

# Aging in Place in Small Urban and Rural Communities: Executive Summary

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## Abstract

The objectives of this study were to determine the current state of aging in place in small urban and rural settings throughout the country and quantify the costs for residents to live at home and ride public transportation versus moving to an assisted living facility. Overall, simulation results showed that the cost of assisted living was almost always higher compared to other alternatives. Homeowners without mortgages had the lowest costs followed by apartment dwellers and homeowners with mortgages. Policy makers should consider the potential cost savings from aging in place found in this study. Seniors and their families can potentially save thousands of dollars annually by remaining at home and utilizing home health and public transportation services

## Introduction

The U.S. Department of Transportation has prioritized the need to develop communities with greater transportation alternatives while expanding housing choices to improve the economic competitiveness of neighborhoods (U.S. DOT 2015). These issues are particularly important as the population ages.

Public transportation provides freedom to much of the aging population who would otherwise be forced to give up their lifestyles. It allows them to age in place. Critics of publicly funded transportation argue that many of the aging population would be better off relocating to larger communities where desired services are more readily available. Public transportation proponents believe it is more desirable for aging Americans in small urban and rural areas to remain in their homes and utilize public transportation. Very little research has been done to quantify the actual cost of these alternatives.

The objectives of this study were to determine the current state of aging in place in small urban and rural settings throughout the country and quantify the costs for residents to live at home and ride

public transportation versus moving to an assisted living facility. Costs associated with living at home, both with and without a mortgage, and living in an apartment were analyzed along with the equivalent assisted living expenses. This study builds on previous work done solely in North Dakota (Peterson and Scott 2010) by expanding the study area to include eight different states throughout the country. Different sensitivity analyses were also conducted. These included a break-even analysis, a cost savings forecast, and a home modification analysis.

## Simulation Model

This research compared the cost of senior citizens living independently while utilizing home-based health services and transit as opposed to moving to an assisted living facility. Specific attention was paid to the trade-offs between the amount of services required for seniors to live independently versus moving and the costs associated with such trade-offs. Clearly, individuals must use their own judgment as to whether they should live independently or not, and every individual situation is unique. Therefore, to explain some of the uncertainty in services and costs that ensue, simulations were conducted.

If someone is confronted with a problem that includes uncertainty, it becomes challenging to use an analytical model that will return useful results. @Risk, a Microsoft Excel add-in program, contains functions that yield results generated from random variables. For example, entering RISKNORMAL (10,3) in a cell will produce an observation from a normal random variable with a mean of 10 and a standard deviation of 3. Once cell values that potentially include uncertainty are replaced with @Risk functions, a simulation is run. The simulation imitates a real-life situation. Within the model, an @Risk cell is simulated a set number of times, called iterations, to provide an outcome. Note that this answer is not exact, but rather a calculation based on the data variability included within the model.

Variables that represented uncertainty for this research included those for home values, real estate taxes, homeowners' insurance, utility costs, homemaker services, home health aide services, adult day health care, assisted living facility costs, and home value appreciation. These variables were chosen to represent uncertainty in simulation models because they signify some of the most important concerns seniors consider when deciding where to live, and they also exhibited substantial variability within the datasets.

States studied included Pennsylvania, Montana, Maine, Mississippi, North Carolina, Wisconsin, Missouri, and New Mexico

Mexico (Figure 1). These eight states were chosen because substantial data were available to yield a feasible analysis, and they represented different regions of the country with either large rural populations or a large percentage of rural residents compared with their overall state population. Many other communities in rural states had too few licensed assisted living facilities to allow for sufficient analysis.

## Results

Simulations were conducted for all eight states. Figure 2 shows the costs for Pennsylvania. Notice that the annual cost of assisted living is nearly \$7,000 higher at its median value compared to homeowners who have a mortgage and those that live in apartments, and for homeowners with no mortgage, the annual cost of assisted living is more than \$13,000 higher. However, the cost of assisted living at its minimum value is nearly identical to that of homeowners with a mortgage and those that live in apartments. The annual cost for homeowners is still more than \$7,000 less than assisted living at its minimum value. At the maximum values, assisted living costs \$20,000 more annually compared to homeowners with a mortgage and apartment dwellers and is \$28,000 more compared to the cost for homeowners. Also, notice that the results for assisted living contain greater variability than the other three. This is illustrated by a steeper curved line representing annual costs.



