

May 2019

Preparing for Florida's Older Adult Population Growth with User-friendly Demographic Maps

Kathryn Hyer

George MacDonald

Kathy Black

Adrian N.S. Badana

Scott Patrick Murphy

See next page for additional authors

Follow this and additional works at: <https://digitalcommons.unf.edu/fphr>



Part of the [Public Health Commons](#), and the [Social and Behavioral Sciences Commons](#)

Recommended Citation

Hyer, Kathryn; MacDonald, George; Black, Kathy; Badana, Adrian N.S.; Murphy, Scott Patrick; and Haley, William E. (2019) "Preparing for Florida's Older Adult Population Growth with User-friendly Demographic Maps," *Florida Public Health Review*. Vol. 14, Article 4.

Available at: <https://digitalcommons.unf.edu/fphr/vol14/iss1/4>

This Article is brought to you for free and open access by the Brooks College of Health at UNF Digital Commons. It has been accepted for inclusion in Florida Public Health Review by an authorized administrator of UNF Digital Commons. For more information, please contact [Digital Projects](#).

© May 2019 Protected by original copyright, with some rights reserved.

Preparing for Florida's Older Adult Population Growth with User-friendly Demographic Maps

Authors

Kathryn Hyer, George MacDonald, Kathy Black, Adrian N.S. Badana, Scott Patrick Murphy, and William E. Haley

Preparing for Florida's Older Adult Population Growth with User-friendly Demographic Maps

Kathryn Hyer, PhD, MPP; George MacDonald, PhD; Kathy Black, PhD; Adrian N.S. Badana, MPH, CPH; Scott Patrick Murphy, PhD; William E. Haley, PhD

ABSTRACT

The older adult population of the United States is growing rapidly. For 40 years Florida has remained the state with the highest percentage of older adults and has experienced robust growth. It may be a model for other states that will witness an increase in their own older adult populations. This article provides links to publicly available, free interactive Web-based maps developed by the University of South Florida displaying colorful maps depicting projected older adult population growth in Florida from 2010 to 2040 at the county level, stratified by sex, race, and ethnicity, and with options for focusing on 65+ and 85 + populations. These are intended as resources for state and local governments, businesses, and others interested in planning for the needs and opportunities of an aging society. We provide examples of how these visual projections can be useful, and encourage others to use this free resource. The maps offer valuable tools for communities that want to examine and plan for their own growing aging citizenry. An aging society will provide both challenges and many economic and social opportunities for which community leaders and businesses can proactively and creatively plan.

Florida Public Health Review, 2017; 14, 33-44.

BACKGROUND

Whereas the aging of the United States (U.S.) and its baby boomers is well-recognized, the profound implications of an aging country are neither well-understood nor widely discussed as representing both challenges and broader social and economic opportunities. Many publications forecast ominous costs to society and paint a decidedly negative view of population aging, for example labeling the aging of America as a “Silver Tsunami” that will “inundate us” (Das, 2015); however, others offer overly optimistic images of growing older with images of marathon runners at 90 and dancers at 80, or promises that science is on the verge of producing immortality (Hughes, Kuhn, Margolese-Malin, Rothman, & Solórzano 2015; Vijg & de Grey, 2014). Neither extreme is accurate because older adults are not a uniform group. Aging reflects public policies, social and economic determinants, and a lifetime of personal choices. In fact, gerontologists teach that heterogeneity increases within and between this 40-to-50-year period of “aging” (i.e., those adults who range from 65 years to 100 or more years of age).

In the same way that Florida communities have developed plans for hurricanes and other natural disasters, we believe that Florida communities should

not allow the so-called “Silver Tsunami” of massive growth of the older adult population to arrive without preparation. Many Florida communities are embracing “age-friendly” planning standards that encourage universal design accommodating all age groups. As we describe below, considerable information is available allowing communities to predict and understand where growth of the older adult population will be most dramatic and to prepare for both the challenges (e.g., needs for healthcare and long-term care services) and opportunities (e.g., tax revenue, business opportunities, and the social capital of healthy older people) of an aging society. The primary goal of this article is to provide tools for communities to plan for, and control, their own futures as the population of Florida ages, by explaining the utility of and making available mapping tools that can be used at the county level for multiple purposes.

To provide a context for using these tools, we provide overviews of population aging in the U.S., followed by more specific information about the special context of Florida. This will be followed by demonstration of the mapping tools that are available to assist with planning.

