It is the internal characteristics of the community, however, that determine if the government will actually adopt the policy innovation (Berry & Berry, 1999). This model was selected for the present study because it is the predominant theoretical framework for investigations into the process of adopting new and innovative policies. This model has been used in previous investigations of the adoption of policy agendas, rather than only one specific policy (e.g., Walker, 1969). Earlier studies looked at policy innovation at the state level, but recent investigations into the adoption of local anti-smoking policies (Shipan & Volden, 2005), technology innovations (Brudney & Selden, 1995), and gun control ordinances (Godwin & Schroedel, 2000), suggest this is an appropriate framework for local innovation as well. Finally, this model allows flexibility in terms of the specific internal characteristics influencing policy

adoption, which is appropriate for an examination of aging-friendly innovations, of which there have been few research investigations.

The second research question for this study explores the factors associated with aging-friendly policies, programs, and infrastructure changes (i.e., aging-friendly innovations). The researcher developed three hypotheses based on an internal determinants and diffusion model.

Hypothesis One: Diffusion Factors

The first hypothesis proposes that three diffusion factors will be positively associated with the adoption of aging-friendly innovations: 1) knowledge of successful outcomes associated with these innovations in other cities, 2) belief that other cities gain an advantage by adopting these innovations, and 3) public pressure from citizens to adopt aging-friendly innovations. Studies of policy diffusion have found that the likelihood of a government adopting innovations is higher when other governments have already adopted these innovative policies and programs (Daley & Garand, 2005; Walker, 1969). The typical pattern is one in which a group of pioneering governments lead the way, with other governments following suit as they observe the impact of these innovations (Walker, 1969). One earlier critique of diffusion studies is that researchers neglect to explain how this process happens (Mintrom & Vergari, 1998). Berry and Berry (1999) proposed that there are three reasons why governments would emulate the policies of other governments.

First, governments will adopt policies that are perceived as producing successful outcomes in another jurisdiction (Berry & Berry, 1999). Uncertainty regarding the potential impact of an innovative policy or program can be overcome by observing its effects in similar nearby jurisdictions (Berry & Berry, 1990). This learning is facilitated by three types of communication. First, government actors communicate with their counterparts in other jurisdictions (Walker, 1969). This can be through informal channels, or through networks organized by professional organizations (Walker, 1969). Second, professional organizations promote the exchange of information and ideas through, for example, conferences and newsletters (Walker, 1969). Finally, media coverage of innovations in other areas increase the knowledge of innovations for policymakers (Berry & Berry, 1999), an idea supported by a recent investigation into the state adoption of living-will laws (Hays & Glick, 1997).

Second, governments want to gain a competitive advantage or avoid a competitive disadvantage and therefore will adopt policies that have popular support in other jurisdictions (Berry & Berry, 1999). There is pressure on governments to not fall behind their neighbors (Dolowitz & Marsh, 1996). Local governments, for example, want to attract high-income households and successful businesses to increase their tax base, and therefore adopt policies and programs that would make their community a more desirable place to live than nearby communities (Ruhil, Teske, & Ji, 1999; Schneider & Teske, 1992). Research on the adoption of lottery, tax, and alcoholic beverage laws provides empirical support for this proposition (Hays & Glick, 1997).

Lastly, citizens pressure their government to adopt policy innovations about which they learn from media and other sources (Berry & Berry, 1999). Public advocacy may speed up the process of policy diffusion; as one jurisdiction after another adopts the innovation, public pressure could potentially intensify (Berry & Berry, 1999). When public opinion is strongly in support of an innovation that has been adopted elsewhere, there is almost no political risk to the

adoption of that innovation (Mooney & Lee, 2000). When residents are disengaged or resistant to innovation, policymakers will often maintain the status quo (Walker, 2006).

Hypothesis Two: Community Characteristics

According to the second hypothesis, five community characteristics will be positively associated with the adoption of aging-friendly policies and programs: 1) size of the population, 2) percent of the population with a high school diploma; 3) household median income; 4) percent of the population 65 and older; and 5) percent of the population with a disability.

The first three characteristics were identified in previous investigations of the internal determinants associated with innovation adoption. Larger population size is often positively related to the adoption of innovation (Walker, 1969; Wolman, 1986). Shipan and Volden (2005), for example, found that larger cities are often pioneers in terms of passing local antismoking policies. A review of the innovation literature reveals a number of studies that indicate that socioeconomic characteristics of the population, including education and income, are related to innovation (Berry & Berry, 1999; Shipan & Volden, 2005; Walker, 1969).

An accepted practice within policy innovation studies is the inclusion of internal determinants that may be uniquely associated with the particular policy under study (Berry & Berry, 1999; Grossback, Nicholson-Crotty, & Peterson, 2004). In a recent study of states gay rights laws, for example, Colvin (2006) reported that the number of same-sex household is positively associated with the adoption of this innovation. As this study examines aging-friendly innovations, the percent of the population age 65 and older was included as a community characteristic potentially associated with innovation adoption. Many of these “aging-friendly” policies and programs are actually designed for those who have a physical disability or difficulty performing everyday activities (e.g., incentives to developers to build accessible housing). This study therefore will also explore the relationship between percent of the population with a disability and the adoption of aging-friendly innovations.

Hypothesis Three: Government Characteristics

The third hypothesis posits that two government characteristics will be positively associated with the adoption of aging-friendly policies and programs: 1) higher per capita government spending and 2) the existence of policy entrepreneurs. These government characteristics, also known as factors within the adopting unit (Boyne & Gould-Williams, 2005), also fall under the heading of internal determinants.

The antismoking policy innovation study cited above found that higher per capita government spending is associated with policy innovation (Shipan & Volden, 2005). Per capita government spending may be a proxy for government fiscal health, which can positively impact innovation adoption (Berry & Berry, 1999). Gray (1973) reported that state governments that adopt policies in the areas of education, welfare, and civil rights are wealthier than their less innovative counterparts. Local governments that are in poor fiscal health may be more conservative than innovative, particularly in terms of innovations that require a commitment of financial resources (Wolman, 1986).

Policy entrepreneurs are individuals who promote and advocate for policy innovations (Mintrom & Vergari, 1998). Local government policy entrepreneurs can work within government (e.g., high level city employees or elected officials) or try to affect change outside of

government (e.g., community organizers, leaders of interest groups) (Schneider & Teske, 1992). Key to the success of policy entrepreneurs, however, is their use of social networks and their ability to build a political coalition (Mintrom, 1997). These individuals have been described as individuals who bring about policy change through their own persistence, expertise, and skill (Weissert, 1991). While research on policy entrepreneurs is still in the early stages, empirical evidence suggests that their impact may be seen more clearly in terms of increasing awareness and motivating considerations of their innovative ideas, rather than on the actual adoption of policies and programs (Mintrom, 1997).

METHODS

Design

This study used a sequential explanatory mixed methods design approach, combining both quantitative and qualitative data to answer the research questions. In a sequential explanatory design, a larger quantitative study is followed by a smaller qualitative study, with the researcher giving greater consideration to the first phase (Creswell & Plano Clark, 2007). The quantitative data offer a general understanding of the research topic, while the qualitative data provide a more in-depth understanding and explain the statistical findings (Ivankova, Creswell, & Stick, 2006). In the first phase of this study, quantitative data obtained from local government respondents via online surveys was combined with secondary data from the U.S. Census and the California Cities Annual Report for bivariate and multivariate analyses. In the second phase, the researcher conducted open-ended interviews with a subsample of survey participants. The open-ended interviews served two purposes: 1) to expand upon the quantitative findings, uncovering aspects of the process of aging-friendly innovation adoption and implementation that were not captured in the quantitative phase, and 2) to refine the survey instruments for future research.

Since the 1990s, mixed methods research has been increasingly recognized as a legitimate form of research. Mixed methods adherents believe the combining of quantitative and qualitative methods allows the researcher to gain a better understanding of the phenomenon under study than using these methods alone (Creswell & Plano Clark, 2007). The decision to employ mixed methods in this study is based on the four different rationales for conducting mixed methods studies that have been identified in the mixed methods literature, including complementarity, development, initiation, and expansion (Hanson, Plano Clark, Petska, Creswell, & Creswell, 2005). The most common rationale for combining quantitative and qualitative methods is complementarity: the results from one method can explain or elaborate on results from another (Hanson et al., 2005). The idea is that the respective strengths of quantitative and qualitative methods complement one another, providing a more comprehensive understanding of the research problem (Creswell & Plano Clark, 2007). For example, quantitative methods provide information about the general, while qualitative methods help the researcher understand the specific (Greene & Caracelli, 1997). Ideally, the results of a mixed methods research study will be both an accurate description of the individuals being studied as well as generalizable to other people, places, and times; help the researcher understand both the typical and outlier cases; and isolate significant variables while also integrating this information into the whole (Green & Caracelli, 1997). As this is the first study to examine the factors that influence the adoption of aging-friendly policies and programs, the researcher determined that quotations and descriptions from qualitative interviews would provide a more in-depth understanding of this topic.

The other three justifications for the combining of methods, including development, initiation, and expansion, were also incorporated into this study. The results from one method can often help develop the other method (Hanson et al., 2005); in this study, the quantitative results influenced the development of the qualitative interview guide, while qualitative results will influence the refinement of survey instruments in future research. Initiation occurs when the results from one method are recast in light of results from the other method (Hanson et al., 2005). As described in the Discussion chapter, qualitative analysis provided some clues as to why the quantitative analysis did not support all of the hypotheses. Finally, the use of multiple methods

allows the researcher to expand the scope of inquiry (Hanson et al., 2005), using different research methods for different research participants, settings, or research questions. Qualitative interviews allowed the researcher to ask questions that would be difficult to include in the online survey, including questions about barriers to aging-friendly innovation and the process, from idea conception to policy implementation, of putting aging-friendly innovations in place.

This chapter will present the methods of each phase sequentially, describing the sample, data collection procedures, measures and analysis of the quantitative phase followed by the sample, data collection procedures, and analysis of the qualitative phase.

Phase One: Quantitative Methods

Sample

This study used a 100% sample of the 101 cities, 9 county adult and aging services departments, 9 county transportation authorities, and 18 public transportation agencies located in the San Francisco Bay Area. There are several reasons why this research focused on local governments in the San Francisco Bay Area. First, policy researchers have previously noted the advantages of selecting the state of California to investigate local policy innovations, including its large population, the diversity of its local governments, and its track record as a state particularly receptive to innovative policies (Godwin & Schroedel, 2000). In addition, recent projections that this region will be the oldest in the state by the year 2040, with 41 older adults per 100 working-age adults (California Department of Aging, 2004) suggest that innovative policies and programs that can improve the health and well-being of older residents and help them age in place may be particularly important in the Bay Area.

Since the key components of an aging-friendly community are determined by policies, programs and infrastructure changes at different levels of government, it is necessary to collect data from multiple sources. Based on conversations with local government experts, the researcher selected these four groups as the most likely to possess the knowledge necessary to understand local government adoption of aging-friendly innovations. In the state of California, city governments have jurisdiction over the use of land and very rarely offer any health or human services to their residents (Feldstein, 2007). Cities therefore can adopt aging-friendly policies and programs that fall under the domains of community design, housing, and transportation. Departments or divisions of adult and aging services offer programs that, to quote the mission of one Bay Area county, “promote the quality of life and independence of disabled and older adults” (County of Marin Division of Aging and Adult Services, 2010). These services typically include adult protective services (APS) (which is responsible for investigating allegations of elder mistreatment and arranging for necessary intervention services for older adults living in the community), the long-term care ombudsmen program (which is responsible for investigating allegations of elder mistreatment for older adults living in institutions), In-Home Supportive Services (IHSS) (personal and home care services for community-dwelling low-income individuals), and information and referral to community-based programs. In terms of aging-friendly innovations, county departments of adult and aging services may provide a variety of programs within the areas of transportation, health and supportive services, and opportunities for community engagement. All nine Bay Area counties have a transportation authority, an entity created by county-specific voter-approved half-cent sales taxes dedicated to transportation projects and programs. A county transportation authority engages in planning and allocates

funding for public transit, infrastructure maintenance and other transportation services. Public transportation agencies do not have taxing authority of their own, but receive funding through a combination of passenger fares and local, regional, state, and federal governments. Both of these groups could adopt policies and programs within the domain of transportation.

A total of 62 out of 101 (61.4%) of city planners/community development directors returned completed surveys. All 9 directors of county adult and aging services departments completed the survey. For transportation respondents, 5 of 9 (55.5%) of county transportation authority employees and 8 of 18 (44%) public transit agency employees filled out their respective surveys.

Table 1 compares the characteristics of city survey respondents to the total sample, the state of California, and the United States as a whole. There were only slight differences between nonrespondents and cities that participated. For example, most of the major cities in the area participated, resulting in a higher mean total population. Compared to nonrespondents, respondent cities also had a slightly higher median household income, percentage of the population age 65 and older, and per capita government spending. Compared to the state of California and the U.S. population, cities in the Bay Area have a higher percent of the population with a high school diploma, higher per capita income, and a higher percent of the population age 65 and older. These cities on average also have a lower percent of the population with a disability.

Table 1: Comparison of City Sample of Community Characteristics

Variable	Respondents (n=62)	Nonrespondents (n=39)	Total Sample (n=101)	CA	US
Total population					
Min	2125	1191	1191		
Max	776733	894943	894943		
Median	30029	25619	28803		
Mean (sd)	59797 (110791.2)	60533 (141419.7)	60082 (122831)		
Percentage with a high school diploma					
Min	48.2	70.1	48.2		
Max	98.8	98.7	98.8		
Median	89	88.4	88.4		
Mean (sd)	87.6 (9.4)	87.7 (7.8)	87.7 (8.8)	76.8	80.4
Median household income					
Min					
Max	37184	42309	37184		
Median	200001	173570	200001		
Mean (sd)	67489	64004	66748		
	79001 (35695)	72632 (28728)	76478 (33108)	47493	41994
Percentage age 65 and older					
Min	5.1	4.6	4.6		
Max	45.1	24.2	45.1		
Median	11.1	12.3	11.3		
Mean (sd)	13 (6.1)	12.6 (4.6)	12.8 (5.6)	10.6	12.4

Percentage with a disability					
Min	8.5	9.7	8.5		
Max	25.5	22.9	25.5		
Median	15.1	15.4	15.4		
Mean (sd)	15.7 (4.3)	15.71 (3.7)	15.7 (4.1)	19.2	19.3
Per capita govt spending					
Min					
Max	294	256	256		
Median	6550	5877	6550		
Mean (sd)	1013 1379 (1147.1)	1020 1294 (901.9)	1018.2 1346 (1055)		

Procedures/Data Collection Techniques

In the first phase, the researcher collected primary data via online surveys. Previous research shows one can achieve similar response rates for email surveys compared to mail surveys (Schaefer & Dillman, 1998). Email surveys may even offer certain advantages, including more complete answers to open-ended questions, fewer skipped questions, and a faster turnaround for responses (Schaefer & Dillman, 1998).

The researcher developed the surveys based on a review of the literature and personal communications with experts in local government (e.g., city managers, transportation planners, city planning educators, and public health advocates). Prior to data collection, the researcher piloted the online surveys by sending them to key informants in the state of California outside of the sample area. The pilot surveys requested feedback from the participants regarding the time required to complete the instrument, clarity or confusion regarding specific questions, and the relevancy of the questions to their cities, county departments of adult and aging services, transportation authorities, and public transportation agencies. Eight local government employees completed a pretest of the online surveys. Minor modifications were made to the surveys based on their feedback, including additional clarification of concepts and offering the option of selecting “don’t know” for each question.

Survey data collection took place between March and August of 2009. Following the refinement of the surveys, an invitation to participate in the online survey was emailed to the directors of the planning/community development department (depending on the department responsible for planning) in all 101 cities, the directors of adult and aging services in the 9 counties, employees in the 9 county transportation authorities, and employees of the 18 public transit providers. Copies of the online surveys are included in Appendix A. The online surveys asked about policies and programs within the domains of community design, housing, transportation, health and supportive services, and opportunities for community engagement. Individuals were asked about policies and programs within their areas of expertise, some of which overlapped. Table 2 presents a list of the 22 aging-friendly policies and programs and the source of information.

Table 2: Aging-Friendly Innovations and Source of Information

Aging-Friendly Innovation	Examples of Aging-Friendly Innovation	Source of Information
Community Design		
Incentives to encourage mixed-use neighborhoods	Parking waivers Fast-track permitting Subsidization of infrastructure for project Local tax subsidies Waiver of permit fees	City planner/community development director
Changes in infrastructure to improve walkability	New pedestrian pathways Improved street lighting Wider sidewalks Traffic calming measures	City planner/community development director
Housing		
Second-unit ordinance to encourage in-law units, accessory apartments, granny flats	Attached unit Detached unit	City planner/community development director
Incentives to encourage developers to guarantee more units for seniors than required by state law	Local tax subsidies Fast-track permitting Subsidization of infrastructure Waiver of permit fees Density bonus	City planner/community development director
Incentives to make housing Accessible	Grants Loans Tax credits	City planner/community development director
Home modification assistance	Grants Loans Tax credits	City planner/community development director
Transportation and Mobility		
Education programs for older drivers		City planner/community development director and County aging services
Assessment programs for older drivers		City planner/community development director and County aging services
Changes in infrastructure to improve driver safety	Simplified intersections More visible road markings More visible street signs Added left hand turn lanes	City planner/community development director
Alternative transportation	Shuttle services to medical appointments	City planner/community

for those who cannot use public transit	Shuttle service to senior centers, shopping Paratransit Taxi subsidies/scrip	development director and County transportation authority
Slower-moving vehicle ordinance		City planner/community development director
Volunteer driver/mobility management programs		County aging services
Changes to improve accessibility of public transit	Frequent services Large-print schedules and maps Driver sensitivity training Low-floor buses Bus/train stop amenities	County transportation authority and Public transit
Discounted public transit	Free fares during off-peak More than 50% discount during off-peak Free fares at all times Discounted fares at all times	County transportation authority and Public transit

Support and Health Services

Local information directory	Online directory Telephone directory Printed directory	County aging services
Home- and community-based services	Home-delivered/congregate meals Medication management Home health aides Homemaker services Legal services Dementia day health Adult day health Care management Volunteer senior companion	County aging services
Fitness programs for older adults		County aging services
Preventive health programs	Free-discounted check ups Immunizations	County aging services

Community Engagement

Education programs	Continuing education at senior centers Discount at community colleges	County aging services
Senior centers/community centers		County aging services
Intergenerational programs		County aging services
Efforts to increase/improve volunteer opportunities	Programs to match skills of older adults with needs of organizations Funding for volunteer programs for older adults Employment placement program	County aging services

The researcher undertook a number of strategies to increase response rates. First, prior to emailing the survey, the researcher contacted the Northern California Chapter of the American Planning Association (APA), a professional association, and the Association of Bay Area Governments (ABAG), the regional planning and services agency for the San Francisco Bay Area. Both agreed to support the project by displaying a brief description of the project on their websites and in their monthly newsletters. Second, following the advice of Schaefer and Dillman (1998), email requests to participate in the survey were personalized, addressed to a specific individual within local government. The researcher emailed a letter of introduction and link to the online survey to individuals identified on the city, county, and public transit websites. In a small number of cases in which the website did not list a name or email address, the researcher called to obtain contact information. Third, since response rates can also be increased by multiple contacts (Schaefer & Dillman, 1998), those who did not respond received one telephone follow-up and five email reminders. In cases of nonresponse, whenever possible the researcher emailed a letter of introduction and a link to the online survey to a second key informant. For example, many cities employ more than one city planner. Fourth, participants were given two options to complete the survey: 1) through a link that took them to an online survey on Survey Monkey and 2) by downloading and completing the survey as a Word document. Finally, the researcher offered to provide a summary report of findings to everyone who participated.

Secondary data collection consisted of data from the 2000 U.S. Census and the 2000-2001 California Cities Annual Report. Secondary data provided information on community characteristics (i.e., total population, population educational attainment, median household income, percent of population over 65, and percentage of population with a disability) and per capita government spending.

Measures

Research Question One: Adoption of Aging-Friendly Innovations

For the first research question, the outcome variables of interest are each of the 22 aging-friendly policies and programs listed in Table 1 above.

Research Question Two: Factors Associated with the Adoption of Aging-Friendly Innovations

Dependent variables. Due to sample size requirements, the second research question only used data collected from the cities, and therefore focused on the 11 policies and programs that fall within city level domains of community design, housing, and transportation. These include:

1. Incentives to encourage mixed-use neighborhoods
2. Changes in infrastructure to improve walkability
3. Accessory dwelling unit ordinance
4. Incentives to encourage unites for seniors
5. Incentives to make housing accessible
6. Home modification assistance
7. Education programs for older drivers
8. Assessment programs for older drivers
9. Changes in infrastructure to improve driver safety

10. Senior transportation
11. Slower-moving vehicle ordinance

The researcher employed exploratory factor analysis to determine if the various policies, programs, and changes in infrastructure are measuring one construct (i.e., aging-friendliness). Factor analysis is a procedure for analyzing the correlations among variables to find the underlying constructs that explain the patterns of a correlation matrix, leading to a smaller set of factors that explain the largest amount of variance in the bivariate correlations (Foster, Barkus, & Yavorksy, 2006). Exploratory factor analysis (EFA) examines the underlying structure of a set of variables without any a priori assumptions; any variable may be associated with any factor.

The researcher conducted EFA using tetrachoric correlations coefficients, which measure the association among dichotomous variables. These coefficients are based on the assumption that respondents will answer “yes” rather than “no” when they cross a threshold on an underlying latent continuous distribution (Cassano, Benvenuti, Miniati, Calugi, Mula, Maggi, Rucci, Fagiolini, Perris, & Frank, 2009). In EFA, the variance in the tetrachoric correlation matrix is condensed into eigenvalues, and only those factors with eigenvalues over 1.00 should be retained in the analyses (Tabachnick & Fidell, 1996). The matrix of tetrachoric correlations was then rotated orthogonally using the varimax method, which maximizes the variance of factor loadings and presents the correlations between factors and variables (Tabachnick & Fidell, 1996). Based on the traditional cutoff employed by researchers (e.g., Cassano, et al., 2009), the researcher planned to examine variables with a factor loading of .40 or higher and explore if there was a meaningful concept that unified them together.

Due to the nature of the data, including small sample size and several policies that almost all or almost no city governments had enacted, it was not possible to determine whether underlying processes have created correlations among variables. EFA with the 11 city-level aging-friendly innovations resulted in a Heywood case, where at least one factor loading exceeds 1.0, indicating that at least one variable is explained perfectly by the latent variables (Mislevy, 1986). A Heywood case may be caused by fitting a model with too many factors, too few factors, small sample size (Mislevy, 1986), or multicollinearity. The researcher removed accessory dwelling unit ordinance, as all respondents reported that their city offers this aging-friendly innovation. In addition, the researcher removed three rare aging-friendly innovations that the same group of cities enacted: education programs for older drivers, assessment programs for older drivers, and slower-moving vehicle ordinance. Exploratory factor analysis with seven aging-friendly innovations suggested that two factors summarize the variance of the variables. Closer examination, however, revealed that the first factor was driven primarily by two cities that had not enacted any of the aging-friendly innovations that comprised the factor. In addition, statisticians generally recommend at least 300 cases for factor analysis (Tabachnick & Fidell, 1996), a threshold much higher than the 62 cities included in this analysis.