**Figure 1. States Studied**

The study estimated potential cost savings for older adults who decide to age in place rather than move to an assisted living facility. Figure 3 shows the results for New Mexico. Savings are cumulative by year. Homeowners could potentially save more than \$100,000 over a 10-year period while homeowners with a mortgage and apartment dwellers could save approximately \$50,000 during that same time frame. Even by delaying a move to assisted living for only two or three years could yield anywhere from \$10,000 to \$30,000 in savings.

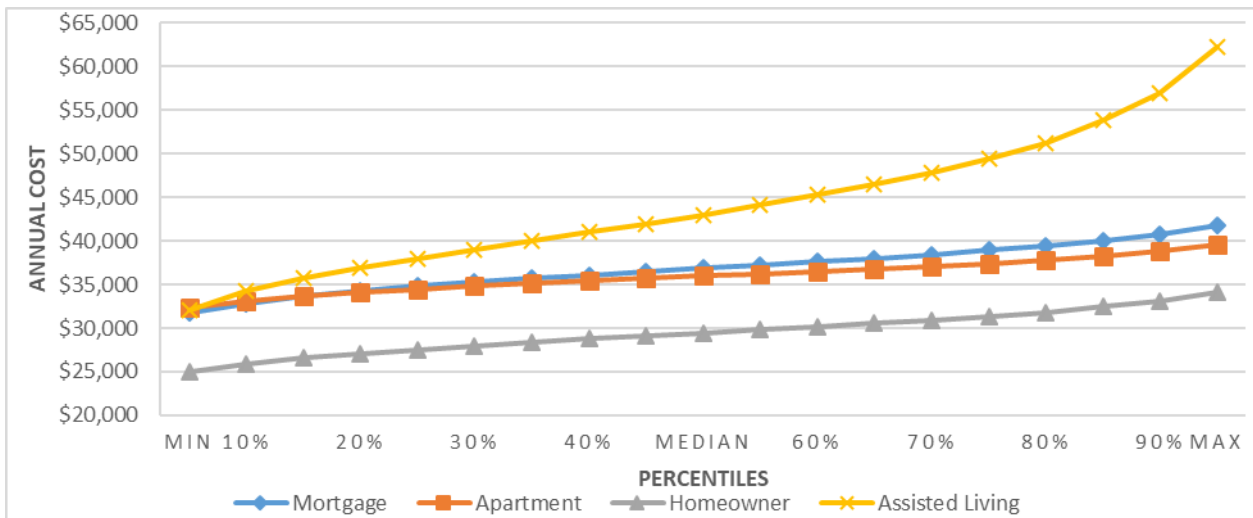


Figure 2. Pennsylvania Simulation Costs

Analysis was also completed to determine at what point, financially, a senior citizen should consider moving from their current home into an assisted living facility. Home health aide services were used to illustrate this analysis, and were used because they often account for the necessary services seniors require and cannot perform on their own. Services can include bathing, medication management, and basic everyday hygienic activities. Also, these are often the main services seniors and their families consider when deciding whether or not an assisted living facility move may be necessary. Therefore, home health aide services were varied from 20 to 90 hours per month, while holding all other variables constant, to determine what quantity of care would, financially, equal or exceed the cost of assisted living.

Figure 4 shows this scenario for Mississippi. Results showed that between 50 and 60 hours of home health aide services per month would be required for home owners with a mortgage and apartment dwellers to equal assisted living costs. However, homeowner costs for home health aide services would not equal assisted living costs until their services were needed for 90 or more hours per month.

**Summary and Conclusions**

The objectives of this study were to determine the current state of aging in place in small urban and rural settings throughout the country and quantify the costs for residents to live at home and ride public transportation versus moving to an assisted living facility. Costs associated with living at home with and without a mortgage and living in an apartment were analyzed along with the equivalent

assisted living expenses. Assumptions that were necessary for simulation purposes, such as home values and insurance premiums, were addressed by developing simulations that yielded a range of outcomes. This gives an individual the ability to compare their unique circumstances to a range of results and not a single scenario or outcome.