An Overview of Population Aging

Population aging occurs when average life expectancy continuously increases, fertility rates (number of live births per 1,000 women aged 15-44 years of age) decrease and new immigrants do not offset the decreased fertility (Livingston & Cohn, 2012). Most celebrate the worldwide longer life expectancy resulting from over 150 years of improvements in public health sanitation, disease surveillance, dramatic changes in nutrition and access to adequate food, and extraordinary advances in medical care (Institute of Medicine, 2009). During the 20th century U.S. life expectancy at birth increased almost 30 years from about 47 years expected in 1900 to about 77 years for those born in 2000 (CDC, 2010). Simultaneously, fertility rates decreased by 48% from 126.8 per 1,000 women in 1909 to 65.9 per 1,000 women in 2000 (CDC, 2003; Linder & Grove, 1947). Fertility fluctuated during the century; lower rates of fertility were present during wars and the Great Depression, and fertility increased during the economic growth as the post-World War II “Baby Boomer” generation was born. From 1947-1964 there were 76.4 million babies born, creating one of the largest cohorts in U.S. history. And, as those individuals turn age 65 the aging of the population increases (Hobbs & Stoops, 2002; Vincent & Velkoff, 2010). Immigration also affects population aging because it changes the numbers of people in any given age group. During the 20th century the U.S. has allowed immigration from many countries, increasing diversity (especially in younger groups) but not altering the ongoing aging of the population.

An Overview of Population Aging in Florida

In this section we present the basic census projections for Florida, as a potential model for policy makers concerned about population aging. We include specific age, sex, race and ethnicity (Hispanic, non-Hispanic) data broken down in 5-year age groups at the Florida county level. These data can be useful to businesses, health care entities, developers, and state planners projecting jobs or infrastructure needs. We offer examples of different county approaches to addressing population aging because counties vary in their rate of population aging and their response.

Nearly four-fifths of Florida’s 67 counties have populations with more than the national average percentage of older adults 65 and over (14%) (Economic and Development Research, 2015e). Further, the population aged 65 and over currently represents over 19% of the Florida’s population (Economic and Development Research, 2015d), but is forecast to grow to a quarter of Florida’s population by 2040 (Economic and Development Research, 2015a). This reflects a 55% growth in the

percentage of older adults and an increase in the absolute number of older adults by more than two million (Economic and Development Research, 2015b).

Because Florida leads the U.S. with the highest percentage of its residents aged 65 and older (65+), it is the harbinger of the nation’s aging and changing ethnic, racial, and demographic profile (U.S. Census Bureau, 2015). Currently, 3.3 million adults aged 65+ live in Florida – a state that in 2015 also became the third most populous state in the U.S. Florida not only leads U.S. population “aging” - what demographers classify as the proportion of a population that is aged 65+, Florida also leads the country in the proportion of older adults 85 and over (85+) at 2.3% of total state population and boasts over 4,000 centenarians (Meyer, 2012). Most importantly, during this entire period, Florida had also been a state with considerable economic growth being the state with the 4th largest economy and having a 2012 gross domestic product comparable to that of Germany (Swoope, Hart, & Panuccio, 2013). In 2016 Florida ranked as one of the top five states in the nation for job growth (W.P. Carey School of Business, 2016). In 2014, Florida was a state with one of the highest GDP ranks in the U.S. with real estate, health care, and accommodation and food services contributing to high percent change in GDP (Woodruff, Rodriguez, & Aversa, 2015). From 2010 to 2015 Florida ranked second in the nation for percent change per capita for real GDP, making it a state with a growing economy (Bureau of Economic Analysis, 2016).

As noted earlier, in the 20th century the U.S. experienced increased longevity and decreased fertility rates. Florida’s proportion of older adults exploded during that same time period. Beginning in 1970 Florida assumed its status as the state with the highest percentage of older adults in the nation. Because Florida was one of the fastest growing states in total population during the entire 20th century, it is a state that has consistently attracted in-migration (Bradley, 2011). Florida’s ability to not only maintain its position as a vibrant growing state, but also its status as the state with the highest percentage of older adults for the past 45 years (U.S. Census Bureau, 2015), provides positive reflections on how older adults can contribute to robust economic growth. Other states have witnessed the migration of older adults and immigration that Florida witnessed (Conway & Rork, 2010), and have made active efforts to compete with Florida for older adult migration (Moore, Laffer, & Griffith, 2015). As shown below, this is because older adults bring many financial and other assets to the states they retire in.

Florida’s tradition of attracting people from diverse backgrounds not only enabled it to maintain the highest percentages of older adults in the U.S., but

also recognize the enriching economic potential of its aging population makes it a forerunner in the nation. Florida's high diversity is attributed not only to its thriving tourism industry, but also its position in the global sector, making it a major intersection for international business and commerce (Swoope et al., 2013). An increase in cultural diversity and the diffusion of immigrants throughout the U.S. have beneficial economic impacts by increasing per capita output of different goods and services (Ager & Brückner, 2013).