The outcome variable for the second research question is therefore an ordered categorical variable with each city designated as low (0-4 aging-friendly innovations, or less than half), medium (5 or 6 aging-friendly innovations, or about half), and high (7-11 aging-friendly innovations, or more than half).

Explanatory variables. The explanatory variables were selected based on an internal determinants and diffusion model, a theoretical framework frequently employed in the policy innovation literature. These variables include diffusion factors, community characteristics, and organizational characteristics.

The regional diffusion model proposes that local governments are more likely to adopt policies and programs that have been adopted by other local governments located in close proximity (Berry & Berry, 1999). Based on this model, it is hypothesized that three diffusion factors will be positively associated with the adoption of aging-friendly innovations. The online survey included questions that asked about the following diffusion factors: 1) Knowledge of successful outcomes or benefits associated with these types of policies in other cities, 2) Belief that other cities gain an advantage by adopting these types of policies, and 3) Public pressure from citizens to adopt these types of policies.

Data on community characteristics were obtained from the 2000 U.S. Census. Based on prior policy innovation studies at the local level (e.g., Shipan & Volden, 2005), the community characteristics hypothesized to be positively associated with innovative policies include: 1) City total population, 2) Percent of city population with a high school diploma, and 3) City household median income. Previous research on policy innovation has also included community characteristics hypothesized to be uniquely associated with the specific policies in question. This study therefore also includes the following community characteristics: 4) Percent of city population age 65 and older and 5) Percent of city population with a disability.

Organizational characteristics also have an impact on policy innovation (Boyne & Gould-Williams, 2005), and include: 1) Per capita city government spending and 2) Existence of a policy entrepreneur. Data on per capita city government spending came from the 2000-2001 Cities Annual Report compiled by the California State Controller. The online survey asked respondents about the existence of a policy entrepreneur, defined as an individual within government who has been advocating for these aging-friendly innovations.

Since collinearity can affect the reliability of estimates in a logistic regression model, the researcher assessed the degree of collinearity among the explanatory variables. Multicollinearity, which involves combinations of more than two variables, can cause very large odds ratios and standard errors. Two commonly used measures of multicollinearity are tolerance, an indicator of how much collinearity a regression analysis can tolerate, and variance inflation factor (VIF), an indicator of how much of the inflation of the standard error could be caused by collinearity. Tolerance values that are very small and VIF values above 10 are indicators of collinearity (Ender, n.d.). None of the tolerance values were below .10 and none of the VIF values were about 10, suggesting that multicollinearity is not a concern with this data.

Analysis

All data analysis was conducted using Stata Statistical Software: Release 11 (StataCorp, 2009).

Research Question One: Adoption of Aging-Friendly Innovations

Data analysis for the first research question consisted of calculating the frequency for each binary response from city planners, county aging services directors, county transportation planners, and employees of public transit providers.

Research Question Two: Factors Associated with the Adoption of Aging-Friendly Innovations

Data analysis for the second research question included only data from city planners/community development directors. Bivariate associations between the 11 aging-friendly policies and programs and the 11 explanatory variables from the internal determinants and diffusion model were examined using Fisher's Exact Test, a test of significance for small samples. Fisher's exact test examines the probability of getting a 2 X 2 table as strong or stronger as the observed due to the chance of sampling. Bivariate associations between the three categories of aging-friendliness (low, medium, and high) and the explanatory variables from the internal determinants and diffusion model were then explored also using Fisher's exact test.

Each of the 11 explanatory variables were included in the final ordered logistic regression model, since they derive directly from the theoretical framework and in some cases variables not significant at the bivariate level are significant in a multivariate model. Since the outcome variable has more than 2 categories, data were analyzed using ordered logistic regression. The proportional-odds ordered logit model gives a single equation and a single odds ratio for each explanatory variable. One limitation of ordered logistic regression is that it assumes that all of the odds ratios in a series of comparisons are the same, also known as the assumption of parallel regression. The researcher used the omodel test and the Brant test (as outlined by the UCLA Academic Technology Services, n.d.) to test this assumption.

Assumption Checking

There are three assumptions for logistic regression. First, logistic regression techniques assume independent sampling. This cross-sectional study used a 100% sample, sending surveys to city planners/community development directors in all 101 cities in the San Francisco Bay Area. This study did not employ cluster sampling, matched pairs, or any other design that produces non-independent data. With a response rate of close to 62%, the researcher believes the assumption of independent sampling is satisfied.

The second assumption is adequate cell sizes for the chi-square tests and z distribution for the confidence intervals on the log odds scale. The researcher tested this assumption for logistic regression on specific aging-friendly innovations (e.g., a logistic regression model for incentives for mixed use neighborhoods), logistic regression comparing one level of aging-friendliness to another (e.g., low vs. high aging-friendliness, excluding medium) and ordered logistic regression that includes all three levels of aging-friendliness. Crosstabs of each categorical variable with the outcome variable were created to see if any cells were empty or extremely small. The results of these crosstabs suggest that this assumption has been violated, as there are number of cells that contain less than 5 observations, including some cases in which cells are empty. Extremely wide confidence intervals can also indicate there are problems with cell sizes, and as discussed below there are considerably wide confidence intervals in each logistic regression model and the ordered logistic regression model.

The third and final assumption for logistic regression is concern about functional form if any of the explanatory variables are continuous. The researcher tested this assumption by creating three categories for each of the continuous variables by dividing them into thirds. The researcher then estimated the log odds of enacting a specific aging-friendly innovation for each of the recoded continuous explanatory variables. Similarly, the researcher estimated the log odds of each category of aging-friendliness (low, medium, and high) for each of the recoded

continuous explanatory variables. In all cases, the log odds are not linear for the three categories for each of the recoded continuous variables. It appears that the assumption that there is a linear relation between each variable and the outcome of interest has been violated.

The researcher therefore recoded the continuous variables into categorical variables. In the case of city total population, federal agencies (e.g., the U.S. Census Bureau, Office of Management and Budget) as well as professional organizations (e.g., National League of Cities) frequently use a population of 50,000 to demarcate small cities and metropolitan areas. The other continuous variables were categorized into three groups of approximately equal size and designated as low, medium, and high. The researcher decided not to use median splits, as this might lead to a greater loss of information (Altman & Bland, 1994). Table 3 compares the original continuous variables to the recoded categorical variables.

Table 3: Recoded Continuous Variables

Variable Name	Continuous Variable Range	Recoded Categorical Variable Values
City Size	2125 – 776733	Low: < 50,000 High: >= 50,000
% High School Graduates	48.2 – 98.8	Low: < 84.696 Medium: 84.696 to < 94.076 High: >= 94.076
Household Median Income	37184 – 200001	Low: <60990.93 Medium: 60990.93 to < 83566.62 High: >= 83566.62
% Population 65+	5.1 – 45.1	Low: < 9.898 Medium: 9.898 to < 14.365 High: >= 14.365
% Population with a Disability	8.5 – 25.5	Low: < 14.2 Medium: 14.2 to < 17.595 High: >= 17.595
Per Capita Government Spending	294 – 6550	Low: < 806.88 Medium: 806.88 to < 1328.57 High: >= 1328.57

Phase Two: Qualitative Methods

Sample

At the end of the online survey, all respondents were asked if they were interested in participating in a telephone interview. Of the eighty-four survey respondents, forty-four, including 27 city planners/community development directors, 8 county aging services directors/managers, 3 county transportation authority employees, and 4 public transit employees indicated they were willing to answer additional questions during a telephone interview. When contacted by the researcher, 18 local government key informants agreed to complete a telephone interview, including 10 city planners/community development directors, 4 aging services directors/managers, 1 transportation authority employee, and 3 public transit employees.

Interview participants were from cities, counties, and transit districts from all nine Bay Area counties and represented urban, suburban, and rural jurisdictions. Table 4 displays selected characteristics of the 18 local government entities included in the qualitative phase of this study.

Table 4: Characteristics of Interview Sample

	Minimum	Maximum	Median	Mean (sd)
Total Population	2125	1682585	155471	401604 (517780)
Percentage age 25+ with at least high school diploma	70.8	98.8	85.4	85.9 (6.7)
Median household income	38454	130796	61464	63826 (20872)
Percentage age 65+	5.7	27.1	12.6	13.1 (5)
Percentage with a disability	10.9	23.2	17.3	17.6 (3.3)
Percent of AFC Innovations	36.4	100	63.6	68 (21.4)

Procedures/Data Collection Techniques

In the second phase, the researcher conducted open-ended telephone interviews with a subsample of study participants. Qualitative research has been recommended for particular types of research, including studies that explore processes (e.g., the process of policy adoption) and investigations of innovative or little-known areas of inquiry (e.g., factors influencing the adoption of aging-friendly innovations) (Marshall & Rossman, 2006). The interviews served two purposes. First, they were intended to expand upon the quantitative findings, not only in terms of explaining puzzling results but also in terms of suggesting alternative factors that have not been explored in previous internal determinants and diffusion studies. Second, they could help the researcher refine online survey instruments for future research. The telephone interviews gave the researcher an opportunity to gather feedback about the online survey, discover other aging-friendly innovations not included in this study, and learn about other types of local government employees who should be invited to participate in future studies.

Interview data collection took place between October and December of 2009. The researcher conducted and transcribed all 18 telephone interviews. In three cases, the interviewees objected to being tape recorded but consented to the researcher taking notes during the interview. The interview guide was developed after the researcher analyzed all survey data and is attached

in Appendix B. The interview began by clarifying survey responses and asking for more details regarding the aging-friendly innovations that have been adopted by the local government. To explore factors influencing the adoption of aging-friendly innovations, the interviewer asked questions about the decision process involved in enacting these policies and programs, including how the idea developed and barriers to adoption and implementation. To understand the potential benefits of aging-friendly innovation, the interviewer asked about the positive and negative impacts of these policies and programs. To identify other aging-friendly innovations to include in future research, the interviewer asked about other policies and programs that have been adopted and/or considered. Finally, the interviewer asked participants to describe the roles and responsibilities of various actors (i.e., local, state, and federal governments, nonprofit organizations, and private businesses) in terms of making communities more aging friendly.

Data Analysis

Following the recommendation of Miles and Huberman (1984), qualitative data analysis consisted of three concurrent activities: data reduction, data display, and conclusion drawing/verification.

Data reduction is the process of selecting and transforming transcription data (Miles & Huberman, 1984). Qualitative data analysis was guided by three sources: 1) the policy innovation literature and the internal determinants and diffusion model theoretical framework; 2) the burgeoning aging-friendly community literature; and 3) survey data analysis. Analysis of interview data, however, was also inductive in nature, with data reduction starting at the basic level of line-by-line coding (Padgett, 1998). Following the first review of all interview transcripts, the researcher developed initial codes, which were refined or discarded after multiple iterations through the qualitative data. The researcher continued to refine codes and review the data until the point of saturation, when no new information emerged from the interview texts (Padgett, 1998).

Data display involves assembling the data into an organized format that can facilitate conclusion drawing (Miles & Huberman, 1984). The researcher created matrices for each code, incorporating data from the online surveys, including community characteristics (e.g., percent of the population 65 and older) and the specific aging-friendly innovations adopted by the local government of each interview participant.

This visual display of the data allowed the researcher to further refine codes, establish a set of themes expressed by multiple interview participants, and draw conclusions about the data. Verification involves testing these conclusions and meanings for their plausibility (Miles & Huberman, 1984). In this study, the researcher verified conclusions by a final review of the interview transcripts, a procedure that has been used by other qualitative researchers to determine the validity of qualitative data analysis (Miles & Huberman, 1984).

Human Subjects

This study was classified as exempt by the University of California, Berkeley Committee for the Protection of Human Subjects (Protocol # 2008-6-8). Efforts were still made, however, to protect the confidentiality of all respondents. All data collected were entered and stored on a password-protected computer, and all hard copies of surveys, observation notes, and interview transcripts were kept in a locked office in a locked filing cabinet. Respondents were given a

numerical identifier. Any information linking numerical identifiers to community and participant names was kept separate from the data.

PHASE ONE: QUANTITATIVE RESULTS

Local Government Adoption of Aging-Friendly Innovations

The following five tables present the extent to which local governments have adopted aging-friendly innovations, with each table showing results for one of the five domains of aging-friendly policies and programs.

Table 5: Local Government Adoption of Community Design Innovations

Community Design Innovation	Cities (n=62) Freq (%)
Any incentives for mixed-use	42 (67.7)
Parking waivers/reductions	33 (53.2)
Subsidization or provision of infrastructure for the project	10 (16.1)
Fast-track permitting	9 (14.5)
Increase densities	7 (11.3)
Waiver/reduction of permit fees	6 (9.7)
Local tax subsidies	1 (1.6)
Other	12 (19.3)
Any changes in infrastructure to improve walkability	55 (88.7)
Sidewalk repair	45 (72.6)
New pedestrian pathways	39 (62.9)
Traffic calming measures	36 (58.1)
Improved street lighting	32 (51.6)
Wider sidewalks	27 (43.5)
Other	10 (16.1)

About two-thirds of cities offer incentives for mixed-use neighborhoods, and the most common type of incentive is by waiving or reducing requirements in terms of the number of parking spaces available for a mixed-use building. A majority have also tried to make their cities more walkable, frequently by repairing sidewalks, constructing new sidewalks or walking paths, and implementing traffic calming measures, such as raised crosswalks.

Table 6: Local Government Adoption of Housing Innovations

Housing Innovation	Cities (n=62) Freq (%)
Accessory dwelling unit/second unit ordinance	62 (100)
Detached unit permitted	57 (91.9)
Incentives for developers who guarantee 50% or more units for seniors	30 (48.4)
Increased densities	27 (43.5)
Fast-track permitting	5 (8.1)
Subsidization or provision of infrastructure for the project	5 (8.1)
Waiver of permit fees	3 (4.8)
Local tax subsidies	1 (1.6)
Other	5 (8.1)
Any incentives to developers to make new housing accessible	24 (38.7)
Loans	15 (24.2)
Grants	8 (12.9)
Tax credits	4 (6.5)

Other	8 (12.9)
Any assistance to homeowners to modify existing homes	33 (53.2)
Loans	23 (37.1)
Grants	18 (29)
Tax credits	1 (1.6)
Other	9 (14.5)

As shown in Table 6, an accessory dwelling unit ordinance is the most common housing innovation as it has been adopted by every city that participated in this survey. A majority of cities also provide home modification assistance, often in the forms of loans. Almost half of the cities encourage developers to designate units for seniors, most commonly by allowing the developer to build more units than typically permitted. The least common housing innovation is any efforts to increase the availability of new accessible housing.

Table 7: Local Government Adoption of Transportation/Mobility Innovations

Transportation/Mobility Innovation	Cities (n=62) Freq (%)	County Aging (n=9) Freq (%)	County Trans (n=5) Freq (%)	Public Transit (n=8) Freq (%)
Educational programs for older drivers	5 (8.1)	4 (44.4)		
Assessment programs for older drivers	1 (1.6)	2 (22.2)		
Allows slower-moving vehicles on public right-of-ways	8 (12.9)			
Any changes in infrastructure to improve older driver safety	37 (59.7)			
More visible road markings	29 (46.8)			
More visible street signs	23 (37.1)			
Added left turn lanes	17 (27.4)			
Simplified intersections	14 (22.6)			
Other	7 (11.3)			
Any alternative transportation services for those who cannot use public transportation	36 (58.1)		4 (80)	
Paratransit services above those required by ADA	23 (37.1)		3 (60)	
Shuttle service to senior centers, shopping	22 (35.5)		2 (40)	
Shuttle service to medical appointments	11 (17.7)		1 (20)	
Taxi subsidies/scrip	4 (6.5)		3 (60)	
Other	4 (6.5)		3 (60)	
Mobility management/coordination of volunteer drivers		4 (44.4)		
Any measures to increase transit accessibility			5 (100)	8 (100)
Low-floor buses			5 (100)	6 (75)
Bus/train stop amenities			5 (100)	6 (75)
Driver sensitivity training			4 (80)	7 (87.5)
Frequent service			4 (80)	4 (50)
Large-print schedules and maps			4 (80)	2 (25)
Travel training			1 (20)	1 (12.5)
Any discounted fares beyond those required by ADA			3 (60)	7 (87.5)
Discounted fares at all times			3 (60)	7 (87.5)

Transportation policies and programs represent some of the most and least common of all aging-friendly innovations in this sample. County transportation authorities and public transit agencies are all attempting to increase the accessibility of public transportation vehicles,

particularly by purchasing low-floor buses, improving bus and train stop amenities (e.g., benches), and training their drivers to work with individuals with disabilities. A majority is also helping older adults use public transportation by offering discounted fares twenty-four hours a day. Many cities and counties provide alternative transportation, such as paratransit and shuttle services. Although almost 60% of cities have made infrastructure changes that may help older adults continue to operate their own vehicles, only a small number allow slower moving vehicles to operate on roadways, and few cities and counties conduct driver education and driver assessment programs.

Table 8: Local Government Adoption of Health and Supportive Services Innovations

Health/Supportive Services Innovation	County Aging (n=9) Freq (%)
Information hotline or directory	9 (100)
Telephone hotline	8 (88.9)
Online directory	6 (66.7)
Printed directory	4 (44.4)
Other (walk in for face to face)	1 (11.1)
Any home and community-based services beyond those funded by the Older Americans Act	9 (100)
Home delivered or congregate meals	7 (77.8)
Care management	7 (77.8)
Legal services	6 (66.7)
Dementia day health	5 (55.6)
Medication management/assistance	4 (44.4)
Adult day health	4 (44.4)
Volunteer senior companion	4 (44.4)
Home health aides	3 (33.3)
Homemaker services	3 (33.3)
Mental health	2 (22.2)
Other	2 (22.2)
Fitness programs for older adults	4 (44.4)
Fitness component to fall prevention/injury prevention program	3 (33.3)
Preventive health programs	5 (55.6)
Immunizations	4 (44.4)
Free/discounted checkups in community clinics	3 (33.3)
Other	1 (11.1)

Table 8 shows the health and supportive services that counties have put in place. All county aging services provide an information hotline and some home- and community-based services, and the majority offer nutrition programs, care management, legal services, and adult day health care for individuals diagnosed with dementia. Preventive health programs are less common, and less than half of respondents indicated that they provide fitness and exercise classes targeted towards older adults.

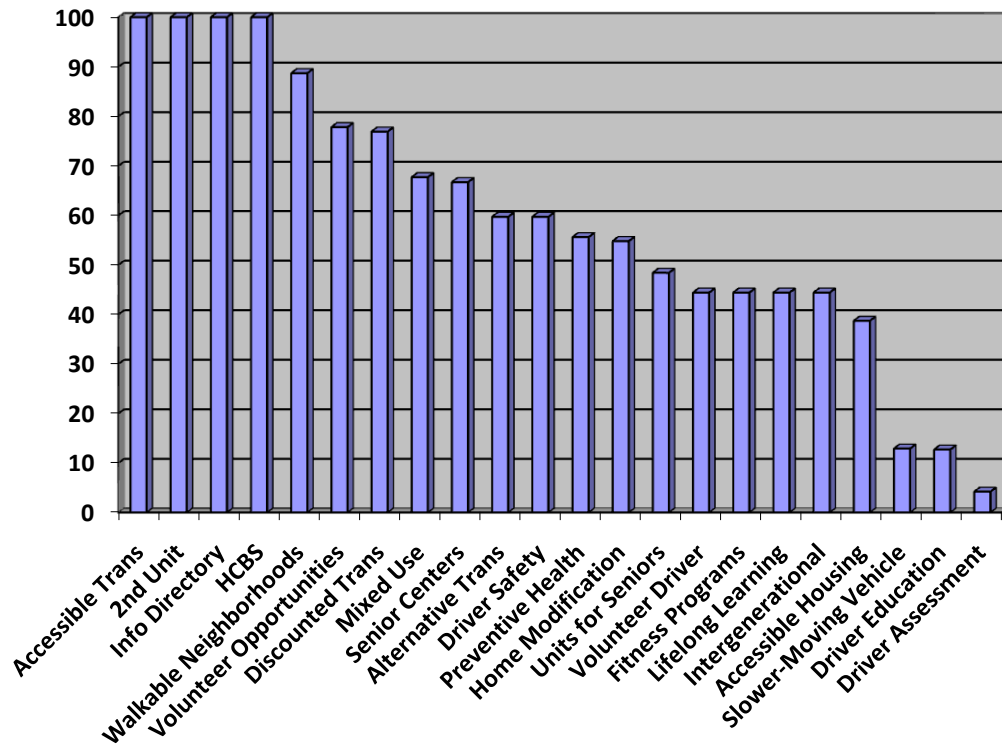
Table 9: Local Government Adoption of Community Engagement Innovations

Community Engagement Innovations	County Aging (n=9) Freq (%)
Education programs for older adults	4 (44.4)
Continuing education in senior/community centers	4 (44.4)
Discount at community colleges	1 (11.1)
Senior centers/community centers with programs for older adults	6 (66.7)
Intergenerational programs	4 (44.4)
Efforts to improve volunteer opportunities for older adults	7 (77.8)
Programs to match skills of older adults and needs of organizations	3 (33.3)
Funding for volunteer programs geared towards older adults	2 (22.2)
Employment placement program for older adults	1 (11.1)
Other	2 (22.2)

More than three-quarters of county departments of adult and aging services are working to improve volunteer opportunities for older adults, with one third trying to improve the match between older adults and organizations who need volunteers and slightly less than one quarter supplying funds to volunteer programs. Two thirds of county aging services in this sample operate or fund senior centers, while less than half offer older adult education or intergenerational programs.

The following figure shows the extent to which all local governments included in the survey have adopted aging-friendly innovations. Frequencies were calculated based on the percentage of local government informants who were asked about the specific policy, program or infrastructure change who indicated that their city, county, or public transit provider had adopted that aging-friendly innovation. For example, in terms of assessment programs for older drivers, 1 out of 62 cities indicated they offer this program and 2 out of 9 counties indicated that they offer this program, for a total of 3 out of 71, or 4.2 percent.

Figure 1. Percent of Local Governments That Have Enacted Aging-Friendly Innovations



The figure above shows that in this sample of Bay Area local governments, the most common policies and programs include those that target alternative forms of transportation, including incentives for mixed use neighborhoods, infrastructure changes to improve walkability, discounted public transportation fares, and changes to improve accessibility of public transit. The least common policies and programs are those that aim to help older adults continue driving and those that provide incentives to develop accessible new housing for older adults. In addition, policies and programs within the domains of health and supportive services and opportunities for community engagement range from some of the most offered (i.e., an information directory of supportive services, home- and community-based services) and least offered (i.e., fitness programs, lifelong learning programs, intergenerational programs) aging-friendly innovations.