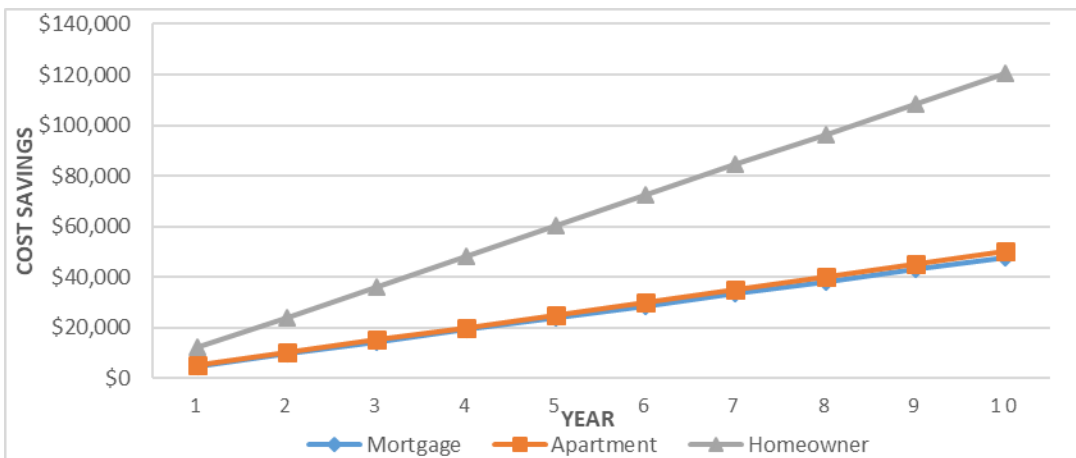


Figure 3 New Mexico Aging in Place Cost Savings

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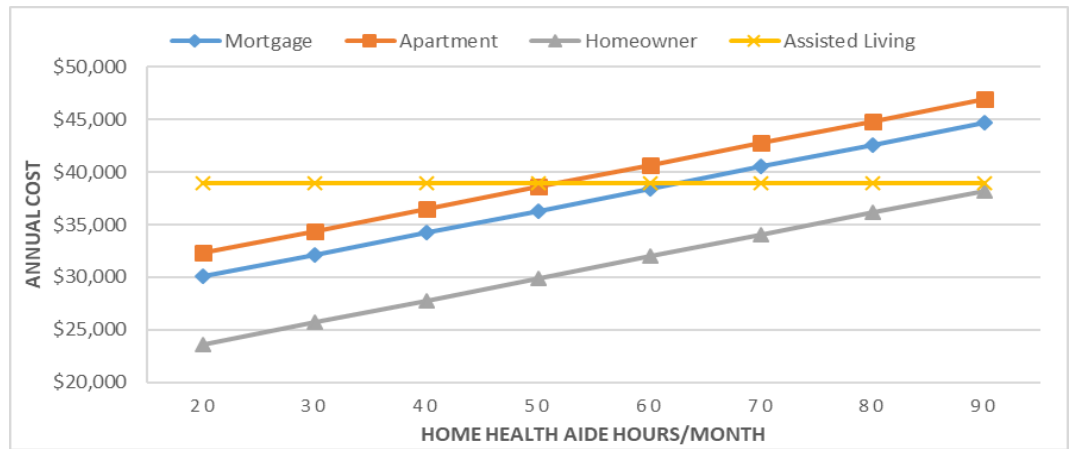
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**Figure 4. Mississippi Break Even Analysis**

Policy makers should consider the potential cost savings from aging in place found in this study. Older adults and their families can potentially save thousands of dollars annually by remaining at home and utilizing home health and public transportation services. Policies that increase the availability and accessibility of public transportation should be considered as these will increase the likelihood of older adults aging in place and utilizing important amenities within their local communities. Without available transportation, many seniors are forced to relocate well before they either want or have to, because of poor access to local services. Policies that will increase the availability and reduce the cost of home health aide services should be considered as well. By making these services more readily available and less costly, seniors can maintain active lifestyles and forgo the substantial cost of relocating as long as possible while the need for subsidies to support older adults living in senior living facilities will be reduced as well.

Also, because 90 percent of older adults want to age in place while 80 percent plan to live out their lives in their current

homes, (Farber et al. 2011), the emotional cost of moving before it is entirely necessary should also be considered. Change can be difficult, especially for older adults who have often lived for decades in the same small urban or rural community and highly value their friends and available services. They want to continue to support their local communities. Policies that not only save important financial resources, but also help older adults remain vibrant and active should be considered.

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