Purpose

To encourage older adults, policymakers, and businesses to recognize and plan for the demands of the aging population, the University of South Florida (USF) Policy Exchange Center in the School of Aging Studies, and the Center for Research, Evaluation, Assessment and Measurement have developed geo-coded county-level population maps that display the U.S. Census Bureau projections of population growth as the percentage of residents who are 65+ or 85+ in every Florida county from 2010 through 2040. The sub-population breakdown at a county level offers opportunities to examine micro-level markets and explore how diverse the older adults are within Florida.

The many initiatives needed, planned, and taken by Florida to embrace and assimilate its aging population represent models for other local/state governments as well as businesses and communities to replicate. As the "oldest state" in the U.S., Florida is a forerunner in aging research and in demonstrating the strength and economic value of older adults.

Given the changing demographic landscape and public concern for older adult health and well-being, the purpose of this article is three-fold. First, we introduce an interactive mapping mechanism produced by the USF Policy Exchange Center on Aging and School of Aging Studies and the USF Center for Research, Evaluation, Assessment and Measurement. Second, we describe how the 65+ and 85+ populations will change at the county level from 2015 to 2040. We then introduce Sarasota County as Florida's first community to achieve the World Health Organization's (WHO) Age-friendly designation status via the assessment of assets and the aspirations of its aging residents along multiple areas of community life that support active, healthy and engaged living. Finally, we explore the implications of the changing demographic landscape in Florida in order to inspire collaborative work among policymakers, state and local governments, businesses, healthcare providers, educators, and communities.

METHODS

We drew upon U.S. Census Bureau medium projections of Florida county population growth from 2010-2040 in order to produce maps that display Florida county-level aging in 5-year cohorts (Economic and Development Research, 2015c). The latest estimates of population for the United States, individual states, and counties by age, sex, race and Hispanic origin, by age and sex - for July 1, 2014 - were released June 25, 2015. The maps include filters that allow analysts to visually see projected population aging by sex (male, female), race (White, Black) and ethnicity only as Hispanic and non-Hispanic. Other racial and ethnic groups were not included in the projections due to their smaller populations.

U.S. Census data provide clear, precise, and concise data points to track population changes. The web-mapping applications were built with a geographic information system (GIS) designed to capture, store, manipulate, analyze, manage, and present data within spatial or geographical areas. Using ArcGIS Desktop, version 10.2 (ESRI, Redlands, CA), Mr. Richard McKenzie and the USF Tampa Library's GIS team helped us publish two datasets to a GIS server (ArcGIS Server, version 10.1 SP1); one for the 65+ population and one for the 85+ population. We then used map services to develop the two web-mapping applications that dynamically render population age (65+ and 85+) percentages based on sex, race, and ethnicity via a dropdown menu. Future projections can be displayed with a time slider at the bottom of each application. The two applications were built using publically available code from the ArcGIS API for JavaScript and are housed within USF.

Users can change data displays with the five drop down demographic categories as well as a slide displaying year 2010 through 2040 in five year cohorts at county-level for the State of Florida. Each map (65+ and 85+) is dynamic and replaces the need to work with up to 70 static maps. While statistically accurate, we continue to look to improve cut points, color vibrancy, smaller population representation, and print capability in our dynamic maps.

We also used U.S. Census data to explore the changing demographic landscape in Florida. We employed univariate statistics in order to provide a descriptive picture of how Florida's total population, 65+ population, and 85+ populations are projected to change from 2015 to 2040. We calculated percent change for each of the three populations for 65+ and 85+ populations by county. By comparing individual county percent change means with overall percent change means and standard deviations, we identify individual counties with percent change means that are one or more standard deviations above or below the overall mean.

RESULTS

Interactive Maps

We have published the dynamic maps online in order to increase their public availability. Users are invited to access the maps and examine population changes for each county by sex, race, and ethnicity. We also welcome any user feedback to improve the online maps and user experience. The maps can be found here: 65+ map (Figure 1): <http://arcweb.forest.usf.edu/agingstudies/P65.html> and 85+ map (Figure 2): <http://arcweb.forest.usf.edu/agingstudies/P85.html>

Variations in Growth Patterns across Counties

In our county level statistical analyses, Table 1 shows the projected percent change in total population, the projected percent change in 65+ populations, and the projected percent change in 85+ populations between 2015 and 2040 for each county. As with other large U.S. states, population counts by county vary greatly in Florida which is critical for local planners. For example, in 2015, the mean total population for Florida counties, inclusive of all age groups, was 294,785, but there was great variation as Table 1 indicates. In 2040, the total population for Florida counties is projected to grow on average to 381,838. In 2015, the average 65+ population for Florida counties was 54,752, but 14% (7,580) of that was on average age 85+. By 2040, the average 65+ population for Florida counties is projected to grow to an average of 93,304, but the mean 85+ population is projected to grow to 15% (3,990) signifying aging within the total older adult population.