Factors Associated with the Adoption of Aging-Friendly Innovation

Bivariate Analyses of Individual Aging-Friendly Innovations

Tables 10 through 12 present bivariate associations between each aging-friendly innovation and the ten explanatory variables. These results are only for city level respondents. It is not possible to conduct bivariate analyses for accessory dwelling units and driver assessment programs as all 62 cities have an accessory dwelling unit or second unit ordinance in at least some city neighborhoods and only 1 city respondent indicated that their city provides assessment programs for older drivers.

Community Design Innovations

Table 10: Bivariate Analyses of Community Design Innovations

	Incentives for Mixed Use Neighborhoods		Infrastructure Changes to Improve Walkability	
	Yes (n=42) Freq (%)	No (n=20) Freq (%)	Yes (n=55) Freq (%)	No (n=7) Freq (%)
Internal Determinants and Diffusion Factors				
Diffusion Factors				
Know of Benefits	20 (47.6)	6 (30.0)	40 (72.7%)***	1 (14.3%)
Belief in Advantage	27 (64.3)**	6 (30.0)	34 (61.8%)*	2 (28.6%)
Public Pressure	8 (19.0)**	0	36 (65.4%)***	1 (14.3%)
Community Characteristics				
Population 50,000 or more	17 (40.5)	3 (15.0)	19 (34.5)	1 (14.3)
%High School Grad				
Low	16 (38.1)	4 (20.0)	19 (34.5)	1 (14.3)
Medium	15 (35.7)	7 (35.0)	21 (38.2)	1 (14.3)
High	11 (26.2)	9 (45.0)	15 (27.3)**	5 (71.4)
Household Median Income				
Low	14 (33.3)	6 (30.0)	19 (34.5)	1 (14.3)
Medium	18 (42.9)*	4 (20.0)	21 (38.2)	1 (14.3)
High	10 (23.8)**	10 (50.0)	15 (27.3)**	5 (71.4)
% Population 65+				
Low	16 (38.1)	4 (20.0)	18 (32.7)	2 (28.6)
Medium	15 (35.7)	7 (35.0)	21 (38.2)	1 (14.3)
High	11 (26.2)	9 (45.0)	16 (29.1)	4 (57.1)
% Population with a Disability				
Low	13 (30.9)*	12 (60.0)	20 (36.4)	5 (71.4)
Medium	13 (30.9)	4 (20.0)	16 (29.1)*	1 (14.3)
High	16 (38.1)	4 (20.0)	19 (34.5)	1 (14.3)
Government Characteristics				
Per Capita Government Spending				
Low	14 (33.3)	6 (30.0)	19 (34.5)	1 (14.3)
Medium	16 (38.1)	6 (30.0)	17 (30.9)	5 (71.4)
High	12 (28.6)	8 (40.0)	19 (34.5)	1 (14.3)
Policy Entrepreneur	10 (23.8%)*	0	25 (45.4%)*	0

*p<.10. **p<.05. ***p<.01

Bivariate analyses for incentives for mixed use neighborhoods provide only partial support for the study's hypotheses. In terms of diffusion factors, city government respondents who believe that cities gain an advantage by encouraging mixed-use neighborhoods or report that residents are pushing for mixed use are more likely to have incentives in place (Fisher's exact test, p=.015 and p=.046, respectively). Among community characteristics, cities with a total population of 50,000 or more are more likely to provide incentives for mixed use while those with a lower percent of the population with a disability are more likely to not offer incentives (Fisher's exact test, p=.079 and p=.051, respectively). Contrary to the second hypothesis, cities with a median or high household median income are less likely to encourage mixed use (Fisher's exact test, p=.068 and p=.048, respectively). At the government level, policy entrepreneurs increase the likelihood of adopting this aging-friendly innovation (Fisher's exact test, p=.023).

Only seven cities have not made an effort to improve the walkability of their community. Again, bivariate analyses do not support many hypotheses. Knowledge of benefits and public pressure are significantly and positively associated with infrastructure changes to improve walkability (Fisher's exact test, $p=.005$ and $p=.014$, respectively). Cities with a higher percentage of high school graduates and higher household median income are less likely to have made changes to create more walkable neighborhoods (Fisher's exact test, $p=.031$ and $p=.031$ respectively). In terms of government characteristics, the existence of policy entrepreneurs again increases the likelihood of infrastructure changes to improve walkability (Fisher's exact test, $p=.035$), while cities at the medium level of per capita government spending are less likely to have this aging-friendly innovation in place (Fisher's exact test, $p=.086$).

Housing Innovations

Table 11: Bivariate Analyses of Housing Innovations

	Incentives for Developers to Build Units for Seniors		Incentives for Developers to Build Accessible Housing		Home Modification Assistance	
	Yes (n=30) Freq (%)	No (n=32) Freq (%)	Yes (n=24) Freq (%)	No (n=38) Freq (%)	Yes (n=34) Freq (%)	No (n=28) Freq (%)
Internal Determinants and Diffusion Factors						
Diffusion Factors						
Know of Benefits	15 (50.0)**	7 (21.9%)	10 (41.7%)	12 (31.6%)	15 (44.1%)	6 (21.4%)
Belief in Advantage	10 (33.3)**	3 (9.4%)	3 (12.5%)	8 (21.0%)	6 (17.6%)	4 (14.3%)
Public Pressure	10 (33.3)**	4 (12.5%)	8 (33.3)***	2 (5.3%)	6 (17.6)**	0
Community Characteristics						
Population 50,000 or more	12 (40.0)	8 (25.0)	13 (54.2)***	7 (18.4)	14 (41.2)	6 (21.4)
%High School Grad						
Low	11 (36.7)	9 (28.1)	8 (33.3)	12 (31.6)	12 (35.3)	8 (28.6)
Medium	13 (43.3)	9 (28.1)	12 (50.0)	10 (26.3)	14 (41.2)	8 (28.6)
High*	6 (20.0)	14 (43.7)	4 (16.7)	16 (42.1)	8 (23.5)	12 (42.9)
Household Median Income						
Low	11 (36.7)	11 (34.4)	11 (45.8)	11 (28.9)	12 (35.3)	10 (35.7)
Medium	8 (26.7)	12 (37.5)	3 (12.5)**	17 (44.7)	8 (23.5)	12 (42.9)
High						
% Population 65+						
Low	13 (43.3)	7 (21.9)	9 (37.5)	11 (28.9)	11 (32.3)	9 (32.1)
Medium	13 (43.3)	9 (28.1)	10 (45.4)	12 (54.5)	14 (41.2)	8 (28.6)
High***	4 (13.3)***	16 (50.0)	5 (20.8)	15 (39.5)	9 (26.5)	11 (39.3)
% Population with a Disability						
Low	11 (36.7)	8 (25.0)	6 (25.0)*	19 (50.0)	10 (29.4)*	15 (53.6)
Medium	9 (30.0)	8 (25.0)	7 (29.2)	10 (58.8)	10 (29.4)	7 (25.0)
High	10 (33.3)	10 (31.2)	11 (45.8)*	9 (23.7)	14 (41.2)	6 (21.4)
Government Characteristics						
Per Capita Government Spending						
Low	11 (36.7)	9 (28.1)	8 (33.3)	12 (31.6)	10 (29.4)	10 (35.7)
Medium	10 (33.3)	12 (37.5)	7 (29.2)	15 (39.5)	13 (38.2)	9 (32.1)
High	9 (45.0)	11 (34.4)	9 (37.5)	11 (28.9)	11 (32.3)	9 (32.1)
Policy Entrepreneur	3 (10.0%)	2 (6.2%)	4 (16.7%)	2 (5.3%)	3 (8.8%)	0

* $p<.10$. ** $p<.05$. *** $p<.01$

Bivariate analyses for incentives for developers to build units for seniors support the first hypothesis, with all three diffusion factors positively associated with this aging-friendly innovation (Fisher’s exact test, $p=.033$, $p=.029$, and $p=.070$). In contrast with the second hypothesis, cities with a larger percentage of residents with a high school diploma and residents age 65 or older are less likely to offer developers these incentives (Fisher’s exact test, $p=.060$ and $p=.003$, respectively). There are no significant associations between the two government characteristics and incentives for units for seniors.

Cities that have experienced public pressure to encourage developers to build new housing that is accessible have an increased likelihood of offering these incentives (Fisher’s exact test, $p=.010$). In terms of community characteristics, larger cities with a higher percent of the population with a disability are more likely to offer incentives for accessible housing (Fisher’s exact test, $p=.005$ and $p=.096$), while cities with a lower percent of the population with a disability are less likely to have these incentives in place (Fisher’s exact test, $p=.066$). Similar to walkable neighborhoods, a city population with a higher level of education and household median income is associated with a decreased likelihood of enacting this aging-friendly innovation (Fisher’s exact test, $p=.052$ and $p=.012$). There are no significant associations between the two government characteristics and incentives to build accessible housing.

Only two explanatory factors are significantly associated with home modification assistance. Within the category of diffusion factors, city respondents that have experienced public pressure for home modification assistance work in cities that are more likely to have it in place (Fisher’s exact test, $p=.028$). For community characteristics, cities with a lower percent of the population with a disability are less likely to have adopted this aging-friendly innovation (Fisher’s exact test, $p=.071$).

Transportation/Mobility Innovations

Table 12: Bivariate Analyses of Transportation/Mobility Innovations

	Older Driver Education		Changes to Improve Older Driver Safety		Alternative Transportation		Slow-Moving Vehicle Ordinance	
	Yes (n=5) Freq (%)	No (n=57) Freq (%)	Yes (n=37) Freq (%)	No (n=25) Freq (%)	Yes (n=36) Freq (%)	No (n=26) Freq (%)	Yes (n=8) Freq (%)	No (n=54) Freq (%)
Internal Determinants and Diffusion Factors								
Diffusion Factors								
Know of Benefits	2 (40%)***	3 (5.3%)	4 (10.8%)	0	11 (30.6%)	5 (19.2%)	0	3 (5.6%)
Belief in Advantage	1 (20%)	1 (1.7%)	5 (13.5%)*	0	5 (13.9%)	4 (15.4%)	0	1 (1.8%)
Public Pressure	0	0	1 (2.7%)	0	12 (33.3%)***	0	1 (12.5%)	0
Community Characteristics								
Population 50,000 or more	2 (40.0)	18 (31.6)	13 (35.1)	7 (28.0)	14 (38.9)	6 (23.1)	0**	20 (37.0)
%High School Grad								
Low	2 (40.0)	18 (31.6)	11 (29.7)	9 (36.0)	17 (47.2)***	3 (11.5)	4 (50.0)	16 (29.6)
Medium	1 (20.0)	21 (36.8)	14 (37.8)	8 (32.0)	12 (33.3)	10 (38.5)	1 (12.5)	21 (38.9)
High	2 (40.0)	18 (31.6)	12 (32.4)	8 (32.0)	7 (19.4)**	13 (50.0)	3 (37.5)	17 (31.5)
Household Median Income								
Low	2 (40.0)	18 (31.6)	10 (27.0)	10 (40.0)	16 (44.4)**	4 (15.4)	5 (62.5)*	15 (27.8)
Medium	2 (40.0)	20 (35.9)	16 (43.2)	6 (24.0)	13 (36.1)	9 (34.6)	0 (0.0)**	22 (40.7)
High	1 (20.0)	19 (33.3)	11 (29.7)	9 (45.0)	7 (19.4)**	13 (50.0)	3 (37.5)	17 (31.5)
% Population 65+								
Low	1 (20.0)	19 (33.3)	14 (37.8)	6 (24.0)	13 (36.1)	7 (26.9)	3 (37.5)	17 (31.5)
Medium	2 (40.0)	20 (35.1)	12 (32.4)	10 (40.0)	13 (36.1)	9 (34.6)	1 (12.5)	21 (38.9)
High	2 (40.0)	18 (31.6)	11 (29.7)	9 (36.0)	10 (27.8)	10 (38.5)	4 (50.0)	16 (29.6)

% Population with a								
Disability	1 (20.0)	24 (42.1)	15 (40.5)	10 (40.0)	9 (25.0)***	16 (61.5)	3 (37.5)	22 (40.7)
Low	2 (40.0)	15 (26.3)	12 (32.4)	5 (20.0)	12 (33.3)	5 (19.2)	2 (25.0)	15 (27.8)
Medium	2 (40.0)	18 (31.6)	10 (27.0)	10 (40.0)	15 (41.7)*	5 (19.2)	3 (37.5)	17 (31.5)
High								
Government								
Characteristics								
Per Capita Government								
Spending	3 (60.0)	17 (29.8)	16 (43.2)	4 (20.0)	12 (33.3)	8 (40.0)	2 (25.0)	18 (33.3)
Low	1 (20.0)	21 (95.4)	10 (27.0)	12 (48.0)	12 (54.5)	10 (38.5)	2 (25.0)	20 (37.0)
Medium	1 (20.0)	19 (33.3)	11 (29.7)	9 (36.0)	12 (33.3)	8 (30.8)	4 (50.0)	16 (29.6)
High								
Policy Entrepreneur	0	0	0	0	10 (27.8%)***	0	0	0

*p<.10. **p<.05. ***p<.01

One diffusion factor is associated with older driver education programs, while none of the community characteristics or government characteristics has a significant relationship. Knowledge of benefits is positively associated with offering this program (Fisher's exact test, p=.048). It should be noted that only five cities offer driver education programs.

Among the three diffusion factors, city participants who believe cities gain an advantage when they make infrastructure changes to improve older driver safety are more likely to have made these changes (Fisher's exact test, p=.076). None of the explanatory variables in the community or government categories are associated with infrastructure changes to improve driver safety. In terms of diffusion factors, cities that have experienced public pressure are more likely to offer alternative transportation to their residents (Fisher's exact test, p=.001). Three community characteristics are associated with alternative transportation. Contrary to the second hypothesis, cities with a lower percent of residents that have graduated from high school and lower median household income are more likely to offer alternative transportation (Fisher's exact test, p=.005 and p=.026), while cities with higher population education and household income are less likely to offer these services (Fisher's exact test, p=.015 and p=.015, respectively). The percent of the population with a disability, however, is positively associated with alternative transportation programs, with cities with a lower percent of the population with a disability less likely and those with a higher percent of the population more likely to offer alternative transportation (Fisher's exact test, p=.008 and p=.098). Among government characteristics, cities with a policy entrepreneur advocating for these services are more likely to provide them (Fisher's exact test, p=.003).

No diffusion factors are significantly associated with a slower-moving vehicle ordinance. Larger cities are less likely to have a slow-moving vehicle ordinance and those with a lower household median income are more likely to allow residents to operate slower-moving vehicles on roadways (Fisher's exact test, p=.046). Both per capita government spending and the existence of a policy entrepreneur are not significantly associated with this aging-friendly innovation.

Logistic Regression by Individual Aging-Friendly Innovation

As described above in the methods section, one assumption of logistic regression is adequate cell size, with a cell with less than 5 cases generally considered inadequate. It has been recommended that there are at least 10 'yes's and 10 'no's per predictor variable (Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996), which is not the case in this dataset. As shown in the bivariate analyses, for each individual aging-friendly innovation, at least one cell includes less than 5 cases.

Logistic regression models for each aging-friendly innovation are characterized by a number of problems that suggest the assumptions of logistic regression are not met. Many of the models showed complete separation, in which all subjects whose outcome variable is equal to one can be perfectly separated from those whose outcome is equal to zero. For example, in the logistic regression model for incentives for mixed use neighborhoods, public pressure and the existence of a policy entrepreneur predict success perfectly. Each logistic regression model includes explanatory variables with extremely high or extremely low odds ratios, which signals inadequate cell size, small total sample size in relation to the number of explanatory variables, or an explanatory variable that has low variance. Finally, standard errors are large and many confidence intervals are extremely wide, indicating a lack of precision in the estimate odds ratios.

Table 13 gives an example, showing the results of logistic regression for incentives to developers to incorporate accessibility features into new housing. The odds of offering incentives to developers to build accessible housing are increased by 2.165 ($p=.080$) for those cities that have experienced public pressure for this aging-friendly innovation when adjusting for other internal determinants and diffusion factors in the model. Among community characteristics, the odds of providing incentives to developers to build accessible housing are increased by 1.804 ($p=.071$) for cities with a population of 50,000 or more and 2.106 ($p=.088$) for cities within the middle category of percent of high school graduates (i.e., percent of high school graduate is greater than or equal to 84.696% and less than 94.076%). The small sample size is affecting the model's precision, as evidence by high odds ratios, large standard errors, and extremely wide confidence interval.

Table 13: Logistic Regression Model for Incentives for Accessible Housing (n=62)

Internal Determinants and Diffusion Factors	β	OR	SE OR	95% CI	P-value	
Diffusion Factors						
Know of Benefits	.970	2.638	2.527	.404	17.240	.311
Belief in Advantage	-1.811	.163	.218	.012	2.237	.175
Public Pressure*	2.165	8.715	10.765	.774	98.106	.080
Community Characteristics						
Population 50,000 or more*	1.804	6.076	6.067	.859	43.001	.071
% High School Grad						
Medium*	2.106	8.212	10.139	.730	92.339	.088
High	1.999	7.376	18.259	.058	943.801	.420
Household Median Income						
Medium	-1.442	.236	.289	.021	2.597	.238
High	-3.212	.040	.098	<.001	4.845	.189
% Population 65+						
Medium	-.072	.930	.968	.121	7.157	.945
High	-.084	.919	1.005	.108	7.838	.939
% Population with a Disability						
Medium	-1.043	.352	.555	.016	7.708	.508
High	-.530	.589	1.124	.014	24.880	.781
Government Characteristics						
Per Capita Government Spending						
Medium*	-1.880	.152	.159	.020	1.179	.072
High	-1.118	.327	.368	.036	2.973	.321
Policy Entrepreneur	1.510	4.526	8.011	.141	145.349	.394
R^2	.328					

* $p<.10$. ** $p<.05$. *** $p<.01$

Bivariate Analyses of Level of Aging-Friendly Innovations

As described in the Methods chapter, the nature of the data, including small sample size and several policies that almost all or almost no city governments had enacted, prevented the researcher from conducting exploratory factor analysis to determine whether underlying processes have created correlations among the 11 aging-friendly innovation variables. The outcome variable is therefore an ordered categorical variable with each city designated as low, medium, or high. Table 14 below presents the bivariate associations between the ten internal determinants and diffusion factors and low (0-4 innovations), medium (5 or 6 innovations), and high (7-11 innovations) level of aging-friendly innovation.

Table 14: Bivariate Associations for Level of Aging-Friendly Innovations

Internal Determinants and Diffusion Factors	Low (n=15) Freq (%)	Medium (n=29) Freq (%)	High (n=18) Freq (%)
Diffusion Factors			
Know of Benefits	12 (80.0)	26 (89.7)	17 (94.4)
Belief in Advantage	10 (66.7)	21 (72.4)	16 (88.9)
Public Pressure**	7 (46.7)	21 (72.4)	16 (88.9)
Community Characteristics			
Population 50,000 or more**	2 (13.3)	8 (27.6)	10 (55.6)
%High School Grad			
Low**	1 (6.7)	12 (41.4)	7 (38.9)
Medium	4 (26.7)	12 (41.4)	6 (33.3)
High***	10 (66.7)	5 (17.2)	5 (27.8)
Household Median Income			
Low	2 (13.3)	10 (34.5)	8 (44.4)
Medium	3 (20.0)	13 (44.8)	6 (33.3)
High***	10 (66.7)	6 (20.7)	4 (22.2)
% Population 65+			
Low	3 (20.0)	11 (37.9)	6 (33.3)
Medium	3 (20.0)	12 (41.4)	7 (38.9)
High**	9 (60.0)	6 (20.7)	5 (27.8)
% Population with a Disability			
Low**	11 (73.3)	9 (31.0)	5 (27.8)
Medium	3 (20.0)	9 (31.0)	5 (27.8)
High**	1 (6.7)	11 (37.9)	8 (44.4)
Government Characteristics			
Per Capita Government Spending			
Low	3 (20.0)	9 (31.0)	8 (44.4)
Medium	7 (46.7)	10 (34.5)	5 (27.8)
High	5 (33.3)	10 (34.5)	5 (27.8)
Policy Entrepreneur**	5 (33.3)	15 (51.7)	14 (77.8)

*p<.10. **p<.05. ***p<.01

Bivariate analyses provide partial support for the first hypothesis, which proposes that three diffusion factors will be positively associated with the adoption of aging-friendly innovations. Respondents who indicated that their city has experienced public pressure for aging-friendly innovations are significantly more likely to be in the medium or high categories of aging-friendly innovations (Fisher's exact test, p=.030). Knowledge of benefits associated with aging-friendly innovations and a belief that cities that adopt these policies and programs gain an advantage were both unrelated to the category of aging-friendly innovations (Fisher's exact test, p=.452 and p=.322, respectively).

Bivariate analyses of community characteristics provide partial support for the second hypothesis, and also reveal significant associations in the opposite expected direction. Cities with a population of 50,000 people or more are more likely to be in the highest category of aging-friendly innovations compared to the lowest category (Fisher’s exact test, $p=.031$). Cities with a low percentage of the population with a disability are more likely to be in the low category (Fisher’s exact test, $p=.014$) while those with a high percentage of the population with a disability are less likely to be in the low category (Fisher’s exact test, $p=.035$). Contrary to the second hypothesis, population education appears to be negatively associated with aging-friendly innovations, with cities with a comparatively low percent of the population with a high school diploma more likely to be in the medium and high categories (Fisher’s exact test, $p=.043$) and those with a higher percent more likely to be in the lowest category (Fisher’s exact test, $p=.004$). Similarly, cities with a higher median household income are more likely to have adopted the least number of aging-friendly innovations (Fisher’s exact test, $p=.007$). Interestingly, cities with a high percentage of the population age 65 and older are also more likely to be in the lowest category of aging-friendly policies and programs (Fisher’s exact test, $p=.033$).

Among government characteristics, there is no significant relationship between any of the levels of per capita government spending and category of aging-friendly innovations (Fisher’s exact test, $p=.232$, $p=.515$, and $p=.939$, respectively). The existence of a policy entrepreneur, however, is positively associated with category of aging-friendly innovations (Fisher’s exact test, $p=.036$), again providing partial support for the third hypothesis.

Ordered Logistic Regression of Category of Aging-Friendly Innovations

Model Selection

Prior to fitting an ordered logistic regression model, the researcher tested the proportional odds or parallel regression assumption (i.e., that the relationship between all pairs of groups is the same). Two tests can test this assumption through a likelihood ratio test: the *omodel* command and the Brant test, both in Stata. Both of these tests evaluate the following hypothesis:

Null hypothesis: There is no difference in the coefficients between models

Alternative hypothesis: There is a difference in the coefficients between models.

The *p*values for both the *omodel* and the Brant tests are greater than .05 ($p=.221$ and $p=1.000$, respectively). Therefore, the researcher concluded that there is not enough evidence to reject the null hypothesis, and the ordered logistic regression model does not violate the proportional odds assumption. Table 15 below presents the results of the ordered logistic regression model.

Table 15: Ordered Logistic Regression Model for Level of Aging-Friendliness (n=62)

Internal Determinants and Diffusion Factors	B	OR	SE OR	95% CI	P-value	
Diffusion Factors						
Know of Benefits	-.173	.841	.874	.109	6.449	.867
Belief in Advantage	.662	1.938	1.500	.425	8.833	.392
Public Pressure	1.039	2.825	1.937	.737	10.833	.130

Community Characteristics

Population 50,000 or more***	2.298	9.955	7.726	2.174	45.572	.003
% High School Grad						
Medium	-.224	.799	.641	.166	3.850	.780
High	.462	1.587	2.110	.117	21.500	.728
Household Median Income						
Medium	-1.027	.358	.359	.050	2.562	.306
High	-2.504	.082	.125	.004	1.639	.102
% Population 65+						
Medium	-.428	.652	.517	.138	3.083	.590
High	-.225	.798	.716	.138	4.628	.802
% Population with a Disability						
Medium	-.290	.748	.776	.098	5.719	.780
High	-.598	.550	.758	.037	8.205	.664
<hr/>						
Government Characteristics						
Per Capita Government Spending						
Medium**	-1.667	.189	.149	.040	.884	.034
High***	-2.518	.080	.073	.014	.477	.005
Policy Entrepreneur**	1.513	4.539	3.074	1.203	17.115	.026
<hr/>						
R ²	.263					

*p<.10. **p<.05. ***p<.01

Neither knowledge of benefits, belief cities gain an advantage, or public pressure is significant when adjusting for other variables in the model.

Among community characteristics, compared to cities with a population less than 50,000, the ordered odds of moving to the next higher category of aging-friendly innovations are increased by 2.298 (p=.003) for larger cities when adjusting for other variables in the model. Other explanatory factors classified as community characteristics, however, including percent of the population with a high school diploma, household median income, percent of the population age 65 and older, and percent of the population with a disability, are not significant in this ordered logistic regression model.

Both government characteristics are significantly associated with the category of aging-friendly innovations. As hypothesized and as shown above in the bivariate analyses, compared to cities that do not report the existence of a policy entrepreneur, the odds of moving to the next higher category of aging-friendly innovations are increased by 1.513 (p=.026) for cities that do have a policy entrepreneur when adjusting for other variables in the model. While per capita government spending is not significantly associated with category of aging-friendly innovations at the bivariate level, it is in the ordered logistic regression, albeit in the opposite direction as hypothesized. Compared to cities with low per capita government spending, the odds of moving to the next higher category of aging-friendly innovations are decreased by .189 (p=.034) for cities with medium per capita government spending and .080 (p=.005) for cities with high per capita government spending when adjusting for other variables in the model.

As with the logistic regression models described above, the small sample size is affecting the model's precision and a number of the explanatory variables have high odds ratios, large standard errors, and extremely wide confidence intervals. One should therefore be cautious interpreting these results, as there is a high level of uncertainty with this ordered logistic regression model.

PHASE TWO: QUALITATIVE RESULTS

Results

Five themes emerged from qualitative data analysis, including 1) advocacy and civic engagement, 2) funding, 3) community characteristics, 4) collaboration and communication, and 5) state and federal mandates. Each theme was discussed as a facilitator of aging-friendly innovations by some local government informants and as a barrier by others.

Advocacy and Civic Engagement

Building on the quantitative findings, qualitative interviews supplied additional support for the importance of public and governmental advocacy.

Facilitator

Interviewees described three different types of advocacy and civic participation that can facilitate the adoption of aging-friendly policies and programs: 1) participation of residents and service providers on various advisory and steering committees; 2) efforts of individuals within government (i.e., policy entrepreneurs) to bring about aging-friendly innovations; and 3) efforts of residents (i.e., public pressure) to bring about aging-friendly innovations.

Public and nonprofit participation on committees. The majority of interviewees who mentioned the role of citizen steering or advisory committees are employees of county transportation authorities and public transit providers. They indicated that their agencies value the input of citizens, particularly in terms of improving the accessibility of public transportation, as illustrated by the following two quotes from different transit providers.

We have a citizens' accessibility advisory committee that I actually administer and focuses on services for people with disabilities and elders. . . There is a Paratransit coordinating committee. . . They both initiate ideas and we bounce ideas off of them. For [transit] accessibility, they definitely have our ear. They give us good insight from the perspective of people with disabilities and elderly consumers, and we take their input into consideration.

The accessibility features, we do try to have people with disabilities review and have input on the design of our vehicles, and that's been valuable. I know we purchased a fleet of buses where the accessibility features didn't really work, and we had to get them retrofitted and it was on the manufacture was the problem. So I think we depend on a lot consumer input in design and operation.

Advocacy from within government. While 43% of survey respondents indicated that an individual within government, such as an employee or elected official, has pushed for aging-friendly innovations, only three respondents discussed the role of advocacy from within government. Speaking about county transportation programs, one respondent said:

Our county didn't do anything until a year and a half ago, and then we had 2 new board members who understood transportation problems of older adults and low-income individuals. One was on the transportation committee of MTC [Metropolitan

Transportation Commission, the regional transportation planning organization for the Bay Area], and went to Washington. He got a feel for what they're role could be, and they are totally on board.

One public transit employee also described how board members influence program and policy decisions.

Well we have an elected board of directors which has played a big role, and they are the policy makers. Directly elected, can't hold any other public office, so they are pretty much devoted to their constituents. So a good deal of our policy direction comes from them. Sort of grassroots input that they have.

Advocacy by residents and nonprofit organizations. Almost 68% of survey respondents are aware of public pressure for various aging-friendly innovations, and advocacy by outside groups also came up in several interviews. According to one city respondent:

You find that the commission or on city council or in local interest groups, and every large project had its genesis with some sort of citizens group that came to the city with a concept, and got that to move forward.

Similarly, one aging services administrator described resident advocacy as an essential part of the community's culture.

We decided to do this [administer programs themselves rather than through nonprofits] because [city] has had an activist grassroots community since the 1960s. [City] also administers [an educational] program, which is usually administered by nonprofits. The residents identified city government as having the ability to meet their needs. It is unusual, but part of the sense of community.

Disability advocacy groups were mentioned much more often than elder residents or senior advocacy organizations. While one city interviewee described his city as proactive when the city reached out to a grassroots advocacy group to work on building accessible housing, other respondents portrayed their local government as more reactionary. For example, when asked about the role of nonprofits in making communities more aging-friendly, one city planner explained:

For nonprofits, if that's part of their mission they can provide that, but generally it is to advocate. [This city] has gone to some existing sidewalks to make them ADA compliant, and that was in response to some person who went around and sued all the cities. They might never have gotten around to that. We respond to things we're pushed to do.

Other cities mentioned lawsuits as an effective strategy to bring about community change, as highlighted in the following quote

[Senior housing] settlement, it wasn't seniors per se, but a legal group sued the city. We got sued, by someone who is more of a disability group based out of Sacramento. But the basic idea was 'why are you spending all this money to keep people in institutions when you could keep people in their homes?' So the city used some funding for [senior housing] subsidies, I think for both services and a light housing subsidy.

Barrier

Public resistance to aging-friendly innovations presents a barrier to the adoption of these types of policies and programs. There were no cases in which interviewees suggested that residents have resisted helping older adults specifically, but rather there has been concern about efforts to increase densities and creating mixed-use neighborhoods, “the traditional NIMBY [not in my backyard] people”, as one planner put it. As one city respondent described,

There are parts of town where people don't want more dense neighborhoods, so the people in the [one] part of town are concerned about density than people on the [other] part of town. I think on the [other] part of town that concern is more about affordability and amenities, you know parks and things like that. On [one] side, people prefer single-family homeownership. You know, we've been sued on our housing element . . . It's the same group of folks who are uncomfortable in terms of the direction the city is going in planning and development, and they sue.

While many residents may be unfamiliar with the technicalities of city planning, they express frustration at the realities of living among higher density development, revealing some of the unintended consequences of these aging-friendly innovations. For example, according to one city planner in an inner suburb:

We've had noise complaints because we're a mixed use city. We have residential next to industry and they holler. We also have some newer residential lofts next to industry and they holler too. Our conditions of use say that everyone who buys a unit or rents a unit has to sign something that says they understand they are next to industry but that doesn't help, they still holler.

Similarly, the housing project manager in a suburban community referred to a recently approved housing project when asked about resident concerns:

The way I think it's been expressed on the community side is not so much, residents I don't think by and large understand 'oh, this project is getting a density boost'. I think it's expressed as, 'gee this building is big, it's high. There's going to be parking problems'. Because the project just approved with a disability component, there was little public opposition, and in my experience it is usually positive, but the concerns raised were about how it would affect parking in the neighborhood and wanting to make sure it would be well-managed and well-designed.

Funding

The role of funding was explored in the quantitative analyses by examining per capita government spending as a potential explanatory factor for the adoption of aging-friendly innovations. Per capita government spending is not significantly associated with the adoption of aging-friendly innovations at the bivariate level, and, contrary to expectations, it is negatively associated with adoption in the ordered logistic regression. Funding, however, was frequently mentioned as both a facilitator and a barrier to the adoption of aging-friendly innovations, suggesting that the use of per capita government spending as a proxy does not fully capture this government characteristic.

Facilitator

Funding emerged as one of the most common facilitators of aging-friendly innovations; one planner from a suburban city described funding as follows: “It’s all truly important, you need funding, political leadership, and community that will advocate for these things, and funding at all levels, which is very difficult as we’re seeing. It’s all those things, a really delicate balance of making sure you have all those systems in place.” Funding plays an important role in three ways: 1) local governments administer state and federal funding, using this money to provide aging-friendly programs to their residents; 2) local governments pursue grants from state agencies, federal agencies, and, in one case, a nonprofit organization, which allow them to offer aging-friendly programs; and 3) local governments implement aging-friendly innovations as a strategy to meet the needs of their residents in the most cost-effective way.

State and federal funding. State and federal funds were mentioned by cities in the context of such housing programs as home modification assistance and senior housing developments. The U.S. Department of Housing and Urban Development (HUD) distributes funds to local governments via Community development Block Grants (CDBG) and HUD 202 grants, while the state of California provides funds through the Cal Homes program.

Some programs require funding from multiple sources, such as the home modification assistance in one large, urban city:

We have a code enforcement rehab program, if you have a code violation that is health and life safety oriented, involving ADA or even a roof or foundation. It’s relatively small . . . We use three sources of funding. We use code enforcement funds, we use CDBG funds from HUD, and we use Cal Homes from the state government.

One suburban community brings together funding from two different HUD programs to provide affordable housing for older adults:

Our first affordable housing developments were senior developments. One developed in 1987 that is a congregate care facility that also has affordability built into it and what’s called a HUD 202, senior housing for very low-income folks and you can combine it with a Section 8 voucher.

Federal money was also discussed by an employee of an urban community’s aging services department, as this city is somewhat unique in terms of administering some federal funding:

Other programs we administer include Assets Senior Employment Program and Senior Companion and Foster Grandparent program. These are both fed programs. They are administered by the city. They exist across California, but are usually administered by nonprofits.

Grant funding. Local government respondents who spoke about the importance of grants or have received grant funding tend to come from suburban or rural cities and counties. Some federal and state grants enable local governments to start planning for the aging of their population and assess their community's needs. For example, federal funding can help local governments take the first step towards addressing senior housing needs, as described by the community development director of a small city:

I don't know if your survey is one of the reasons it jogged my mind, but we're applying for community development block grant planning and technical assistance grant to look at feasibility of senior housing in the downtown area. I don't know if we would had thought of that if we hadn't done your survey, that we should be thinking about housing for older adults.

As another example, two of the counties that participated in the interviews have received New Freedom grants, a federal program administered by Caltrans. This award has allowed one of the counties to start addressing the mobility needs of older residents without using any county money:

We've gotten more money because this New Freedom money is federal money, and there has been legislation for us to use the money for planning, while only 2 years ago you could only use it to buy buses. So the human services was not included in the dialogue, and now it is now only included it is required. They had to do a human services plan as part of the Comprehensive Plan, and we are looking at being more a part of paratransit issues, rather than separate. We've gotten more money. We got \$180,000 this year from New Freedom cycle 3, we put a grant in for cycle 4, and we're using a chunk of it to fund volunteer programs, to do marketing, to do outreach.

Grants also help local governments provide senior services. The same county quoted above has successfully applied for and received federal and nonprofit funding for a variety of aging programs that are not typically offered at the county level, including falls prevention, substance abuse prevention, and suicide prevention. As the following quote illustrates, grant funding can lead to even more grant funding, as the county respondent describes additional funding they received after an initial award of \$20,000 per year for three years for a falls prevention program:

AoA (Administration on Aging) gave some funding to California, and they wanted evidence-based programming and decided they wanted to do falls prevention. Since we were already doing the [falls prevention] program, we were included in the first 5 counties that got that round of funding, so we got a little more money from them, a two year grant through last year. This year we applied for more funding from [a nonprofit hospital] to expand the program.

Cost-effective strategies. The majority of respondents who indicated that the motivation for some aging-friendly innovations stems from the needs to reduce overall costs worked in county and public transportation. One respondent summed up the need for cost-effective strategies: “A lot of what’s happening is because the money situation is so tight, other folks are looking at how they can continue to provide services with less funds.” The two quotes below from two different transit providers show how efforts to make public transportation more accessible for individuals with a disability are viewed as a cost-effective alternative to paratransit services.

One of the main motivations for providing travel training is just straight savings on our part. We concentrate the program on those who have applied for paratransit, curb to curb. Each ride costs a significant amount, \$30-40 a ride in general. Anytime we can get someone to take the bus instead saves the system. Which is kind of selfish. But from an organizational standpoint, that’s how you can sell it.

I think one conundrum we’re faced with is trying to get people to use fixed route versus paratransit because it is so much more expensive to provide paratransit. We haven’t been terribly creative about it. One thing we have done is keep bus fares very low for elders and people with disabilities. But I know some properties have moved towards free transit for people who use paratransit, which is somewhat ironical because you’re not supposed to be able to use regular transit if you’re using paratransit. But apparently that’s worked, but we’ve not looked into it, probably should.

Barrier

As one individual succinctly put it, “the primary barrier is always money”. Inadequate funding and financial pressure from three different groups prevent communities from becoming more aging-friendly: 1) State and federal governments, who often emphasize other priorities and are now reducing funding; 2) cities, counties, and public transit providers, whose limited budgets have been further stretched in the past year; and 3) the nonprofit and private sectors, which are struggling with the recent recession.

State and federal funding. The cities who described state and federal funding as a barrier focused on historical funding barriers. For one city, rules and regulations around federal funding sources hamper efforts to improve senior housing options.

The barriers are usually around who pays and who benefits from the savings. There’s been little progress on Medicaid waivers that allow assisted living in conjunction with affordable housing. The other one is HUD programs, like HUD 202 is meant to provide housing for people in a newly built facility, but there isn’t a way to say give us 10 project-based vouchers that we’re going to put into 10 units across the city. There’s not a scattered site opportunity or a non new construction thought process to that program. There’s space, but it’s expensive. The capital needs are so expansive, but it costs \$500,000 to build a home, an apartment. The program is not set up to be highly adaptable. There is so much demand for it, so there’s no incentive to change the program.

For another city, state and federal funding present a barrier to creating mixed-use or walkable neighborhoods.

Now for transit we have some issues, because for most people it just isn't as efficient as the automobile. We don't have something like BART everywhere it needs to be. And funding from the federal and even state government, the lion share is for infrastructure for the car.

Similarly, one county transportation informant expressed the desire for federal and state funding that supports a wide variety of transportation programs.

In terms of the need for transportation, what I would like to see happen, there is dedicated funding for public transit, but maybe we need dedicated funding for more creative approaches, for example for volunteer driver programs or other non-transit transportation.

Other transportation respondents, as well as aging services providers, described the impact of the California state budget shortfalls on their ability to provide aging-friendly programs. Two transit agencies and one county transportation authority indicated that they have lost all funding from the state. According to one transit provider:

We're at the point where we're getting no money from the state. That was just in the last year, they are no longer providing any money to public transit. . . The revenue loss to us because of the state's action has been over \$26 million this year, and that's what throwing us into major financial problems. If we had that money we wouldn't have a problem. We are in the process, unfortunately we got slated to cut a huge amount of service. We're looking at reallocating money for capital investment into operating money. But again the state problem is really frustrating.

Aging services administrators are witnessing a dismantling of their health and supportive programs as a result of state budget difficulties.

Funding is a major issue. We have spent years building up programs to help older adults, but now they are being cut. For example, there have been cut backs to MSSP [Multipurpose Senior Services Program, which provides community care to frail elderly certifiable for nursing home placement, Linkages [a care management programs for frail elderly and adults with disabilities], and the nursing home ombudsmen program. We have to reconstitute over the next 3 to 5 years.

Local government funds. The recession has had a negative impact on the fiscal situation of local governments beyond a reduction in state funding. According to one city planner, cities in California have been hit particularly hard by the recession because of decisions made in the past.

Everything I'm saying is colored by our situation right now. And in 20 years of planning, I've never seen local government in fiscal conditions as difficult as they are here in [city]. We did put aside a lot of money in reserves when times were good. There were bad decisions made, and our capacity to fund these things are limited. . . The life after Prop 13 created a very unstable environment for public agencies. During the tech bubble, spending increased in a way that assumed that bubble would last and it didn't. Same happened at the state with the housing bubble. That has to be addressed. Local agencies are trying to collect fees for many purposes to make up for the revenue lost to Prop 13. Also, with the sales tax, it is set up that the tax is paid at the point of sale. So, there is incentive to zone for commercial property and not residential to generate sales tax. It's the 'fiscalization of land use' or 'zoning for dollars'.

Additional revenue sources have become constricted over the course of the recession. For example, in two cities, as the number of new housing and commercial developments has decreased, so have the development fees that provide additional funding for aging-friendly innovations.

I think nonprofits in general, again hearsay, that donation and funding is getting harder to get. I haven't heard of anyone getting close to closing up shop. For the city, in terms of developer fees, we do charge developers an in-lieu development fee, a housing fee, and that goes into a fund that we then give to nonprofits to help them build affordable housing. We didn't have a lot of development activity in general, now we have absolutely none.

Sales tax receipts are also down, creating budget shortfalls for the county transportation authorities and transit districts, which receive the bulk of their funding from voter-approved sales taxes. As one respondent from a county transportation authority noted, "I always tell people to do their shopping in [this county]."

Nonprofit and private sector funding. As described in more detail below, local governments view nonprofits as providing vital assistance to older adults and other vulnerable residents. Some local government respondents suggested that nonprofits are now less able to provide that assistance: "The nonprofits are having more trouble doing fundraising and matching. They probably would have done more without the recession."

Other cities noted that while they offer incentives to developers to build more mixed-use neighborhoods, the recession has prevented the private sector from taking advantage. One city respondent described the challenges associated with revitalizing the downtown area:

[In a specific neighborhood], they already have designed mixed use development but there's no way they'll go forward with residential development until the whole foreclosure issue is not such a deterrent to development. I think the residential side is obvious, but we have several small businesses that would love to relocate to our downtown area, and they're having a terrible time getting financing. The credit, dried up credit is a problem as well as the residential side.

One city respondent indicated that the recession has particularly limited efforts to create more mixed use areas in suburban communities.

The biggest thing before the recession, it is a question of market demand. We are a suburb [many] miles from San Francisco, it's hard to create that synergy when the bulk of your workforce heads out of town everyday for work. Because of that, even before the recession lenders were hesitant to lend money, and when you combine that with developers who had overpaid, it creates a financial pressure that is now really hard to overcome with the recession. Because creditors aren't lending, and if you overpaid to begin with and now they're undervalued, it's really hard to get a return on investment back.

Community Characteristics

Quantitative data analysis examined a number of community characteristics, including size of the population, population educational attainment, median household income, percent of

the population with a disability, and percent of the population age 65 and older. Interview participants also discussed the role of community characteristics, in some cases providing support for variables included in quantitative analysis (e.g., perceptions about the size of elderly or disabled population), in some cases expanding on quantitative analysis (e.g., how perceptions about the needs and abilities of the elderly population may be just as important as the size of the elderly population), and in other cases describing community characteristics not included in the survey (e.g., the physical and social infrastructure).

Facilitator

Interview participants described three types of community characteristics as facilitators of aging-friendly innovation: 1) the social and physical infrastructure, 2) demographics of the population, and 3) perceptions of the senior population.

Social and physical infrastructure. City and county respondents from rural areas spoke about how limited services and a sparse population inspired their local government to explore ways in which they could provide aging-friendly policies and programs. One community development director described a city's interest in conducting a feasibility study of building senior housing in the downtown area.

One of the aspects of that feasibility study if we get it funded will be to look at not just housing but what services would we need in the downtown that would make housing for seniors realistic. Right now we don't have a grocery store downtown, and it hard for anyone to do grocery shopping when you have to schlep your groceries a long way, but definitely for older people that's not really practical. We would be looking at can we get the neighborhood services there that older adults would require. We don't have a doctor downtown, we don't have a dentist downtown. Those kind of things.

A county transportation employee echoed these same ideas while discussing the impetus behind the county placing a high priority on aging mobility.

The AAA advisory committee came up with transportation as the biggest issue for older people out here that isn't being met. We probably have a worse public transit system, we have cities and we're rural and we depend on cars . . . , we have a horrible transit system. A lot of people moved up here in the 1970s and 80s, they live in rural areas and they are aging and are now coming down with health problems. They want to be in the canyons, but that doesn't work if you can't get food and services.

The desire to improve the physical infrastructure comes up primarily in the context of policies and programs that reduce residents' dependence on their automobiles, including developing mixed-use, walkable neighborhoods and improving public transit. As one city respondent explained,

It is a neighborhood character issue, it's what we think makes great cities, it's a climate change issue, a traffic issue. Over the years people have found seven, eight, nine reasons why mixed use and transit-oriented design helps, and they all overlap in [this city].

Higher density and mixed-use development is a necessity in cities with a growing population and little undeveloped land. For example, below is how one city planner described the thinking behind creating mixed-use neighborhoods:

Just from a diversity and livability standpoint, [city] was developed primarily as an inner ring suburb and there's just the next logical progression when you don't have much land left in single-family homes and you don't have single-family homes going away, but you have these commercial areas that have seen their heyday three or four decades ago and what's the best use for that. Mixed use and higher density near a transit station makes the most sense.