For business, health care providers, developers and state planners, both specific growth rates in age cohorts and the absolute numbers of older adults matter. For example, the total older population of St. John's, Osceola, Flagler, and Sumter counties will increase at a much greater rate than the state-wide mean (more than two standard deviations greater). Importantly, for Orange and Osceola, growth is concentrated in the 65+ cohort, but for Sumter County the 85+ cohort will grow at a rate more than three standard deviations above the 85+ state-wide mean. The markets and needs of these age-cohorts offer different opportunities and challenges, especially since the 85+ group (referred to as the "oldest old") has much greater health care needs, impairment in activities of daily living, and rates of nursing home placement (Federal Interagency Forum on Aging-Related Statistics, 2012).

Our findings show that U.S. Census projections for Florida counties with large urban centers – Hillsborough (Tampa), Miami-Dade, Palm Beach, and others – project such counties to grow at roughly average rates for 65+ and 85+ populations. This is not the case for counties surrounding Duval County-

the Jacksonville metropolitan area. These counties, broadly speaking, are expected to see disproportionately larger increases in the total numbers and proportions of residents aged 65+ and 85+.

Finally, our dynamic maps provide a proxy for Florida decision-makers to better understand how their old and oldest-old populations will change at five-year increments from 2010 to 2040. Table 1 displays disproportionately large and small growth rates between 2015 and 2040 and as some counties face population loss we expect to encourage those counties to meet the challenges of not having robust growth projections. For example, in the city of Clearwater, Florida, officials used U.S. census maps to view the distribution of older adults in the city and to provide appropriate services and activities for them in appropriate locations (Clearwater Office on Aging, 2016). The maps provided in this article may also be useful to Florida counties and the state for similar planning purposes.

Sarasota County as an Example

Sarasota County provides a very good example of how these data can be used, and are being used, to plan for the growth of the older adult population. Sarasota has already gained national attention for its progressive efforts and attention to preparing the community for its older population.

In 2015, Age-friendly Sarasota became Florida's first WHO Age-friendly community website for WHO. The initiative is sponsored by The Patterson Foundation, in partnership with AARP Florida, the Florida Department of Elder Affairs, the Florida Policy Exchange Center on Aging at USF, Sarasota County Government and USF, Sarasota-Manatee.

This milestone required obtaining municipal support and includes soliciting community input about eight Age-friendly domains of livability, clustered as follows: the built environment (i.e., housing, outdoor spaces, and transportation), the social environment (i.e., social participation, civic participation and employment, respect and inclusion), and community and health supports (i.e., communication and information, and community support and health services) (Black, Badana, & Hyer, 2016; WHO, 2007). Questionnaires and current results from the Sarasota Age-friendly efforts can be found on: <http://agefriendlysarasota.org/>. As shown by the demographic maps for 2015, Sarasota County was projected to have almost a third of its residents age 65 and older (Figure 3) and almost 5% are 85 and older (Figure 5). The projections for 2040 include approximately 38% of its residents age 65 and older (Figure 4) and approximately 7% are 85 and older (Figure 6).

Figure 1
Projected Florida County Population Percentages for Individuals Age 65+

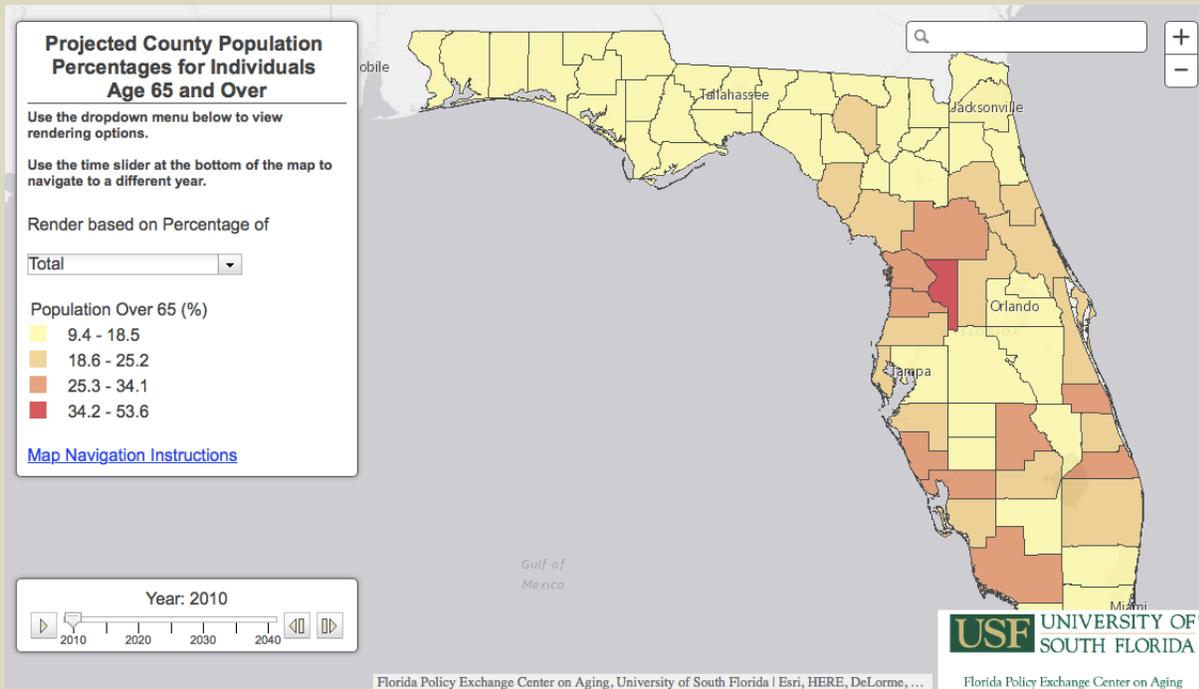


Figure 2
Projected Florida County Population Percentages for Individuals Age 85+

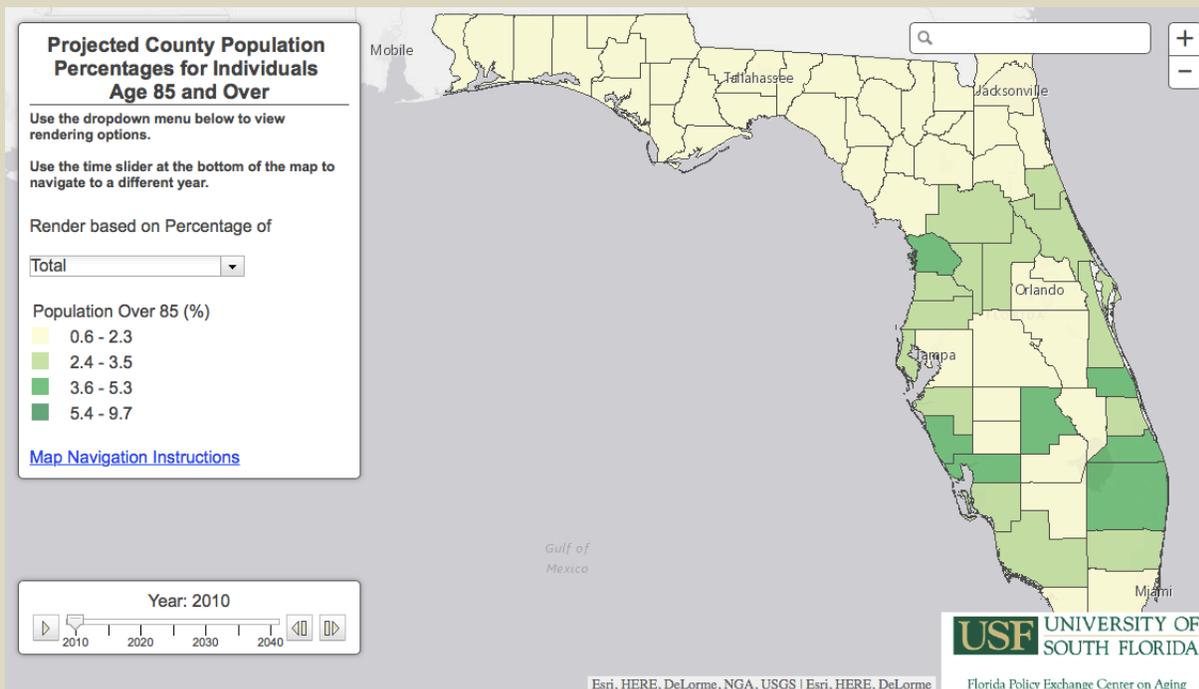


Table 1
Florida Counties Percent Change Growth Rates, 2015-2040

Segment	Growth Rate	Counties
Total Population	Disproportionately Small	Monroe, Franklin, Pinellas, Jackson, Madison, Gulf, Putnam, Hardee, Escambia
Total Population	Disproportionately Large	Pasco, Clay, Lake, Walton, St. Lucie, Lee, St. John's, Osceola, Flagler, Sumter
65+ Population	Disproportionately Small	Franklin, Monroe, Putnam, Desoto, Hardee, Madison, Pinellas, Okeechobee, Escambia, Jackson, Charlotte, Gulf, Glades
65+ Population	Disproportionately Large	St. Lucie, Wakulla, Flagler, Baker, Walton, Orange, Santa Rosa, Gilchrist, Clay, Nassau, St. John's, Osceola
85+ Population	Disproportionately Small	Pinellas, Putnam, Hardee, Highlands
85+ Population	Disproportionately Large	St. John's, Gilchrist, Union, Wakulla, Clay, Nassau, Sumter

DISCUSSION

It is imperative to understand how to plan for the growth in our aging population. Whereas much attention has been given to the cost of supporting an older and less active population, more time and attention should highlight older adults working to stay active, those who volunteer countless hours, and whose contributions to our communities add considerable economic value to the state.