As a county transportation employee explained, "the whole global warming thing and the pressure to lower emissions, this means in the long run the more people we take off the roads the better we will be." Cities are therefore emphasizing transit oriented development (TOD) and priority development areas (PDAs), which are both characterized by higher density development within walking distance of public transit. These types of development are becoming more common in the Bay Area, as exemplified in the following quote:

We just adapted our first general plan in 25 years, and we have something called, we have a train station moving through our center downtown area and the increase densities, before that area was mostly a commercial area, and we changed some of our planning to allow for mixed use development there and called it a pedestrian zone, so basically for pedestrian areas we're going to make improvements in that area. Right now we're doing a downtown specific plan, and what's in that plan is we're setting design guidelines which specify all the types of pedestrian and bike type improvements we want in those areas

Cities, particularly suburban ones, are trying to revitalize their downtown district, perhaps due to economic reasons, as one can see from the following quote from a city planner:

The idea was to make it more affordable, more walkable, more vital. . . So we see all these main policies and provisions coming into place to make downtown more vital, more interesting, more economically competitive. There is a whole series of purposes coming into play for what's happening on a regulatory basis for [two main roads]. The thought process was getting more people into downtown.

Similarly, a city planner from an inner suburb expressed the belief that "people want more lively places, more lively streets, they want more of a 24 hour presence . . . galleries and cafes, that's what everyone wants, cafes everywhere."

Cities are also trying to improve the safety of their downtown districts, recognizing that roadways have historically been designed for automobiles instead of bicyclists and pedestrians. When asked about recent traffic calming measures, crosswalk improvements, and improved signage, a city planner offered the following explanation:

[The main street through the city] handles a lot of cut through traffic [from the freeway]. . . instead of people going [downtown] for shopping and services, it's handling regional traffic as opposed to local traffic. You've had people anxious to go as quickly as possible and aren't paying as much attention to pedestrians on local trips. . . we recently had within a couple months two fatalities of pedestrians on [main street], so that's the biggest driver. Slowing speeds down is one way people perceive as lowering the risk of another fatality.

Demographics of the population. Population demographics as a facilitating factor are illustrated by three cities, all of which offer home modification assistance and describe their respective cities as having a stable population. As one city respondent explained:

I think the housing tenure is probably pretty high. We have a family oriented, tight-knit community, and are probably here for generations. There wasn't speculation and house flipping here like in other parts of the Bay Area. Most people are in owner-occupied situations

The elderly homeownership rate is higher than that of any other age group, reaching 80.2% in 2009 (U.S. Census Bureau, Housing and Household Economics Statistics Division, 2009), but older adults also tend to live in older homes that are in need of repair (Daniels, 1994). This appears to be true in at least one city in the Bay Area. According to this city's housing specialist "For housing rehab, I don't think we've gotten close to scraping the demand for that program. Our housing stock is getting older, our residents are getting older."

The following quote from a public transit employee, speaking about efforts to make public transportation more accessible to older adults and individuals with disabilities, illustrates how perceptions about demographics can be just as important as actual demographic characteristics.

My experience coming from east coast and starting to use public transit, was the number of people you see with disabilities using it, especially in Berkeley. I think the Center for Independent Living has a lot to do with it. They are more out in the community, probably not more people.

Several city planners also discussed how a growth in the elderly population has inspired their city to develop strategies to meet the needs of this segment of the population. According to a city planner from a rural city,

We do have a large senior population, mostly living in two large mobile home parks and there has been discussion, city is updating housing element. There has been discussion of perceived shortage or a shortage of assisted living for seniors, for people who may need a different form of housing or additional assistance. In our housing element we may begin to focus our programs more and start to identify that as a need in the community.

A planner from a suburban community described similar conversations occurring in his city:

One thing that we're emphasizing in our general plan and especially the housing element is the ability for older adults to age in place. We've got a fairly high proportion of seniors 55 and older and it has been increasing.

Perceptions of the senior population. Based on the comments of several interview participants, local governments are thinking about how they can best meet the needs of a wide variety of older adults. At the city level, the perception of diversity within the senior population influences how city planners are thinking about aging-friendly innovations they have yet to put in place. One aspect of this diversity is income, and the following quote indicates that sometimes cities and developers prioritize the needs of low-income seniors over those with more financial resources.

So you really want to aim for mixed income because an affordable place to live isn't really the only reason that seniors are looking to move from their homes. It could be a widow in a four-bedroom house sitting up on a hill, and is that the most healthy environment? And they try to move into a brand new senior complex that is near places and other people and they couldn't move in because they had too much equity in their homes. The next time we do one [senior housing development], we're aiming to do one, I would definitely want to see at least 50% mixed income so it becomes really inclusive.

Another aspect of diversity is the health and functional status of the older adult population. One city planner expressed the opinion that some aging-friendly innovations do not meet the needs of frail older adults.

I think when people talk about mixed use neighborhoods for seniors, they are thinking mostly about active seniors. When you start thinking about 70 and 80 year olds with walkers, they want a handicapped parking space right in front of their home and they don't want to walk. They see some of those areas with a lot of walking as inhospitable to their needs. Like a lot of things, there are a lot of perspectives.

In contrast, a city housing project manager believes that other aging-friendly innovations fail to address the needs of healthier older adults.

As we've been talking about the senior center and what it should be, historically the senior center has tended to have programs directed more at the frailer, less active elderly, so how can we at a new senior center or at current site make it a more inclusive vision of older residents from the more active to the less active.

Driver assessment and driver education are the two least common aging-friendly innovations offered by local governments in the Bay Area. Based on interviews, and described further in the barriers section below, it is possible that recognizing the diverse needs and abilities of older adults may influence local government's decision to offer these types of programs. Only one interview participant, an employee of a county transportation authority, described efforts to keep older adults operating their own vehicles.

I believe that there is no silver bullet to address senior and disability mobility, so we are not against using funding to support older adults to keep driving. For example, the city of [name] has used some pass through funds to improve signs on streets.

Barrier

Social and physical infrastructure, demographics of the population, and perceptions about the elderly population were also discussed as barriers to aging-friendly innovations.

Social and physical infrastructure. City planners from rural communities and outer suburbs spoke about the limited services available to their residents. In contrast with the city planners quoted in the section above, these city planners indicated that the existing social and physical infrastructure has prevented their local government from implementing changes in their communities. One city planner, for example, explained the difficulties of providing adequate transportation in an outer suburban community:

You have different set of circumstances in [urban centers] and then when you start heading up to where it's much more suburban, certainly [inner suburbs] have a greater intensity of these things than we do. They're closer to the city, have a better bus system, and all of these things start to play off each other very positively. And when they're not there, it just becomes harder to build all those functions in so you have a complete system.

Physical infrastructure can also prove difficult in cities that are more densely populated, particularly in terms of developing new senior or accessible housing:

There's this whole issue of land. I've been here long enough to see, the city once had land that it could use for housing. When you don't have land, you know I think the city is an important source of funding, but I think land is the most important resource. We get calls all the time from developers to see if we have land for affordable housing. So it will come down to redevelopment. Then it comes down to infill issues and zoning, which you can overcome but they are another layer of challenges

Demographics of the population. Local governments are trying to meet the needs of many different segments of the population. As highlighted by the following quote from a city aging services administrator, other vulnerable groups require governmental assistance:

The city has also struggled with being an urban city, and we've had one of the largest proportion of low and moderate income residents in the Bay Area. We have more participation in social programs than other cities.

Bivariate analyses of survey data reveal that cities with a higher percent of the population age 65 and older are less likely to have enacted aging-friendly innovations. A city planner from a rural community that offers less than half of the 11 policies and programs, however, indicates that a small elderly population in some cases presents a barrier to aging-friendly innovation.

Seniors actually make up only about 5% of the population here. We tend to be a younger family community, so . . . I think considering the small portion of the population they represent, I think we do pay attention to seniors pretty well.

Even in areas in which seniors make up a relatively large percentage of the population, other groups may be given a higher priority.

To be candid, in [this city], we do have a large senior population, but we also have a large Hispanic population, and that seems to be more of a focus on many of our social organizations. That's not to say seniors aren't important from my perspective. Again, in our housing element, there are a lot of seniors here, but it seems people haven't given much thought to the fact that we have seniors living independently in these mobile homes and approaching an age where they might need assistance. I think that is getting more attention, and that might lead to more senior programs.

Perceptions of the senior population. As noted above, few local governments offer driver assessment and driver education programs to older residents. The following quote from a county transportation employee, echoed by some other transportation planners, suggests that beliefs about the abilities of aging residents could facilitate the provision of alternative forms of transportation (e.g., senior vans, accessible public transit) and prevent the adoption of programs that could keep older adults operating their own vehicles.

Our goal is not to keep people driving longer, we've redone our message. We're all going to outlive our ability to drive, and we've lightened up on ways to help people keep their keys. We work with the DMV and make presentations to groups, but the messages on our website are about how to decide when you can't drive and how do you talk to your parents when they can't drive, and what are the alternatives. The message is keeping the keys are the key to independence, and you can't tell people they can't drive . . . they want to be in their cars. They have two cars in their garages, and it's scary.

Collaboration and Communication

The theme of collaboration and communication, which was not part of the online survey, suggests another factor potentially associated with the adoption of aging-friendly policies and programs.

Facilitator

Some interviewees discussed collaboration and communication among Bay Area local governments, while others described how partnerships with nonprofits and private organizations allow them to offer some aging-friendly innovations.

Collaboration and communication with local governments. Collaboration with other local governments came up most frequently in terms of addressing the transportation and mobility needs of older adults. Collaboration appears to improve funding, and vice versa. First, collaboration is seen as a way to take advantage of funding opportunities. According to one suburban city planner, who was discussing creating more walkable, mixed-use neighborhoods and providing adequate public transportation:

I know there is a lot of conversation [between two county transportation authorities] about different funding opportunities for putting in infrastructure . . . They are trying to partner with other levels of government and nonprofits to go after grant money. There is a real push for having more regional control for issues that cross boundaries, and there are local agencies trying to hold on to that control. That effort to think regionally is really on display in the Bay area with ABAG [Association of Bay Area Governments] and MTC [Metropolitan Transportation Commission] having more control than they did in the past.

Second, collaboration is encouraged by funders. Transportation providers who have received funding through the federal New Freedom grants (discussed previously in the funding section) have engaged in extensive conversations with local governments regarding improving the mobility options for the elderly and adults with disabilities.

Because we have this Cal Trans New Freedom grant for mobility management, we've been talking to other grantees about mobility management. Most people don't know what that means. It's a new term, and it needs education. We meet with those people monthly.

One individual, whose position is possible due to New Freedom funding, has taken the lead in terms of fostering communication among Bay Area local governments and was mentioned by name by several interviewees. According to this individual, Bay Area governments may be placing an increasing importance on collaboration, particularly as the recession places further constraints on already limited funding.

We are talking about mobility at a regional level. We just started this summer an impromptu regional group of people who are working on mobility management. We had a Bay Area region-wide special presentation just last week. . . Somebody should take the role of pulling the players together so it's not everybody doing their own thing and wasting dollars. Maybe we should try to maximize what we have. I see my role as being a catalyst and bringing people together.

Collaboration with the nonprofit and private sectors. The city planners who mentioned partnerships with nonprofit and private organizations focused on housing programs. As one city respondent explained, these partnerships are a key component in public efforts to build affordable and senior housing projects.

Most of the projects are privately owned that we help out with, but there are deed restrictions that last for a period of time that it needs to be affordable. That's the way most housing in the state is developed, it's not 'public housing', but privately developed by a nonprofit agency or private entity and a redevelopment agency or city loans money, and there are usually multiple sources of money, and a variety of public entities provide money and there are deed restrictions on the land.

A number of cities are also better able to provide home modification assistance by working with nonprofit organizations. In one city, the nonprofit serves as a referral source, with the city working with contractors and homeowners, while in another the city provides referrals but contracts with a nonprofit organization to provide the actual home modification assistance. In addition, cities are looking to nonprofits for innovative solutions to meet the housing needs of older adults. One city respondent described a nonprofit program that no longer exists, but could play an important role in helping older adults age in place.

It was a program in which well seniors went and visited in the homes of frail seniors. It really allowed people to stay in their homes, and also allowed retired seniors to feel connected if that was something that they needed. That program was accompanied by referral sources to help seniors who were over-housed find roommates, whether for financial reasons or for companionship. Those are the kind of programs we could all run at a relatively low cost. We're not running it now. . . There are ways we can use our community development block grants to fund things that aren't necessarily about directly publicly subsidizing the housing, but doing more creative programs that use volunteers.

Transportation employees also recognize the importance of working with nongovernmental groups to make communities more aging friendly. First, county transportation provides funding to nonprofits. For example, county transportation authorities, which are mandated by the county voters to improve transportation services and infrastructure, typically fund projects by cities, counties, and public transit providers. One transportation authority respondent, however, has successfully pushed for distributing some funds to nonprofit organizations. Below is another example by a transportation planner from a different county.

Nonprofits have been a huge partner with us, because we could contract with them to do volunteer programs and other programs we can't do at the county level. We try to do what we can for them, whether in funding or whatever. If we didn't have services in these rural areas, I don't know how we would reach these people.

County aging services departments also support nonprofit organizations; for example, one county funds volunteer and nutrition programs through a collaborative of aging services providers. Similarly, another county partnered with outside organizations, including a community college and a local hospital. These partnerships enabled the county to offer a falls prevention program in multiple sites across the county.

Because we knew it was a 3 year grant and who knew what was going to happen, we decided to partner with our local junior college. We paid for one of their older adult instructors to [get training], and they now have a master trainer, and one of our master trainers also now works for them. [A local hospital] is also now a licensed site. We have three viable sites at the moment.

Barrier

The absence of communication or collaboration can prevent the adoption and implementation of aging-friendly innovations. Some interviewees expressed frustration with a lack of collaboration, while others indicated that local government has a limited role to play in making communities more aging friendly, and the nonprofit and for-profit sectors are better able to meet some of the needs of older adults.

Absence of communication and collaboration. Transportation planners and providers described how the absence of communication creates barriers to aging-friendly policies and programs. First, difficulties arise when local governments and nongovernmental organizations are not coordinating their efforts. For example, one transportation planner criticized a local hospital:

If you're going to build a hospital, let's talk first about how people are going to get there. [A nonprofit organization] built a hospital, but buses can't get in the driveway. So now the bus stop is across the street, and it's not accessible.

Second, difficulties arise when various local governments are not talking to each other. According to one county transportation authority interviewee, there is a need for a travel training program to help older adults navigate the various public and alternative transportation services, but the county has thus far been unable to develop a coordinated county-wide effort. Another example relates to funding. As described above, in some cases funding encourages collaboration and communication. In other cases, however, funding silos prevent various local government actors from coordinating their efforts.

There are different players that know each other exist but don't talk to each other. A lot is communication. . . We need to actually have some leadership at the state and federal level in suggesting agencies talk to one another and start talking together. We have stovepipe funding – my agency funds 'x' population's needs, and your agency funds 'y' population's needs, and never the twain shall meet. We need leadership in terms of the big picture.

Perception of nonprofit and private sector responsibility. Some respondents express the view that local government has limited responsibilities. They spoke not of collaboration and communication, but rather of nonprofits and businesses filling in the gaps that local governments cannot fill. One transportation respondent pointed out that local governments are forced to make difficult decisions regarding the distribution of scarce resources, again raising the issue of financial pressure as a barrier to aging-friendly innovation.

There's a balance, there's only so much the government can do. There are a lot of needs out there, and there is a budgetary limit, and it's hard to decide which services are more important. I think nonprofits and businesses, especially nonprofits, are there to fill in the gap.

When asked about the role of local governments versus the role of nonprofits, one community development director contrasted the two in terms of the types of people they must serve, proposing that a nonprofit group focused on aging services can accomplish more in terms of advocacy and service provision.

We're generalists here. We have to provide all kinds of services to all kinds of people. But a nonprofit can target a particular group and keep telling the story and making the case, and I think it's very important.

As another example, one public transportation employee indicated that medical services are beyond the purview of public transit.

Paratransit is public transportation. I sometimes have to remind people of that. Sometimes people call me and say 'what do I do if I have an emergency?' and I say 'call 911 – we're public transportation'. It can be a fine line between social services and public transportation and medical services. We transport people to dialysis, and that is right on the line. If people miss their rides, they say that their life is in danger, and we are definitely sympathetic to that. We do make an extra effort to make sure that dialysis patients get their rides, but if it becomes a life and death situation, we have to remind them that we are public transit.

Finally, a city planner discussed this on a larger scale. According to this interviewee, while some individuals within city government want to help older adults age in place, the responsibility for providing all of these aging-friendly services does not fall solely on cities.

I don't know if local government should take on the issues or social needs of seniors. . . Initially I'm not feeling there is a responsibility of local government to do everything. No one likes to admit, they all struggle, 'yeah we should be doing something for seniors'. But then there's the bureaucratic side, you know, should we be doing this and get into it? I think there is limited policy and program responsibility, but actually carrying out programs seems to be beyond local government.

State and Federal Mandates

The online survey also did not ask about state and federal mandates and their impact on the adoption of aging-friendly innovations, but several interview participants discussed the importance of laws from higher levels of government.

Facilitator

Many city respondents mentioned California's second unit mandate (AB 1866), which went into effect in 2003. As one city planner described, "the 2nd unit ordinance was a state model ordinance. If we didn't adopt it, it would apply anyway, so you might as well." Another city planner explained the law in more detail:

A few years ago the state changed the rules on how cities could implement 2nd unit ordinances. Most cities had a conditional use permit provision, which meant you had to go for approval. I think in 2002 the state took away use permit option, so cities that had a 2nd unit provision they are approved as of right. Most cities have them anyway.

While the state adopted the law primarily as a way to promote affordable housing, some interviewees, such as the one quoted below, view it as a way to improve the housing options of older adults.

Has anyone talked about the second unit mandate? So, I think that could be very beneficial where seniors could put a second unit on their property and rent it out or they could live in the second unit and rent out their home. Or, they could build a second unit on property owned by one of their kids or someone else.

One city planner described a unique transportation program that highlights not only the impact of state mandates, but also the importance of collaboration with nongovernmental organizations (a theme expanded upon below). According to this individual,

We have a free shuttle. It's not run by the city or by BART. Due to trip reduction ordinance, where state required each city to have an ordinance that required employers of more than 200 to keep track of how employees commuted and help them get out of their cars. Got state law passed to stop that, but in the meantime employers got together to form a nonprofit transportation management association. City is a member as an employer, so they participate. Jointly funded by the employers. All the stops are designed to help the members.

Barrier

Statements by a few interview participants reveal that in some cases higher levels of government limit local governments' ability to offer aging-friendly innovations. For example, according to a city planner:

I think things move slowly, especially in the local government arena, elected officials feel overwhelmed with what they already have to provide. We are constantly bombarded with state mandates, with one more thing we have to do. Just in the last 6 months there have been at least 6 state requirements we have to incorporate locally, and it takes a lot of staff time and effort.

As the following quote from an aging services administrator shows, counties are similarly hampered by state and federal requirements.

IHSS is in an erratic state, still unsure how much the state will cut funding. We are now bogged down doing background checks on providers. The thinking was that there was fraud, and it would save money to do background checks and eliminate fraud. . . As far as

state and federal government, we are very dependent on legislation. Many times we would prefer more autonomy than we receive from the state.

DISCUSSION

This study examined local government adoption and implementation of 22 aging-friendly innovations, defined as policies, programs, and changes in infrastructure that offer the promise of improving the health and well-being of older adults. There were two specific aims of this study: 1) to assess the extent to which local governments are adopting policies, programs and changes in infrastructure designed to meet the needs of their older residents, and 2) to examine the factors, identified from the policy innovation literature, that are associated with such adoption. Using a sequential explanatory mixed methods design, the researcher collected data in two phases. In the first phase, data collected via online surveys from 62 city planners/community development directors, 9 county adult and aging services directors, 5 county transportation authority employees, and 8 public transit agency employees were combined with secondary data from the 2000 U.S. Census and 2000 California Cities Annual Report to answer the two research questions. In the second phase, 18 survey respondents participated in open-ended telephone interviews to expand upon the quantitative findings and provide information that will be used to refine surveys for future research.

Research Question One: Adoption of Aging-Friendly Innovations

Data collected from all four types of survey respondents revealed that local governments in the Bay Area offer a substantial number of aging-friendly innovations in the five domains of community design, housing, transportation/mobility, health and supportive services, and opportunities for community engagement. The aging-friendly innovations with the highest rates of adoption include incentives for mixed-use development and infrastructure changes to improve walkability (i.e., community design innovations), accessory dwelling unit ordinances (i.e., housing innovation), measures to increase the accessibility of public transit and discounted fares for seniors on public transit (i.e., transportation/mobility innovations), information hotlines on area supportive services and home- and community-based services (i.e., health and supportive services innovations), and efforts to improve volunteer opportunities for older adults. Aging-friendly innovations with the lowest rates of adoption include incentives to developers to incorporate accessibility features into new housing, elder driver education and assessment, slow-moving vehicle ordinances, fitness programs, lifelong learning programs, and intergenerational programs.

It appears, therefore, that local governments in the Bay Area are making progress towards making their communities more aging friendly, particularly in terms of alternative forms of mobility (i.e., walking and public transportation). Local governments are not always targeting these changes towards older adults, but the existing literature suggests that each of these innovations could improve their health and well-being and help seniors age in place. Research indicates that policies and programs that create more mixed-use, walkable neighborhoods will positively impact older adults by increasing their levels of physical activity (Berke, Koepsell, et al., 2007) and decreasing the risk of functional limitations (Freedman, et al., 2008). These changes in community design, along with improved accessibility on public transit fixed-route buses and trains, may also alleviate the documented negative effects of driving cessation, such as decreased well-being (Siren, et al., 2004) and less social integration (Mezuk & Rebok, 2008).

All city survey participants have an accessory dwelling unit ordinance in place. While no one has yet to evaluate the impact of ADUs, there is a significant level of demand for this type of

innovation, as 36% of individuals age 50 and older would consider adding an ADU to their current homes if they ever needed additional assistance (Cobb & Dvorak, 2000). The uniform adoption of an accessory dwelling unit ordinance potentially reflects California's second unit mandate (AB 1866), because, as one city planner interview participant explained, "If we didn't adopt it, it would apply anyway, so you might as well". While the state law limits the ability of cities to restrict the development of ADUs (Liebig, et al., 2006), it may not go far enough in terms of creating more second units. In 2004, Governor Schwarzenegger vetoed AB 2702, which would have required all cities in California to allow ADUs of at least 550 square feet in all residential zones, and current law does not require cities to promote the development of ADUs or offer residents technical assistance as they move through the permit process (Liebig, et al., 2006).

While almost 60% of cities have made infrastructure changes (e.g., larger road signs and added left hand turn lanes) that could help older drivers remain safely in the road, only a small minority have adopted driver education programs, driver assessment programs, and a slower-moving vehicle ordinance. According to one county transportation employee who participated in the open-ended interviews, "[Older adults] have two cars in their garages, and it's scary," and it is possible that local governments believe that older adults are incapable of operating their own vehicle. Across the United States, 80% of states have invested little to no resources in older driver safety projects (Lynott, et al., 2009) and the National Highway Traffic Safety Administration has not yet issued guidelines to assist localities as they develop slower-moving vehicle ordinances (Suen & Sen, 2004). This all suggests that local, state, and federal governments are not giving much attention to keeping elders behind the wheel. Older adults, however, want to keep driving for as long as possible (Kostyniuk, & Shope, 2003; Rudman, et al., 2006). In 2003, 29 million adults age 65 and older were drivers, making up 14.6% of licensed drivers (Herbel, et al., 2006). In the Bay Area, 22% of women and 55% of men age 85 and older still have a driver's license (Nelson\Nygaard Consulting Associates, 2002). Public transportation cannot address the mobility needs of all seniors. In the Bay Area, for example, 53% of older adults live in areas without public transit services, and that percentage is expected to increase by 2025 (Nelson\Nygaard Consulting Associates, 2002). In addition, as Rosenbloom (2009, p.39) points out, "long after they can no longer walk far or use public transit, older people can drive."

Less than 39% of cities offer developers incentives to incorporate accessibility features, including wide doorways, entrances without steps, and grab bars, into new housing. The Fair Housing Amendments Act of 1988 requires that new buildings with at least four units include basic accessibility features such as light switches and outlets in accessible locations, accessible common areas, and an accessible route into the units (Pynoos, et al., 2008). The majority of multi-family buildings, however, were built before this mandate went into effect (Pynoos, et al., 2008), and single family dwellings and smaller buildings are exempt (American Planning Association, 2006). Thirty-nine cities across the country have adopted visitability codes that call for the removal of barriers that prevent individuals with disabilities from entering homes (e.g., narrow interior doorways), but the federal Inclusive Home Design Act, which would mandate visitability throughout the United States, has never made it out of subcommittee (Pynoos, et al., 2008). Since the majority of new homes that include visitability provisions have been built in areas where it is legally mandated (Pynoos, et al., 2008), it appears that local laws and incentives could lead to the development of more accessible housing. In addition, it is more cost-effective to incorporate accessibility features into new housing than to retrofit existing homes (Smith, et al., 2008). Many older adults reside in older homes that may require expensive renovations

(Strathers, 2005), but may not live in communities with adequate housing options if they have any physical limitations that require accessible features.

Research Question Two: Factors Associated with the Adoption of Aging-Friendly Innovations

Using data collected from the cities, the second research questions explored the association between internal determinants and diffusion factors and the adoption of the 11 policies and programs within the domains of community design, housing, and transportation. Each city was placed in the low, medium, or high category of aging-friendly innovation adoption. In the ordered logistic regression model, small sample size affected the model's precision and a number of the explanatory variables had high odds ratios, large standard errors, and extremely wide confidence intervals. This discussion therefore focuses on the results from bivariate analyses.

Hypothesis One: Diffusion Factors

Among the three diffusion factors explored in this study, only public pressure was significantly related to the adoption of aging-friendly innovations, with those reporting public pressure more likely to be in the medium or high category of adoption. Qualitative interviews support the quantitative findings, as a number of participants reported that advocacy by residents influences policy decisions. First, local governments, particularly county transportation authorities and public transit agencies, solicit the input of residents through citizen advisory committees. This came up in interviews as respondents discussed their efforts to improve the accessibility of transit vehicles. One transit employee explained, "For accessibility, they definitely have our ear. They give us good insight from the perspective of people with disabilities and elderly consumers, and we take their input into consideration." Second, several city planners described the importance of citizen groups and other advocacy organizations that push for change from outside local government. For example, in one city, "every large project had its genesis with some sort of citizen group that came to the city with a concept, and got that to move forward." Disability rights advocates were mentioned more often than older adults, which could partially explain the finding, described in more detail below, that the percent of residents with a disability is significantly associated with more aging-friendly innovations while the percent of residents age 65 and older is associated with less. Finally, according to some interviewees, the public can present a barrier to aging-friendly innovations when there is significant resistance. Similar to a recent study examining barriers to the adoption of accessory dwelling unit ordinances (Liebig, et al., 2006), public resistance came up in discussions about mixed-use and higher density development. This ranged from NIMBYism (not in my backyard) to residential concerns about parking problems associated with multi-unit buildings.

A majority of city respondents in all three aging-friendly categories (low, medium, and high) indicated that they believe that aging-friendly innovations can produce successful outcomes and can lead to a competitive advantage, and these two diffusion factors were not significantly associated with policy adoption. According to an internal determinants and diffusion model, communication plays an important role in terms of policymakers learning about the impact of policies and programs in other areas (Walker, 1969). Communication and collaboration were brought up in interviews within the context of improving transportation options for seniors and individuals with disabilities. In some cases, participants described communication and collaboration as the key to receiving the necessary funding to put aging-

friendly innovations in place. In other cases, collaboration and communication is a requisite of funding they have received. One county transportation employee expressed a desire for state and federal governments to put more effort into fostering communication among various local governments and agencies, explaining “There are different players that know each other exist but don’t talk to each other . . . We have stovepipe funding – my agency funds ‘X’ population’s needs, and your agency funds ‘Y’ population’s needs, and never the twain shall meet.” Therefore, the quantitative findings did not provide empirical support for the association between these two diffusion factors and policy adoption, but qualitative findings suggest that local government actors are learning about aging-friendly innovations and their impact from each other, which according to an internal determinants and diffusion model is one reason for the diffusion of innovations (Berry & Berry, 1999).

Hypothesis Two: Community Characteristics

Quantitative and qualitative analyses revealed a number of community characteristics that impact local government adoption of aging-friendly innovations. The second hypothesis was partially supported, as two community characteristics were positively associated with the adoption of more aging-friendly innovations, including size of the population and percent of the population with a disability. Previous studies have found that a larger population is associated with innovative policies, such as anti-smoking laws (Shipan & Volden, 2005) and public management reforms (Boyne & Gould-Williams, 2005). Qualitative interviews suggest that population size may be a proxy for population density. For example, some aging-friendly innovations (e.g., incentives for mixed-use development and incentives for multi-unit senior housing) are viewed as necessary in cities that no longer have wide open spaces for new development. A city planner from an inner suburb described mixed-use neighborhoods as “the next logical progression when you don’t have much land left in single-family homes and you don’t have single-family homes going away”. In addition, residents in inner suburbs have better access to public transportation, particularly those located on the Bay Area Rapid Transit (BART) line, than those living in more rural regions of the Bay Area (Nelson\Nygaard Consulting Associates, 2002). One city planner from a smaller city described how inner suburbs have an advantage when it comes to adopting and implementing aging-friendly innovations: “They’re closer to the city, have a better bus system, and all these things start to play off each other very positively. And when they’re not there, it just becomes harder to build all those functions in so you have a complete system.”

It is surprising that the percent of the population with a disability was associated with the adoption of more aging-friendly innovations, but percent of the population age 65 and older was associated with the adoption of fewer aging-friendly innovations. Perhaps this is due to the efforts of disability rights advocates, described in the previous section. Some of the aging-friendly innovations included in this study (e.g., efforts to improve the accessibility of public transit, incentives for developers to incorporate accessibility features into new housing, alternative transportation services) are intended to address difficulties associated with disability status, rather than age. The relationship may also reflect the history of the Bay Area, since the disability rights and independent living movements began in Berkeley in the 1960s and 1970s. Several interview participants described the Bay Area as being “ahead of the curve” in terms of services and accommodations for individuals with disabilities. One public transit employee offered: “I think anecdotally the Bay Area is a magnet for people with disabilities because we have such great services.” Based on 2000 U.S. Census data (see Table 1), the Bay Area has a

higher percent of the population age 65 and older and a lower percent of the population with a disability than the state of California or the United States as a whole. However, as one transit agency employee noted “[individuals with disabilities] are more out in the community”, influencing policymakers’ perception of need. Further, while this study did not look at the impact of population race and ethnicity, comments from one city planner suggest that this should be included in future studies: “To be candid . . . we do have a large senior population, but we also have a large Hispanic population, and that seems to be more of a focus on many of our social organizations.”

Contrary to the second hypothesis, socioeconomic status of the population, measured in this study by percent of the population with a high school diploma and median household income, was negatively associated with the adoption of aging-friendly innovations. Earlier studies using an internal determinants and diffusion model have found that educational attainment and income positively influence the adoption of innovative policies and programs (Berry & Berry, 1999; Shipan & Volden, 2005; Walker, 1969). Boyne and Gould-Williams (2005), however, hypothesize that “socioeconomic deprivation” (p. 421) could inspire innovation adoption because it creates a greater need for innovative solutions. A number of interviewees attributed recent efforts to create mixed-use, walkable neighborhoods to economic factors. Their cities are trying to revitalize their downtown districts, hoping to attract new stores, restaurants, tourists, and residents that will increase economic activity within the city limits. A telephone interview with the city planner from a wealthy, highly educated city also provides clues as to the reasons behind these unexpected results. This city is “an affluent community, so it doesn’t require as much public assistance.” This city planner saw the role of local government as creating an environment in which elders could hire private providers to assist them with personal and household tasks, such as building affordable housing “for the folks who provide those services.” It is possible that wealthier communities do not believe that their older residents require, for example, home modification services, alternative transportation, or dedicated units in multi-family housing because they assume their elderly population can pay for these services themselves. However, as another city interview participant pointed out, income is not the only measure of need: “you really want to aim for mixed income because an affordable place to live isn’t really the only reason that seniors are looking to move from their homes. It could be a widow in a four-bedroom house sitting up on a hill, and is that the most healthy environment?” This respondent appears to see a role for local government policy in making communities more aging friendly for older adults of all income levels.

Hypothesis Three: Government Characteristics

Bivariate analyses of survey responses from city planners/community development directors also produced partial support for an association between government characteristics and the adoption of aging-friendly innovations. City respondents who indicated that an individual has been pushing for aging-friendly innovations (e.g., community advocate, government employee, elected official) were more likely to be in the higher category of innovation adoption. While some of these individuals are residents or community advocates, 43% of survey participants identified a policy entrepreneur as an elected official or government employee. A few interview participants also mentioned individuals who had played an integral role in the adoption of certain aging-friendly policies and programs. Certain elected board members, for example, were given credit for bringing about improved transportation for older adults. Previous research on Healthy Cities has also identified individual actors as key to the successful creation of a World Health

Organization “Healthy City” (Goumans & Springett, 1997). While these Healthy City researchers did not use an internal determinants and diffusion framework, there are many similarities between policies and programs that would create more aging-friendly communities and policies and programs that would help develop a Healthy City (e.g., walkable neighborhoods, mixed-use development). The primary goal of a Healthy City is to continually strive to incorporate health into all policy decisions (Hancock, 1993). There is no prototype for a Healthy City, but there is a set of values and processes that can assist communities as they attempt to become healthier (Minkler, 2000). In an evaluation of Healthy Cities in the United Kingdom and The Netherlands, Goumans and Springett (1997) found that individual politicians tend to bring health to the top of the political agenda, increasing the likelihood of a city initiating a Healthy Cities project.

Previous policy innovation studies have reported a positive association between measures of government wealth and innovation adoption (e.g., Berry & Berry, 1999; Gray, 1973; Wolman, 1986), but there was no significant relationship in the present study. While per capita government spending has been used as a proxy measure for government resources in previous explorations of local government policy adoption (e.g., Shipan & Volden, 2005), the literature suggests other measures that could be used in future studies of aging-friendly innovations. Fiscal slack, for example, is a measure of surplus resources used by other researchers in the policy innovation field (Greer, 1977). Additional dimensions of government financial resources include revenues, maintaining a solvent budget, and the ability to meet short-term and long-term financial obligations (Hendrick, 2004). Qualitative interviews in the current study offer alternative aspects of fiscal health that could impact the adoption of aging-friendly innovations and should be considered for inclusion in future research. Some local governments, for example, actively pursued grants that allowed them to offer innovative health and supportive programs, improve transportation options for seniors, and conduct a feasibility study of constructing senior housing in a downtown area.

Interview participants also spoke of limited government funds, which appear to serve as both a facilitator and barrier to aging-friendly innovations. Limited resources may prompt local governments to be more creative as they seek to address the needs of older adults, as one county transportation employee indicated with the statement, “A lot of what is happening is because the money situation is so tight, other folks are looking at how they can continue to provide services with less funds.” Transit agencies, for example, are trying to meet the needs of individuals with disabilities at a lower cost by improving the accessibility of fixed-route vehicles. Paratransit services are much more expensive than fixed-route services; in Phoenix, for example, transit agencies spend \$35 per paratransit trip and only \$2.37 for a bus trip to the same destination (Rosenbloom, 2009). Recent drops in revenues, however, also present a challenge to local government adoption of aging-friendly policies and programs. The financial crisis that began in the fall of 2007 has impacted property taxes, sales taxes, and the amount of developer fees that cities can collect. According to one city planner: “in 20 years of planning, I’ve never seen local government in fiscal conditions as difficult as they are here.” Local tax revenues (and changes in local tax revenues) should also be considered as a measure of financial resources in future studies.

Two other government characteristics that could potentially be associated with aging-friendly policy adoption emerged from the qualitative interviews. Several interviewees discussed the importance of collaborative partnerships with nonprofit organizations, which have also allowed them to provide aging-friendly programs within their jurisdictions. Some local

governments, such as county transportation authorities, distribute funding to nonprofits, which then provide the actual aging-friendly programs. Other local governments work together with nonprofits to provide services, such as one city that provides referrals to a nonprofit offering home modification assistance. A number of interviewees also mentioned the “limited policy and program responsibility” of local governments in terms of improving the health and well-being of older adults and helping them age in place. These interviewees believe nonprofits are “there to fill in the gap”, particularly since nonprofits can focus on a particular population, such as older adults, while local governments are “generalists” and responsible for all of their residents.

Second, a number of interview participants portrayed state and federal mandates as both a facilitator and barrier to aging-friendly policies and programs. While the present study explored “horizontal” diffusion at the local level, previous policy innovation studies have examined the role of what is called “vertical” diffusion (Berry & Berry, 1999). In the case of vertical diffusion, the state or federal government imposes the diffusion of innovations; other studies have found this to be the case in anti-smoking bans (Shipan & Volden, 2005), hazardous waste policies (Daley & Garand, 2005), and Healthy Cities projects (Kenzer, 1999). The potential role of vertical diffusion can be seen in the universal adoption of an accessory dwelling unit ordinance, and a number of interview participants mentioned the state of California’s second unit mandate (AB 1866), described above. Some interviewees also explained how state and federal mandates can impede the aging-friendly innovation adoption process. Specifically, laws from higher levels of government can sometimes create cumbersome procedures and requirements that take up local government staff time. Future research should therefore explore whether laws and guidelines at the federal and state levels are associated with the adoption of policies and programs that could create more aging-friendly communities.

Limitations

There are a number of limitations of this study. First, this study achieved fairly good response rates, but it is possible that the failure of some local government employees to complete and return the online surveys resulted in nonresponse error (Dillman, 1991). The length of online surveys may have discouraged some potential participants, and future studies could target surveys to specific local government respondents (e.g., housing specialists, building inspectors) to shorten the amount of time required to complete each survey. Second, this study relied on self-report data, which could cause measurement error if some respondents provided inaccurate information (Dillman, 1991). There is not currently a database of local government policies and programs, and local government websites vary in terms of the quality and amount of information displayed online. One possible solution is to request that two individuals complete each survey (e.g., two city planners or two directors of aging services), and the researcher could ask for more information should any discrepancies arise. Third, this study used cross-sectional analyses to explore policy adoption, a method criticized by other innovation researchers (e.g., Berry & Berry, 1990). Since diffusion describes the adoption of policies over time, policy innovation researchers recommend using longitudinal data and event history analysis (Berry & Berry, 1990), which would require that future research collect data on the year that each aging-friendly innovation was adopted. Fourth, aging-friendly innovations studies should expand to other geographical regions to explore the generalizability of the current study’s results. Finally, future research should include a larger sample size so that the data can be fully examined using factor analysis, multivariate regression, and multilevel modeling.

Implications and Future Research

The findings of this study suggest a number of research and practice implications that should be further explored in future research. First, the results and limitations of this research suggest that it should be replicated, with modifications described below, to determine whether the findings explain local government adoption of aging-friendly innovations in general or are specific to the population and methods used in this study. Second, given the limitations of the current study, results offer a number of strategies that residents, advocates, service providers, and policymakers could employ in their efforts to create more aging-friendly communities. Finally, survey and interview results hint at additional lines of inquiry that should be pursued as part of a larger aging-friendly communities research agenda.

Replication of the Current Study

It is difficult to determine whether the findings for the first research question are typical of local government across the United States because this study is one of the first to assess the extent to which local governments have adopted aging-friendly innovations. In 2005, N4A and Partners for Livable Communities conducted a similar study of aging-friendly policies and programs, sending what they titled the Maturing of America survey nationwide to 10,178 cities, towns, townships, villages, and boroughs with a population of 2,500 or more. It is difficult to compare the results of the present study to the Maturing of America because the Maturing of America survey did not send questionnaires to public transit agencies, county transportation employees, or county aging services directors and did not ask about a number of aging-friendly innovations included in the present study (e.g., measures to improve the accessibility of public transit, driver education and driver assessment programs, and efforts to improve the accessibility of new housing). For similar questions in the current study and the Maturing of America survey, however, results of the Maturing of America survey often indicate lower rates of adoption than those found in the present study. For example, in the domain of community design, among participants in the Maturing of America study, only 41% had adopted incentives for mixed use neighborhoods and 51% were attempting to make their communities more walkable, compared with almost 68% and 89%, respectively, in the present study. Forty-four percent of local governments in the Maturing of America survey are involved (i.e., provide, fund, or partner with a nonprofit) in home modification assistance, compared to more than 53% in this study. In terms of transportation, 47% of participants in Maturing of America reported infrastructure changes to improve road design to meet the needs of older adults, compared to almost 60% of cities in this sample. It is possible that the San Francisco Bay Area is ahead of the curve in terms of adopting aging-friendly innovations, particularly as it is located in a state that has historically been receptive to innovation (Godwin & Schroedel, 2000). It is also possible that these differences reflect changes over time, as data collection for the present study occurred four years after data collection for the Maturing of America survey. In addition, the overall response rate for the Maturing of America survey was 17.6% (N4A and Partners for Livable Communities, 2005), calling into question the generalizability of their results.

In addition, qualitative interviews revealed a number of aging-friendly innovations that should be considered for inclusion in future studies on this topic. A number of city departments of parks and recreation, for example, run senior centers and other programs designed to keep elders connected to their community. Public safety also came up in some city interviews, and future studies could ask about policies and programs within this domain. The Maturing of

America survey, for example, asked about the existence of an evacuation plan for older residents, emergency energy assistance, and Neighborhood Watch programs (N4A and Partners for Livable Communities, 2005). Some cities also offer housing programs that were not a part of the current study. One city is considering a program that would facilitate shared housing arrangements for older adults through a roommate referral service, and another offers waivers to assisted living facilities that allow higher densities without affordability requirements. Future research should replicate this study, including these additional aging-friendly innovations, to assess the extent to which local governments in other geographic regions have adopted these policies, programs, and infrastructure changes.

In terms of the second research questions, one purpose of this study was to explore whether an internal determinants and diffusion model is an appropriate framework to guide investigations into aging-friendly innovations at the local level, and suggest ways in which the model can be refined to describe this particular innovation phenomenon. Results of the present study do not support some of the propositions of an internal determinants and diffusion model. First, this may reflect the limitations of this study described above, including nonresponse bias, small sample size, and the use of cross-sectional data rather than longitudinal data. Further, these differences may reflect idiosyncrasies of the San Francisco Bay Area. As noted earlier, the Bay Area differs from the U.S. population as a whole in terms of population education, household median income, percentage of the population age 65 and older, and percentage of the population with a disability. In addition, a recent survey of California voters by the Public Policy Institute of California (2009) reports that Democrats are more likely to live in the Bay Area than Republicans, and those who identify themselves as Democrats tend to prefer a government that provides more services in exchange for higher taxes. This has implications for the number of aging-friendly innovations that have been adopted by Bay Area local governments, which may be higher than in other geographic regions. This also suggests that political affiliation is a community characteristic that should be included in future research studies on aging-friendly innovation adoption.

The results also suggest that decisions regarding the operationalization of independent variables may account for finding only partial support for the hypotheses. For example, a large majority of survey respondents were aware of benefits of and potential advantages to adoption of aging-friendly policies and programs, and these two factors do not vary among those who are in the low, medium, or high levels of aging-friendly innovation adoption. A more appropriate line of inquiry in terms of the diffusion of aging-friendly innovations may lie in the role of communication and collaboration. This may involve questions regarding formal collaborative partnerships with local governments, nonprofit organizations, and other stakeholders, with the goal of improving communities for older adults. As another example, the use of per capita government spending as a proxy for funding appears to be inadequate. First, local government spending is not directed solely at individuals who reside within that particular jurisdiction, but rather all the individuals who work, shop, and visit that city each day. Some cities therefore experience demands for their services by a population that far exceeds their population as reported by the U.S. census. Second, additional measures of funding may offer a more complete picture of a city's financial resources, including fiscal slack, total revenues, a recent growth or reduction in revenues, maintaining a solvent budget, the ability to meet short- and long-term financial obligations, and the receipt of funding (whether from state, federal, or foundation sources) dedicated towards specific aging-friendly innovations. Further, some aging-friendly innovations (e.g., accessible public transit) may cost less than current programs and policies

(e.g., paratransit services), suggesting that perceptions of cost-effectiveness should be explored in future research.

Qualitative results indicate that additional characteristics should be included in future research. First, nonprofit organizations and private businesses may play a major role in making communities more aging friendly. It is possible that population educational attainment and income are negatively associated with innovation adoption in this study because, as suggested by the telephone interviews, local governments in jurisdictions with a higher socioeconomic status believe their populations can take care of themselves. Older adults in these communities may be able to meet their housing, transportation, and community engagement needs through the private market. In addition, if nonprofit organizations are providing a service, such as home modification assistance or alternative transportation services, it may not be necessary for the local government to duplicate these services. Future surveys should also ask about the vertical diffusion of aging-friendly innovations through state and federal mandates. This involves collecting data not only on the existence of federal or state laws requiring or facilitating the adoption of aging-friendly innovations, but also in the local interpretation of these laws.

The use of an ordered categorical variable designating each city as low (0-4 innovations), medium (5 or 6 innovations), or high (7-11 innovations) also requires further exploration. As described in the Methods chapter, it would have been ideal to conduct exploratory factor analysis to determine whether there is an underlying ‘aging-friendly’ process that creates correlations among the aging-friendly innovations included in this study. It is possible that the factors associated with aging-friendly innovations are domain-specific (e.g., transportation and mobility innovations vs. housing innovations) rather than global. In addition, the differences between each level are somewhat arbitrary and may not reflect true differences in the aging-friendliness of a community. It is unclear, for example, if there is a meaningful difference between a city that has adopted four aging-friendly innovations, and is therefore at the low level, compared to a city that has adopted five aging-friendly innovations, and is therefore at the medium level.