This article makes four contributions. First, we make our demographic maps available to the public. Second, both our dynamic and our static maps are a visual representation of Florida's aging. The static maps display disproportionate county-level changes; identifying particular counties that will see total growth and percent of total population growth in total, 65+, and 85+ populations. Third, we offer the WHO Age-friendly model as an approach to encourage planning across all sectors and aspects of community life. Finally, Florida offers a more positive image of aging.

To capture how the data may help users in the future, we ask website visitors to complete a short questionnaire on how they use the map data and what

additions would be helpful to improve user experience.

Aging is a developmental stage (Goldman & Wolf, 2016). Like all stages, there can be growth or decline. AARP initiatives such as "Disrupt Aging" challenge ageist stereotypes and offers new solutions to doomsday scenarios of decline (Disrupt Aging, 2016; Jenkins, 2016). We believe the changing demographic landscape for 65+ and 85+ populations in Florida and the country raise challenges for public health practice, state and county-level policy, health providers, physical infrastructure, market economies, community well-being, and a myriad of other social structures. But, they also offer opportunities. Nationally, adults' (age 50 years and older) demands for services and goods create economic growth and provide an estimated \$7.1 trillion in global gross domestic product, 46% of the U.S. economy. This Longevity Economy constitutes 69% of those employed and they contribute 47% of all federal taxes and 56% of state and local taxes (AARP, 2013). Entrepreneurs of all ages will work to meet the changing needs for services and products.

Figure 3
2015 Projected Sarasota County Population Percentages for Individuals Age 65+

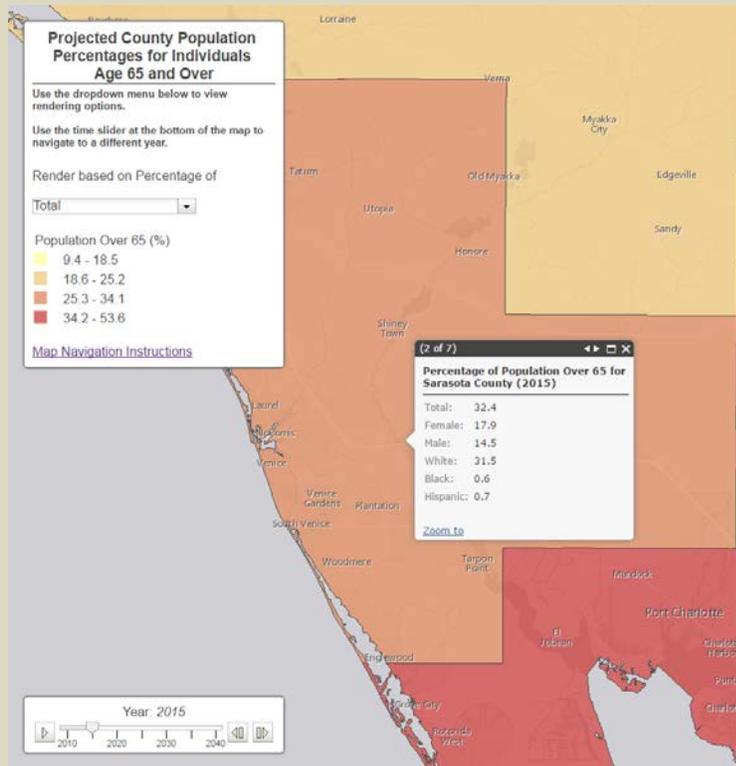


Figure 4
2040 Projected Sarasota County Population Percentages for Individuals Age 65+