Due to the small sample size, bivariate and multivariate analyses also did not include all twenty-two aging-friendly innovations. Future research should include a much larger sample of county adult and aging services directors, county transportation authority employees, and public transit agency employees, so that the conceptual model can be tested empirically for aging-friendly innovations within all five domains of community design, housing, transportation, health and supportive services, and opportunities for community engagement.

Another explanation is that the results may reflect limitations of this conceptual model. Other policy researchers (e.g., Downs & Mohr, 1976) have criticized internal determinants and diffusion models for the extreme variation in results reported across studies. It is not unusual for factors that are positively associated with one type of policy innovation to be negatively associated, or not associated at all, with other innovations (Downs & Mohr, 1976). The researcher selected this model in part because of the flexibility it allows in terms of the specific characteristics associated with policy adoption, and therefore it is not altogether surprising that the results of the present study differed from previous research on, for example, local anti-smoking policies (see Shipan & Volden, 2005).

Given the limitations of this study, the findings raises questions regarding the applicability of the internal determinants and diffusion model used in this study to the adoption of aging-friendly innovations. Quantitative and qualitative results suggest that future research should modify this conceptual model and empirically test a revised set of hypotheses.

The first revised hypothesis proposes that three diffusion factors will be positively associated with the adoption of aging-friendly innovations: 1) public pressure from citizens to adopt aging-friendly innovations; 2) collaborative partnerships with local governments, nonprofit organizations, private businesses, and other stakeholders, with the goal of creating more aging-friendly communities; and 3) communication with other local governments regarding specific aging-friendly innovations. Special attention should be directed towards understanding whether public pressure comes from older adults, individuals with disabilities, or other constituent groups.

The second revised hypothesis proposes that three community characteristics will be positively associated with the adoption of three aging-friendly innovations: 1) size of the population, 2) the percent of the population age 65 and older, and 3) percent of the population with a disability. In addition, three community characteristics will be negatively associated with the adoption of aging-friendly innovations: 1) educational attainment of the population, 2) household median income, and 3) the existence of nonprofit organizations offering aging-friendly innovations. Findings from the current study contradict this hypothesis in terms of the relationship between percent of the population age 65 and older and the adoption of aging-friendly innovations. This contradiction should be explored further, as it is difficult to find empirical support beyond the current findings for hypothesizing an inverse relationship between the relative size of the elderly population and aging-friendly innovation adoption.

The third revised hypothesis proposes that two government characteristics will be positively associated with the adoption of aging-friendly innovations: 1) local government funding and 2) the existence of a policy entrepreneur. In addition, one government characteristic will be negatively associated with the adoption of aging-friendly innovations: 1) perception of the role of government vs. the role of nongovernmental sectors. Measuring local government funding should take into account surplus financial resources, grant funding, and a recent increase or decrease in revenues, among others.

The fourth revised hypothesis proposes that one vertical characteristic will be positively associated with the adoption of aging-friendly innovations: 1) state and federal laws mandating the adoption and implementation of aging-friendly innovations. This requires not only collecting data on the existence of state and federal mandates, but also the way in which these mandates are interpreted at the local level. The Americans with Disabilities Act provides one example of how local government interpretation of a law can lead to problems in its implementation. The Civil Rights Division of the U.S. Department of Justice (2008) notes that city governments have made a number of erroneous assumptions regarding the applicability of the ADA to the physical features of their community. This includes a belief that small cities are exempt from all ADA requirements and that cities do not have to improve the accessibility of historically significant buildings. It is possible that local governments could hold similarly incorrect beliefs regarding other state and federal statutes that could make communities more aging friendly.

Strategies to Create More Aging-Friendly Communities

The first set of strategies relate to mobilizing public pressure. Based on the results of this survey, older adults can potentially bring about community change by placing pressure on their local governments to adopt innovations that will improve their health and well-being and help them age in place. In this study, almost 89% of cities at the high level of aging-friendly innovation adoption reported public pressure, compared with less than 47% of cities at the low level. It is not clear, however, if older adults are responsible for this public pressure. Previous

policy innovation research has found that public pressure is associated with the adoption of policies that are particularly salient to residents, such as those around sex education, pornography, gambling, and the death penalty (Mooney & Lee, 2000), but is not influential for policies that have a more remote impact on people's lives, such as hazardous waste policies (Daley & Garand, 2005). Disability groups may be more active at the local level because individuals who already have a disability or functional limitation are much more active politically than healthy older adults who face possible disability in the future. One implication of this study is that service providers and community advocates should facilitate public pressure by older adults through community-building and community development activities. For example, the Elder Friendly Communities Project (EFCP) in Calgary, Canada, has involved older adults in their efforts to bring about more elder-friendly communities (Austin, Des Camp, Flux, McClelland, & Sieppert, 2005). EFCP employs professional community development workers to provide support and encouragement to older adults, but elders are responsible for planning and carrying out actions to bring about community change (Austin, et al., 2005). This model has produced a number of outcomes, including infrastructure improvements, social gatherings, and intergenerational programs (Austin, et al., 2005).

Historically, older adults have successfully pressured policymakers, particularly at the federal level, to adopt policies and programs that can improve elder health and well-being, such as Social Security and Medicare. There is little research, however, on the effectiveness of advocacy by older adults aimed at city and county governments. Torres-Gil and Villa (2000) propose that public support for federal aging programs has deteriorated since the 1990s due to the perception that older adults are taking an excessive share of public resources and enjoy undue influence over the political process through their involvement in national organizations such as AARP. It is unclear whether this perception has trickled down to influence policies and programs at the local level. Taken together, this all points towards the creation of advocacy campaigns that: 1) solicit the interest and active involvement of older adults, 2) use tactics successfully employed by elder advocacy groups at the federal level or other populations (e.g., individuals with disabilities) at the local level, and, 3) garner support from younger residents.

The second strategy involves soliciting the support of individuals working within government, called policy entrepreneurs in this study and the larger policy innovation literature. As Walker (1973) explains, "the presence of a single aide on a legislative staff who is enthusiastic about a new program, or the chance reading of an article by a political leader can cause [governments] to adopt new programs more rapidly than might normally be expected." (p. 1190). Advocates who target their efforts towards an individual within government, therefore, can potentially bring about policy and programmatic change at the local level. However, the question remains as to what happens if they leave their current position or focus their energy on another social problem (Goumans & Springett, 1997). This suggests that aging-friendly community advocates should seek the support of multiple elected officials and local government employees to bring about the adoption of aging-friendly innovations.

The final strategy relates to the passage of laws and provision of funding by state and federal governments. While the online survey did not examine the potential association between these two factors and the adoption of aging-friendly innovations, telephone interviews suggest that they both can motivate local governments to adopt aging-friendly innovations. California's second unit mandate, for example, was mentioned by some city interviewees as a major influence in their city's decision to adopt a second unit ordinance. An example of funding is found in federal New Freedom grants, which facilitated transportation planning for older adults

in some Bay Area counties. Top-down vertical diffusion of innovative policies and programs has been reported in previous policy innovation studies (e.g., Kenzer, 1999; Shipan & Volden, 2005). Federal financial aid has played an important role in areas such as highway construction, elementary and secondary education, and state welfare programs (Strouse & Jones, 1974). Further, Shipan and Volden (2006) have found evidence of bottom-up vertical diffusion, reporting that the adoption of state anti-smoking policies is the result of the spread of local smoking bans accompanied by interest group lobbying efforts at the state level. This suggests that local adoption of aging-friendly innovations could potentially increase the likelihood of state and federal mandates and funding that aim to make communities more aging-friendly, which in turn could increase the likelihood of other local governments adopting aging-friendly innovations. Advocacy efforts should therefore focus on local, state, and federal levels of government.

Developing an Aging-Friendly Communities Research Agenda

Beyond the recommendation for modifying and replicating the current study, information gathered over the course of this study raise important questions that should be considered as more and more governments, nonprofit organizations, foundations, and scholars embrace the idea of making communities more aging friendly.

First, what exactly is an aging-friendly innovation or an aging-friendly community, and how does it differ from, for example, a disability-friendly innovation or disability-friendly community? As described in the Introduction, though there are similarities between the various conceptions, as yet there is no uniform definition of an aging-friendly community. In the present study, the finding that percent of the population with a disability is positively associated with aging-friendly innovation adoption, while percent of the population age 65 and older is negatively associated with adoption, highlights the difficulties associated with studying such an ill-defined concept. Qualitative interviews suggest that younger adults with disabilities are pushing for policies and programs that would bring about change in the physical and social environment of existing communities. Disability advocates, for example, were cited as an essential motivating factor for building accessible housing and repairing sidewalks. This raises the question as to whether the 22 policies, programs, and infrastructure changes explored in this study are for older adults with a range of abilities, or individuals of all ages with disabilities. In terms of the characteristics of an aging-friendly community as proposed by Lehning and colleagues (2007), accessible housing and infrastructure changes to create more walkable communities could serve a compensation function, providing support to insure that individuals with functional limitations can still meet their basic needs, such as housing and mobility. But according to Lehning and colleagues, continuity and challenge are also key characteristics of an aging-friendly community. Infrastructure changes to improve older driver safety, for example, may provide continuity by allowing older adults to continue to enjoy driving their own cars. Efforts to improve volunteer and work opportunities adults may offer challenge as older adults learn new skills and take on new roles. These three characteristics are conceptually based and have not yet been examined empirically. Future research should therefore examine whether specific aging-friendly innovations serve a particular function (i.e., compensation, continuity, or challenge).

Second, how can communities change their physical and social environment in such a way that the needs and wants of older residents do not impede those of other residents? According to Alley and colleagues (2007), an aging-friendly community is one in which policies,

programs, and infrastructure exist to promote the health and well being of residents of any age and level of ability. The goal is not to promote the quality of life of older adults to the detriment of residents at other stages of the life course. The present study, however, suggests a tension between inherent in balancing the needs of elders with members of younger age groups. For example, survey and interview results call attention to a potential conflict between the priorities of older adults and the priorities of local government policymakers. The small number of cities and counties that provide programs designed to help older adults continue to operate their own vehicles (i.e., driver education, driver assessment, and slow-moving vehicle ordinances), combined with comments made during the qualitative interviews, suggest that local governments are hesitant to facilitate the continued driving of older adults. Research indicates that there are a number of safety concerns related to older drivers, including poor vision (Lynott, et al., 2009), slower reaction time, impaired attention (Brenner, et al., 2008), and higher rates of traffic accidents compared to other age groups (Rosenbloom, 2004). The majority of older adults, however, want to remain behind the wheel as long as possible (Rudman, et al., 2006), and view their ability to drive as an important component of their identity and necessary for their continued independence (Glasgow & Blakely, 2000). The challenge is to adopt a mix of policies and programs that allow older adults to remain independent and mobile without risking their safety or that of other members of the community. Other aging-friendly innovations may present a similar dilemma. For example, designating affordable housing units for seniors could restrict the housing options of low-income families. Future research should explore these potential trade-offs and assess the extent to which aging-friendly innovations impact other populations.

Third, and perhaps most importantly, what impact do these policies, programs, and infrastructure changes on the health and well-being of older adults and their ability to age in place? That is, do these innovations actually make communities more aging-friendly? These innovations and the changes they are purported to bring about are viewed as a way to ensure that older adults can maintain their independence and continue to contribute to their community (Alley, et al., 2007), but there is not yet an empirical basis to support this proposition. As described in the Literature Review, there is some evidence that the policies, programs, and infrastructure changes explored in this study are positively associated with elder health, well-being, and ability to age in place. For example, functional limitations are associated with an increased risk of nursing home placement (Banaszak-Holl, Fendrick, Foster, Herzog, Kabeto, Kent, et al., 2004; Gaugler, Duval, Anderson, & Kane, 2007). Mixed-use and walkable neighborhoods, however, are associated with fewer functional limitations (Freedman, et al., 2008), suggesting that policies, programs, and infrastructure changes that promote mixed-use and walkable neighborhoods could potentially delay or prevent institutionalization. To date, however, there is no empirical literature that has examined the impact of aging-friendly innovations in a holistic way, leaving a number of unanswered questions. Is there an interactive effect between specific aging-friendly innovations? Are there mediating factors (e.g., social capital) that could explain any observed effects of creating more aging-friendly communities? Are specific domains, or specific innovations within these domains, more important to elder health and well-being and the ability to age in place? Is there a tipping point at which a community moves from aging-unfriendly to aging-friendly? Is there a difference in the mix of policies, programs, and infrastructure changes between different types of communities (e.g., urban vs. rural)? Until there are answers to these questions, it is possible that governments, foundations, and organizations are devoting their often scarce resources towards policies, programs, and infrastructure changes that may be ineffective.

CONCLUSION

Framed by an internal determinants and diffusion model, this study used a sequential explanatory mixed methods research design to explore 1) the extent to which cities, county departments of adult and aging services, county transportation authorities, and public transit agencies in the San Francisco Bay Area have adopted aging-friendly policies, programs, and infrastructure changes in the areas of community design, housing, transportation, health care and supportive services, and opportunities for community engagement, and 2) the diffusion factors, community characteristics, and government characteristics associated with such adoption.

For the first research question, local government respondents were asked about the existence of twenty-two aging-friendly innovations within the domains of community design, housing, transportation, health and supportive services, and opportunities for community engagement. The most common aging-friendly innovations adopted by local governments include those that target alternative forms of mobility, including incentives for mixed use neighborhoods, infrastructure changes to improve walkability, discounted public transportation fares, and changes to improve the accessibility of public transit. While local governments are not always targeting these changes towards older adults, the existing literature suggests that each of these innovations could improve their health and well-being and help seniors age in place. The least common policies and programs are those that aim to help older adults continue driving, including driver education programs, driver assessment programs, and slow-moving vehicle ordinances. While driving may become more difficult with age, the majority of older adults age 65 and older continue to drive their own cars (Feldman, et al., 2004), and about 1/3 of older adults in the United States do not have access to public transportation in their community (Rosenbloom & Herbel, 2009). Further, older adults express the belief that giving up driving is equivalent to giving up their independence (Glasgow & Blakely, 2000).

For the second research question, bivariate analyses of city-level data provide partial support for an internal determinants and diffusion model. Cities with a larger total population, larger percent of the population with a disability, and have experienced public pressure or individual advocacy for aging-friendly innovations adopted more aging-friendly policies, programs, and infrastructure changes. Contrary to hypotheses, cities with higher population educational attainment, higher median household income, and a larger proportion of the population age 65 and older adopted fewer aging-friendly innovations. Qualitative interviews offered potential explanations for these results. First, disability groups may be more active than older adults in terms of advocating for the adoption of certain aging-friendly innovations, such as accessible housing and walkable neighborhoods. Second, communities whose population enjoys a higher socioeconomic status may not perceive a strong role for local government in terms of creating more aging-friendly communities, and these residents may get their needs met through nongovernmental sources. Third, while there was no significant association between per capita government spending and the adoption of aging-friendly innovations, interviews suggest that funding plays an important role, and perhaps grant funding, slack resources, and recent increases or decreases in local government financial resources are a better measure of this factor. Finally, qualitative interviews indicate that future studies should explore additional factors, including communication, collaboration, and state and federal mandates.

The findings of this study suggest a number of research and practice implications that should be further explored in future research. First, the results and limitations of this research suggest that it should be replicated to determine whether the findings explain local government adoption of aging-friendly innovations in general or are specific to the population and methods

used in this study. This replication should not only expand the sample size and explore the generalizability of findings to other geographic regions, but use a modified internal determinants and diffusion model that takes into account findings of the present study. Second, given the limitations of the current study, results offer a number of strategies that residents, advocates, service providers, and policymakers could employ in their efforts to create more aging-friendly communities. These strategies include mobilizing public support of and pressure for aging-friendly innovations, targeting advocacy efforts at individuals working within government who could become policy entrepreneurs, and working towards vertical diffusion of innovations via state and federal mandates and funding. Finally, survey and interview results hint at additional lines of inquiry that should be pursued as part of a larger aging-friendly communities research agenda. First, what exactly is an aging-friendly innovation or an aging-friendly community? Second, how can communities change their physical and social environment in such a way that the needs and wants of older residents do not impede those of other residents? Finally, and perhaps most importantly, what impact do these policies, programs, and infrastructure changes on the health and well-being of older adults and their ability to age in place?

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APPENDIX A: ONLINE SURVEYS

City Planner/Community Development Director Survey

1. Do you wish to participate in the survey? Yes No
2. What is the name of the city for which you work? (Note: This information is only for the purposes of merging survey data with U.S. Census data, after which the city name will be deleted from the data file.)

Part I. Community Design

This section asks questions about programs and policies in the area of community design.

3. Does your city government provide any of the following incentives to encourage the development of mixed-use neighborhoods (check all that apply)?
 - Parking waivers
 - Fast-track permitting
 - Subsidization or provision of infrastructure for the project
 - Local tax subsidies
 - Waiver of permit fees
 - None of the above
 - Don't Know
 - Other (please specify):
4. Has your city government recently made any of the following changes in infrastructure to improve the walkability of the city (check all that apply)?
 - New pedestrian pathways
 - Improved street lighting
 - Wider sidewalks
 - Sidewalk repair
 - Traffic calming measures
 - None of the above
 - Don't Know
 - Other (please specify):

Researchers have proposed a variety of different reasons why cities decide to adopt and implement policies and programs. These reasons include advocacy efforts by individuals working and/or living in the city, public pressure, and actions taken by other cities. The following questions ask about these reasons as they relate to questions 3 and 4 above.

5. Are the above described changes to zoning and infrastructure the result of advocacy by one or more individuals living and/or working in your city(check all that apply)?

An individual has advocated for specific incentives offered to developers to create mixed-use neighborhoods

An individual has advocated for changes in infrastructure to improve walkability

No

Don't Know

6. If yes to question 5, please indicate this individual's role (check all that apply).

Resident

Advocate/community organizer

County/city employee

Elected official

Other (please specify):

7. Have city residents exerted pressure on the city to adopt any of these changes to zoning or infrastructure (check all that apply)?

There is public pressure for specific incentives offered to developers to create mixed-use neighborhoods

There is public pressure for changes in infrastructure to improve walkability

No

Don't Know

8. If yes to question 7, how did you become aware of this public pressure (check all that apply)?

Media reports

Letters/phone calls/emails from residents

Other (please specify):

9. Do you know of other cities that have implemented similar changes to zoning or infrastructure (check all that apply)?
- I know of other cities that have implemented specific incentives offered to developers creating mixed-use neighborhoods
 - I know of other cities that have made changes in infrastructure to improve walkability
 - No (please skip to Part II, question 15)
10. Do you know of other cities in which these changes to zoning or infrastructure have been beneficial for residents and/or city government (check all that apply)?
- I know of benefits associated with specific incentives offered to developers creating mixed-use neighborhoods
 - I know of benefits associated with changes in infrastructure to improve walkability
 - No
11. If yes to question 10, please describe how these changes in zoning and infrastructure have been beneficial.
12. If yes to question 10, how did you learn about these zoning changes and their benefits (check all that apply)?
- Conversations with other city planners/city employees
 - Professional organizations (e.g., Association of Bay Area Governments)
 - Media reports
 - Other (please specify):
13. Do you believe that other cities that have adopted these changes to zoning or infrastructure have gained an advantage over cities that have not (check all that apply)?
- Cities have gained an advantage by implementing specific incentives offered to developers creating mixed-use neighborhoods
 - Cities have gained an advantage by making changes in infrastructure to improve walkability
 - No
14. If yes to question 13, in what ways have these changes created an advantage?

Part II. Housing

This section asks questions about programs and policies in the area of housing

15. Does your city government have a local second unit ordinance to encourage the development of in-law units, granny flats, or accessory apartments?

- Yes
- No
- Don't Know

16. If yes, please indicate the type of second unit ordinance (check all that apply).

- Detached unit permitted
- Attached unit only

Please indicate total square feet allowed:

17. Does your city have a zoning ordinance that offers any of the following incentives to a developer who guarantees that 50% of the units will be reserved for seniors (please indicate only those above and beyond that required by California state law) (check all that apply)?

- Local tax subsidies
- Fast-track permitting
- Subsidization or provision of infrastructure for the project
- Waiver of permit fees
- Density bonus (i.e., allowing more units than permitted under the zoning code)
- None of the above
- Don't Know
- Other (please specify):

18. Does your city provide any of the following incentives to developers to incorporate features that make housing accessible to individuals with disabilities in new housing (check all that apply)?

- Grants
- Loans
- Tax credits
- None of the above
- Don't Know
- Other (please specify):

19. Does your city provide any of the following assistance to older/disabled homeowners to modify existing homes (check all that apply)?

- Grants
- Loans
- Tax credits
- None of the above
- Don't Know
- Other (please specify):

Researchers have proposed a variety of reasons why cities decide to adopt and implement policies and programs. These reasons include advocacy efforts by individuals working and/or living in the city, public pressure, and actions taken by other cities. The following questions ask about these reasons as they relate to questions 15 through 19 above.

20. Are the above described changes to housing policies and programs the result of advocacy by one or more individuals living and/or working in your city(check all that apply)?

- An individual has advocated for second unit ordinance
- An individual has advocated for incentives for developers to designate units for seniors
- An individual has advocated for incentives to make new housing accessible
- An individual has advocated for home modification assistance
- No
- Don't Know

21. If yes to question 20, please indicate this individual's role (check all that apply).

- Resident
- Advocate/community organizer
- County/city employee
- Elected official
- Other (please specify):

22. Have city residents exerted pressure on the city to adopt any of these housing policies and programs (check all that apply)?

- There is public pressure for second unit ordinance

- There is public pressure for incentives for developers to designate units for seniors
- There is public pressure for incentives to make new housing accessible
- There is public pressure for home modification assistance
- No
- Don't Know

23. If yes to question 22, how did you become aware of this public pressure (check all that apply)?

- Media reports
- Letters/phone calls/emails from residents
- Other (please specify):

24. Do you know of other cities that have implemented similar housing policies and programs (check all that apply)?

- I know of other cities that have implemented second unit ordinance
- I know of other cities that offer incentives for developers to designate units for seniors
- I know of other cities that offer incentives to make new housing accessible
- I know of other cities that provide home modification assistance
- No (please skip to Part III, question 30)

25. Do you know of other cities in which these housing policies and programs have been beneficial for residents and/or city government (check all that apply)?

- I know of benefits for second unit ordinance
- I know of benefits for incentives for developers to designate units for seniors
- I know of benefits for incentives to make new housing accessible
- I know of benefits for home modification assistance
- No

26. If yes to question 25, please describe how these housing policies and programs have been beneficial.

27. If yes to question 25, how did you learn about these policies and programs and their benefits (check all that apply)?

- Conversations with other city planners/city employees

Professional organizations (e.g., ABAG, APA)

Media reports

Other (please specify):

28. Do you believe that other cities that have adopted these housing policies and programs have gained an advantage over cities that have not (check all that apply)?