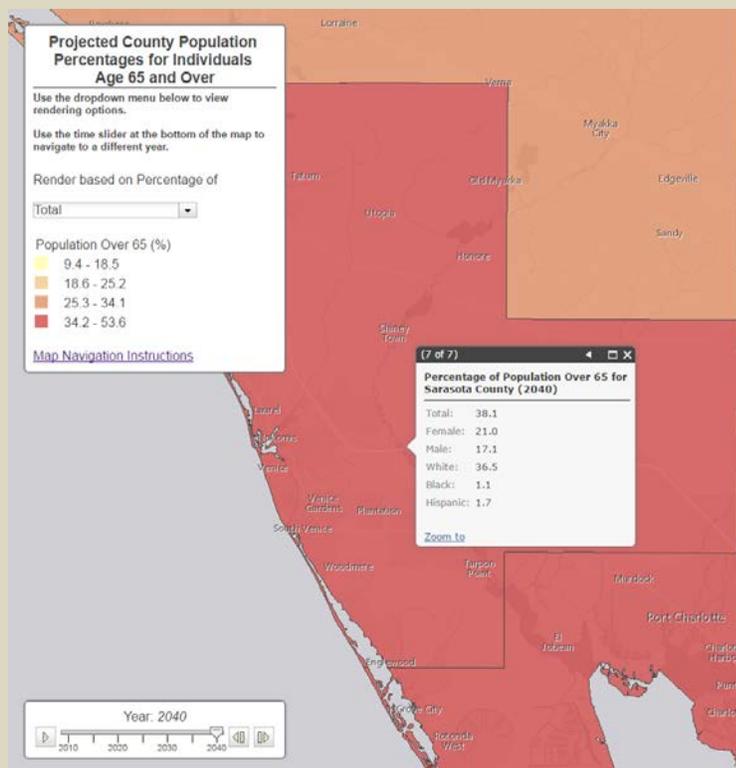


Figure 5
2015 Projected Sarasota County Population Percentages for Individuals Age 85+

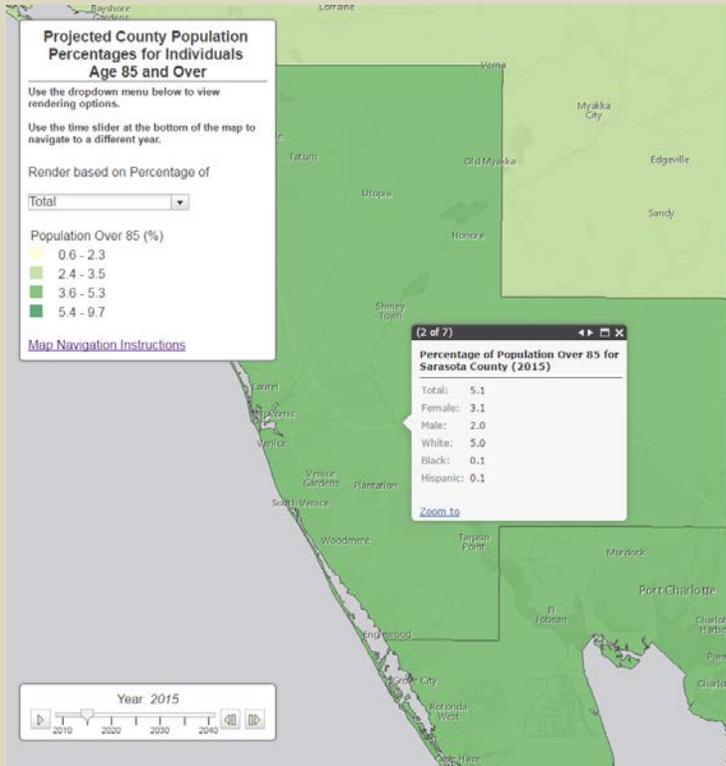
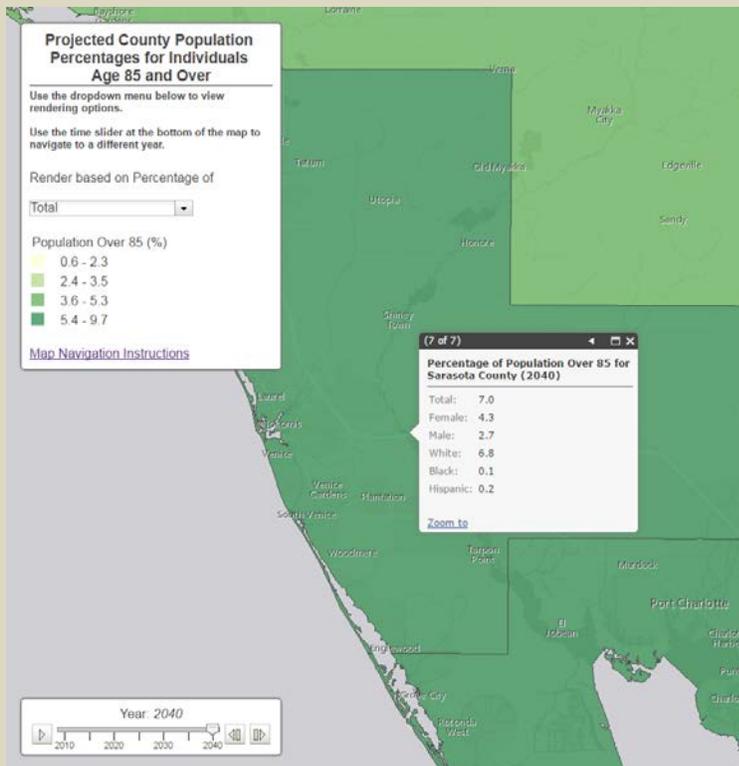