Cities have gained an advantage for second unit ordinance

Cities have gained an advantage for incentives for developers to designate units for seniors

Cities have gained an advantage for incentives to make new housing accessible

Cities have gained an advantage for home modification assistance

No

29. If yes to question 28, in what ways have these changes created an advantage?

Part III: Mobility

This section asks questions about programs designed to improve the mobility of residents in your city. Please note that the term "provide" includes funding for programs and/or the direct provision of programs.

30. Does your city provide educational programs for older drivers?

Yes

No

Don't Know

31. If yes, please describe these educational programs or indicate where the researcher can find additional information about the programs (for example, on the city website).

32. Does your city provide assessment programs for older drivers?

Yes

No

Don't Know

33. If yes, please describe these driver assessment programs or indicate where the researcher can find additional information about the programs (for example, on the city website).

34. Has your city recently made any of the following changes in infrastructure to improve driver safety (check all that apply)?

- Simplified intersections
- More visible road markings
- More visible street signs
- Added left hand turn lanes
- None of the above
- Don't Know
- Other (please specify):

35. Does your city provide senior vans or other locally-funded services designed to meet the transportation needs of those who cannot use public transportation (check all that apply)?

- Shuttle service to medical appointments
- Paratransit services supplementing those offered by public transit providers
- Taxi subsidies/scrip
- Shuttle service to senior centers, shopping areas, other popular destinations
- None of the above
- Don't Know
- Other (please specify):

36. Does your city allow residents to drive slower-moving vehicles on public right-of-ways?

- Yes
- No
- Don't Know

37. If yes, please describe this ordinance allowing the use of slower-moving vehicles or indicate where the researcher can find additional information about this ordinance (for example, on the city website).

Researchers have proposed a variety of reasons why cities decide to adopt and implement policies and programs. These reasons include advocacy efforts by individuals working and/or living in the city, public pressure, and actions taken by other cities. The following questions ask about these reasons as they relate to questions 30 through 35

38. Is the creation of any of the above-described mobility programs the result of advocacy by one or more individuals living and/or working in your city(check all that apply)?

- An individual has advocated for driver education programs

- An individual has advocated for driver assessment programs
- An individual has advocated for changes in infrastructure to improve older driver safety
- An individual has advocated for transportation for those who cannot use public transportation
- An individual has advocated for slower-moving vehicles ordinance
- No
- Don't Know

39. If yes to question 38, please indicate this individual's role (check all that apply).

- Resident
- Advocate/community organizer
- County/city employee
- Elected official
- Other (please specify):

40. Have city residents exerted pressure on the city to adopt any of these mobility programs (check all that apply)?

- There is public pressure for driver education programs
- There is public pressure for driver assessment programs
- There is public pressure for changes in infrastructure to improve older driver safety
- There is public pressure for transportation for those who cannot use public transportation
- There is public pressure for slower-moving vehicles ordinance
- No
- Don't Know

41. If yes to question 40, how did you become aware of this public pressure (check all that apply)?

- Media reports
- Letters/phone calls/emails from residents
- Other (please specify):

42. Do you know of other cities that have implemented similar mobility programs (check all that apply)?

- I know of other cities that offer driver education programs
- I know of other cities that have driver assessment programs
- I know of other cities that have implemented changes in infrastructure to improve older driver safety
- I know of other cities that provide transportation for those who cannot use public transportation
- I know of other cities that have implemented a slower-moving vehicles ordinance
- No (please skip to question 48)

43. Do you know of other cities in which these mobility programs have been beneficial for residents and/or city government (check all that apply)?

- I know of benefits associated with driver education programs
- I know of benefits associated with driver assessment programs
- I know of benefits associated with changes in infrastructure to improve older driver safety
- I know of benefits associated with transportation for those who cannot use public transportation
- I know of benefits associated with slower-moving vehicles ordinance
- No

44. If yes to question 43, please describe these benefits.

45. If yes to question 43 how did you learn about these policies and programs and their benefits (check all that apply)?

- Conversations with other city planners/city employees
- Professional organizations (e.g., ABAG, APA)
- Media reports
- Other (please specify):

46. Do you believe that other cities that have adopted these mobility programs have gained an advantage over cities that have not (check all that apply)?

- Cities have gained an advantage by offering driver education programs
- Cities have gained an advantage by offering driver assessment programs

Cities have gained an advantage by making changes in infrastructure to improve older driver safety

Cities have gained an advantage by providing transportation for those who cannot use public transportation

Cities have gained an advantage by implementing slower-moving vehicles ordinance

No

47. If yes to question 46, in what ways have these changes created an advantage?

48. Are there any additional comments you would like to add regarding any of the topics in this survey?

Director of County Adult and Aging Services

1. Do you wish to participate in the survey? Yes No
2. What is the name of the county for which you work? (Note: This information is only for the purposes of merging survey data with U.S. Census data, after which the county name will be deleted from the data file.)

I. Supportive/Health Services

This section asks questions about government-provided health and supportive services provided by your county. Please note that "provide" can refer to services funded and/or directly provided by your county.

3. Does your county government provide a local information hotline or directory of health and supportive services for older adults (check all that apply)?
 - Online directory
 - Telephone hotline
 - Printed directory
 - None of the above
 - Other (please specify):
4. Does your county government provide any of the following home and community-based services designed to help older adults age in place beyond those funded by the Older Americans Act and Medi-Cal (e.g., IHSS) (check all that apply)?
 - Home delivered or congregate meals
 - Medication management/assistance
 - Home health aides
 - Homemaker services
 - Legal services
 - Dementia day health services
 - Adult day health services
 - Care management
 - Volunteer senior companion program
 - None of the above
 - Other (please specify):

5. Does your county government provide fitness programs for older adults?

Yes

No

6. If yes, please describe these fitness programs or indicate where the researcher can find additional information about the programs (for example, on the county website).

7. Does your county government provide any of the following preventive health programs for older adults (check all that apply)?

Free and/or discounted check ups in community clinics for older adults

Immunizations

None of the above

Other (please specify):

Researchers have proposed a variety of reasons why counties decide to adopt and implement policies and programs. These reasons include advocacy efforts by individuals working and/or living in the county, public pressure, and actions taken by other counties. The following questions ask about these reasons as they relate to questions 3 through 7 above.

8. Are any of the above described programs the result of advocacy by one or more individuals living and/or working in your county (check all that apply)?

An individual has advocated for local hotline/directory of services

An individual has advocated for home and community-based services

An individual has advocated for fitness programs

An individual has advocated for preventive health programs

No

9. If yes to question 8, please indicate this individual's role (check all that apply).

Advocate/community organizer

County/city employee

Elected official

Resident

Other (please specify):

10. Have county residents exerted pressure on the county to adopt these health and supportive policies and programs (check all that apply)?

- Public pressure for local hotline/directory of services
- Public pressure for home and community-based services
- Public pressure for fitness programs
- Public pressure for preventive health programs
- No

11. If yes to question 10, how did you become aware of this public pressure (check all that apply)?

- Letters/phone calls/emails from residents
- Media reports
- Other (please specify):

12. Do you know of other county governments that have implemented any of these health and supportive policies and programs (check all that apply)?

- I know of other counties that provide a local hotline/directory of services
- I know of other counties that provide home and community-based services
- I know of other counties that provide fitness programs
- I know of other counties that provide preventive health programs
- No (please skip to Part II, question 18)

13. Do you know of other counties in which these health and supportive programs have been beneficial for residents and/or county government (check all that apply)?

- I know of benefits associated with local hotline/directory of services
- I know of benefits associated with home and community-based services
- I know of benefits associated with fitness programs
- I know of benefits associated with preventive health programs
- No

14. If yes for any of the policies and programs in question 13, please describe these benefits.

15. If yes for question 13, how did you learn about these county programs and their associated benefits (check all that apply)?

- Professional organizations

Conversations with other county aging services employees

Media reports

Other (please specify):

16. Do you believe that other counties that have adopted these health and supportive programs have gained an advantage over counties that have not (check all that apply)?

Counties have gained an advantage by providing local hotline/directory of services

Counties have gained an advantage by providing home and community-based services

Counties have gained an advantage by providing fitness programs

Counties have gained an advantage by providing preventive health programs

No

17. If yes to question 16, in what ways did these programs create an advantage?

II. Transportation

This section asks questions about government-provided transportation programs available in your county. Please note that "provide" refers to services funded and/or directly provided by your county.

18. Does your county government provide education programs for older drivers?

Yes

No

19. If yes, please describe these educational programs or indicate where the researcher can find additional information about the programs (for example, on the county website).

20. Does your county government provide assessment programs for older drivers?

Yes

No

21. If yes, please describe these driver assessment programs or indicate where the researcher can find additional information about the programs (for example, on the county website).

22. Does your county government provide programs or coordinate volunteer drivers and other senior transportation services such as a mobility management system?

Yes

No

- 23.** If yes, please describe this program or mobility management system or indicate where the researcher can find additional information about the programs (for example, on the county website).

Researchers have proposed a variety of reasons why counties decide to adopt and implement policies and programs. These reasons include advocacy efforts by individuals working and/or living in the county, public pressure, and actions taken by other counties. The following questions ask about these reasons as they relate to questions 18 through 23 above.

- 24.** Are any of the above described mobility programs the result of advocacy by one or more individuals living and/or working in your county (check all that apply)?

- An individual has advocated for driver education programs
- An individual has advocated for driver assessment programs
- An individual has advocated for coordination of volunteer driver programs
- No

- 25.** If yes to question 24, please indicate this individual's role (check all that apply).

- Advocate/community organizer
- County/city employee
- Elected official
- Resident
- Other (please specify):

- 26.** Have county residents exerted pressure on the county to adopt these mobility programs (check all that apply)?

- Public pressure for driver education programs
- Public pressure for driver assessment programs
- Public pressure for coordination of volunteer driver programs
- No

- 27.** If yes to question 26, how did you become aware of this public pressure (check all that apply)?

- Letters/phone calls/emails from residents
- Media reports
- Other (please specify):

28. Do you know of other county governments that have implemented any of these mobility programs (check all that apply)?

- I know of other counties that provide driver education programs
- I know of other counties that provide driver assessment programs
- I know of other counties that provide coordination of volunteer driver programs
- No (please skip to Part III, question 34)

29. Do you know of other counties in which these mobility programs have been beneficial for residents and/or county government (check all that apply)?

- I know of benefits associated with driver education programs
- I know of benefits associated with driver assessment programs
- I know of benefits associated with coordination of volunteer driver programs
- No

30. If yes for any of the policies and programs in question 29, please describe these benefits.

31. If yes for question 29, how did you learn about these county programs and their associated benefits (check all that apply)?

- Professional organizations
- Conversations with other county aging services employees
- Media reports
- Other (please specify):

32. Do you believe that other counties that have adopted these mobility programs have gained an advantage over counties that have not (check all that apply)?

- Counties have gained an advantage by providing driver education programs
- Counties have gained an advantage by providing driver assessment programs
- Counties have gained an advantage by coordinating volunteer driver programs
- No

33. If yes to question 32, in what ways did these programs create an advantage?

III. Community Engagement

This section asks questions about government-provided programs that help older adults to remain involved in their communities. Please note that "provide" includes programs funded and/or directly provided by your county.

34. Does your county government provide educational programs for older adults?

Continuing education programs in senior centers or community centers

Discount at community colleges

None of the above

Other (please specify):

35. Does your county government provide senior centers and/or community centers that offer programs designed for older adults?

Yes

No

36. If yes, please describe your county's involvement in these centers or indicate where the researcher can find additional information about the programs (for example, on the county website).

37. Does your county government provide programs designed to promote intergenerational interaction?

Yes

No

38. If yes, please describe these intergenerational programs or indicate where the researcher can find additional information about the programs (for example, on the county website).

39. Has your county government been involved in any efforts to increase and/or improve volunteer opportunities for older adults (check all that apply)?

Programs to match the skills of older adults with the needs of organizations

Funding for volunteer programs geared towards older adults

Employment placement programs for older adults

None of the above

Other (please specify):

Researchers have proposed a variety of reasons why counties decide to adopt and implement policies and programs. These reasons include advocacy efforts by individuals working and/or living in the county, public pressure, and actions taken by other counties. The following questions ask about these reasons as they relate to questions 34 through 39 above.

40. Are any of the above described programs the result of advocacy by one or more individuals living and/or working in your county (check all that apply)?

- An individual has advocated for educational programs
- An individual has advocated for senior centers/community centers
- An individual has advocated for intergenerational programs
- An individual has advocated for volunteer programs
- No

41. If yes to question 41, please indicate this individual's role (check all that apply).

- Advocate/community organizer
- County/city employee
- Elected official
- Resident
- Other (please specify):

42. Have county residents exerted pressure on the county to adopt these community engagement programs (check all that apply)?

- Public pressure for educational programs
- Public pressure for senior centers/community centers
- Public pressure for intergenerational programs
- Public pressure for volunteer programs
- No

43. If yes to question 42, how did you become aware of this public pressure (check all that apply)?

- Letters/phone calls/emails from residents
- Media reports
- Other (please specify):

44. Do you know of other county governments that have implemented any of these community engagement programs (check all that apply)?

- I know of other counties that provide educational programs
- I know of other counties that provide senior centers/community centers
- I know of other counties that provide intergenerational programs

I know of other counties that provide volunteer programs

No (please skip to question 50)

45. Do you know of other counties in which these community engagement programs have been beneficial for residents and/or county government (check all that apply)?

I know of benefits associated with educational programs

I know of benefits associated with senior centers/community centers

I know of benefits associated with intergenerational programs

I know of benefits associated with volunteer programs

No

46. If yes for any of the policies and programs in question 45, please describe these benefits.

47. If yes for question 45, how did you learn about these county programs and their associated benefits (check all that apply)?

Professional organizations

Conversations with other county aging services employees

Media reports

Other (please specify):

48. Do you believe that other counties that have adopted these community engagement programs have gained an advantage over counties that have not (check all that apply)?

Counties have gained an advantage by providing educational programs

Counties have gained an advantage by providing senior centers/community centers

Counties have gained an advantage by providing intergenerational programs

Counties have gained an advantage by providing volunteer programs

No

49. If yes to question 48, in what ways did these programs create an advantage?

50. Are there any additional comments you would like to make regarding any of the topics in this survey?

County Transportation Authority

1. Do you wish to participate in the survey? Yes No
2. What is the name of the county transportation authority for which you work? (Note: This information is only for the purposes of merging survey data with U.S. Census data, after which the transportation authority name will be deleted from the data file.)

Part 1: County Transportation

This section asks questions about government-provided transportation programs available in your county. Please note that "provide" refers to funding programs and/or directly providing services.

3. Does your county government provide senior vans or other services designed to meet the transportation needs of those who cannot use public transportation (check all that apply)?
 - Paratransit services supplementing those offered by public transit providers
 - Shuttle service to medical appointments
 - Shuttle services to senior centers, shopping areas, and other popular destinations
 - Taxi subsidies/scrip
 - None of the above
 - Don't know
 - Other (please specify):

Researchers have proposed a variety of reasons why county governments decide to adopt and implement policies and programs. These reasons include advocacy efforts by individuals working and/or living in the county, public pressure, and actions taken by other counties. The following questions ask about these reasons as they relate to question 3 above.

4. Are any of the above described transportation programs the result of advocacy by one or more individuals living and/or working in your county?
 - Yes
 - No
 - Don't Know
5. If yes to question 4, please indicate this individual's role (check all that apply).
 - Advocate/community organizer
 - County/city employee

Elected official

Resident

Other (please specify):

6. Have county residents pressured the county to adopt any of these services?

Yes

No

Don't Know

7. If yes to question 6, how did you become aware of this public pressure (check all that apply)?

Media reports

Letters/phone calls/emails from residents

Other (please specify):

8. Do you know of other counties that have implemented similar transportation services?

Yes

No (please skip to Part II, question 14)

9. Do you know of other counties in which these transportation services have been beneficial for residents and/or county government?

Yes

No

10. If yes to question 9, please describe these benefits

11. If yes to question 9, how did you learn about these programs and their benefits (check all that apply)?

Media reports

Conversations with other transportation planners

Professional organizations (e.g., Association of Bay Area Governments)

Other (please specify):

12. Do you believe that other counties that have adopted any of these transportation services have gained an advantage over counties that have not?

Yes

No

13. If yes to question 12, in what ways have these changes created an advantage?

Part II: Public Transportation

This section asks questions about public transportation available in your county, regardless of whether the transit provider is part of the transportation authority or not. Please note that a separate survey will be sent to transit providers who are not connected to a transit authority.

14. Has the public transportation system(s) within your county implemented any of the following measures to increase accessibility for older adults and individuals with disabilities (check all that apply)?

Frequent services

Large print schedules and maps

Driver sensitivity training

Low-floor buses

Bus/train stop amenities (e.g., benches, coverage from weather, lighting)

None of the above

Don't Know

Other (please specify):

15. Does the public transportation system(s) within your county offer discounted fares for older adults beyond that required by federal law (i.e., half price fares during off-peak hours) (check all that apply)?

Free fares during off-peak

More than 50% discount during off-peak

Free fares at all times

Discounted fares at all times

None of the above

Don't Know

Other (please specify):

Researchers have proposed a variety of reasons why public transportation systems decide to adopt and implement policies and programs. These reasons include advocacy efforts by individuals working and/or living in the service area, public pressure, and actions taken by other transportation providers. The following questions ask about these reasons as they relate to questions 14 and 15 above.

16. Are any of the above described public transportation policies the result of advocacy by one or more individuals living and/or working in your county?

An individual has advocated for accessible design for older adults/individuals with disabilities

An individual has advocated for discounted fares

No

Don't Know

17. If yes to question 16, please indicate this individual's role (check all that apply).

Advocate/community organizer

County/city employee

Elected official

Resident

Other (please specify):

18. Have county residents pressured the county or public transportation provider(s) to adopt any of these services?

There is public pressure for accessible design for older adults/individuals with disabilities

There is public pressure for discounted fares

No

Don't Know

19. If yes to question 18, how did you become aware of this public pressure (check all that apply)?

Media reports

Letters/phone calls/emails from residents

Other (please specify):

20. Do you know of other public transportation systems that have implemented similar policies?

I know of other systems that offer accessible design for older adults/individuals with disabilities

I know of other systems that offer discounted fares

No (please skip to question 26)

21. Do you know of other counties in which these transportation services have been beneficial for residents and/or county government?

I know of benefits associated with accessible design for older adults/individuals with disabilities

I know of benefits associated with discounted fares

No

22. If yes to question 21, please describe these benefits

23. If yes to question 21, how did you learn about these policies and their benefits (check all that apply)?

Media reports

Conversations with other transportation planners

Professional organizations (e.g., Association of Bay Area Governments)

Other (please specify):

24. Do you believe that other counties with public transportation systems that have adopted any of these transportation policies have gained an advantage over counties that have not?

Counties gain an advantage with public transportation that offers accessible design for older adults/individuals with disabilities

Counties gain an advantage with public transportation that offers discounted fares

No

25. If yes to question 24, in what ways have these changes created an advantage?

26. Are there any additional comments you would like to add about any of the topics in this survey?

Public Transit Agency

1. Do you wish to participate in the survey? Yes No
2. What is the name of the transit provider for which you work? (Note: This information is only for the purposes of merging survey data with U.S. Census data, after which the transit provider name will be deleted from the data file.)
3. Has the transit provider for which you work implemented any of the following measures to increase accessibility for older adults and individuals with disabilities (check all that apply)?
 - Frequent services
 - Large print schedules and maps
 - Driver sensitivity training
 - Low-floor buses
 - Bus/train stop amenities (e.g., benches, coverage from weather, lighting)
 - None of the above
 - Don't Know
 - Other (please specify):
4. Does your transit provider offer discounted fares for older adults beyond that required by federal law (i.e., half price fares during off-peak hours) (check all that apply)?
 - Free fares during off-peak
 - More than 50% discount during off-peak
 - Free fares at all times
 - Discounted fares at all times
 - None of the above
 - Don't Know
 - Other (please specify):

Researchers have proposed a variety of reasons why public transportation systems decide to adopt and implement policies and programs. These reasons include advocacy efforts by individuals working and/or living in the service area, public pressure, and actions taken by other transportation providers. The following questions ask about these reasons as they relate to questions 3 and 4 above.

5. Are any of the above described public transportation policies the result of advocacy by one or more individuals living and/or working in your transit area?
- An individual has advocated for accessible design for older adults/individuals with disabilities
 - An individual has advocated for discounted fares
 - No
 - Don't Know
6. If yes to question 5, please indicate this individual's role (check all that apply).
- Advocate/community organizer
 - County/city employee
 - Elected official
 - Resident
 - Other (please specify):
7. Have residents in your transit area pressured the public transit provider(s) to adopt any of these services?
- There is public pressure for accessible design for older adults/individuals with disabilities
 - There is public pressure for discounted fares
 - No
 - Don't Know
8. If yes to question 7, how did you become aware of this public pressure (check all that apply)?
- Media reports
 - Letters/phone calls/emails from residents
 - Other (please specify):
9. Do you know of other public transportation systems that have implemented similar policies?
- I know of other systems that offer accessible design for older adults/individuals with disabilities
 - I know of other systems that offer discounted fares

No (please skip to question 15)

10. Do you know of other public transit providers in other areas in which any of these transportation policies have been beneficial for residents, local government, and/or the transportation provider?

I know of benefits associated with accessible design for older adults/individuals with disabilities

I know of benefits associated with discounted fares

No

11. If yes to question 10, please describe these benefits

12. If yes to question 10, how did you learn about these policies and their benefits (check all that apply)?

Media reports

Conversations with other transportation planners

Professional organizations (e.g., Association of Bay Area Governments)

Other (please specify):

13. Do you believe that other public transit providers that have adopted any of these transportation policies have gained an advantage over transit providers that have not?

Public transit providers gain an advantage with public transportation that offers accessible design for older adults/individuals with disabilities

Public transit providers gain an advantage with public transportation that offers discounted fares

No

14. If yes to question 13, in what ways have these changes created an advantage?

15. Are there any additional comments you would like to add about any of the topics in this survey?

APPENDIX B: TELEPHONE INTERVIEW GUIDE

1. How did you decide to enact (or not enact) these particular policies?
 - a. How did your (city/county/public transit provider) learn about these possibilities?
 - b. Whose idea was it originally?
 - c. What was the process?
 - d. What concerns were raised? By whom?
 - e. What challenges/barriers were experienced?
 - f. What was/were the deciding factor(s)?
2. What impact, if any, have the enacted policies and programs had (whether positive or negative)?
 - a. On older adults?
 - b. On other residents?
 - c. Political impact?
 - d. Image of the city/county/public transit provider?
3. What other policies or programs that may help older adults has your city/county/public transit provider put in place?
4. What policies or programs were considered but not enacted?
 - a. What concerns were raised? By whom?
5. In your opinion, what role should cities play in helping older residents age in place? What role should county, state, and federal governments play? What role should nonprofit organizations and private businesses play?