Figure 6
2040 Projected Sarasota County Population Percentages for Individuals Age 85+



Application to Age-related Challenges

Positive aspects of aging. The increase in the older adult population will spur workforce development and opportunities for entrepreneurship and business growth in ways that are not known. Among new businesses started in 2011, 23% were launched by entrepreneurs aged 55-64 (Fairlie, 2013). Whereas some business developed as a necessity after the recession, new businesses may also reflect a desire or need to continue to make economic contributions after retirement. A 2013 Merrill Lynch survey claimed 71% of pre-retirees claimed they wanted to continue to work; almost half of those planned to work for "stimulation and satisfaction" rather than out of necessity (Merrill Lynch, 2013).

The spending power and large numbers of older consumers encourage new solutions and business opportunities. For example, demand for transportation services has been a well-documented need for decades (Robison, Shugrue, Fortinsky, & Gruman, 2013; Rosenbloom, 2009), especially for transport to and from health care appointments or medical treatments (Archury, Preisser, Gesler, & Powers, 2005; Hwang, Shah, Han, Carpenter, Siu, & Adams, 2013). But only as the needs of older adults are recognized have markets begun to respond. Recognizing the demand for medical transportation, Lyft, a venture capital start-up, announced a partnership with National Medtrans Network to offer seniors "Treatment starts with transportation" - scheduled rides for medical healthcare appointments for older adults and their families (Lyft, 2016b). To assure older people that they will be safe, Lyft screens drivers using extensive background checks and provide both an emergency response line and insurance policy coverage (Lyft, 2016a). The company is explicitly positioning itself to meet the needs of a growing market and offers multiple ways to request rides. Lyft recognizes the increasing demand for transportation services: about 20% of older adults report that they do not drive (Abrahms, 2013) and 78% of report that they are dependent on others for transportation (Thompson, 2004).

Changing work and retirement patterns, Encore careers, (<http://encoretampabay.com>) and the social capital older adults contribute through volunteering in their communities constitute a sizable economic value even ignoring the taxes older adults continue to pay. Civic engagement in communities can enhance older adult physical and mental well-being, and it can benefit community organizations since older adults can provide valuable skills and assets (Anderson, 2014). For example, in the city of Largo in Pinellas County, Florida an older adult serves as a law enforcement officer that serves other older adults in the community (Varn, 2016). Allowing older adults

to continue with their vocations later in life may have a positive impact on the individual and the community as well. In fact, according to an AARP report, the 65+ Florida population provide more tax revenue in comparison to Floridians under the age of 65 (AARP, 2014). AARP also states that while Floridian's 65+ contribute \$2,627 in state and local taxes in comparison to the services they use, Floridians under 65 cost the state \$818 (University of Florida, 2013). Thus, on this one dimension, the younger population in Florida contributes less in tax revenue and uses more services than older Floridians 65+. We acknowledge use of services changes over a life and rather than pit elders against younger adults, we seek to emphasize the important contributions of older adults.

The WHO Age-friendly movement is a unifying effort to approach population aging and as an opportunity to encourage discussion and planning for all individuals, regardless of age. When the Americans with Disabilities Act was passed in 1990, cities and new buildings were required to create curb cuts and ramps, enabling all citizens equal access. As these changes were implemented those with disabilities were able to travel on public transit and visit restaurants and businesses that previously were not accessible. Subsequently, women with baby carriages and strollers, kids on bikes, and a myriad of delivery services wheeling cartons packed with goods also recognized that improving mobility access for wheelchairs, improved life for everyone. Hospitals and healthcare systems (WHO, 2004) recognize that universal design accommodates temporary disability and incorporates well-being into the larger community Age-friendly is evolving into a design standard and planning philosophy appropriate for all sectors.

Negative aspects of aging. An increase in longevity can be associated with age-related diseases, such as dementia, which can create debilitating health care and long-term care costs for older adults and their families (Hurd, 2015). There are initiatives underway that address aging-related issues and recognize potential opportunities to address negative aspects of aging.

One such age-focused effort, dementia-friendly communities, recognizes the needs of older adults with dementia and their families (Turner & Morken, 2016). Leading this initiative Florida's Department of Elder Affairs launched a dementia-care and cure community initiative to enhance the care of Floridians with dementia and promote research to find a cure. In April 2016, Florida's capital, Tallahassee, and Leon County were acknowledged as the first dementia caring community in the state. The initiative set a precedent since Florida is the second

highest state in the nation for Alzheimer's incidence (Chambers, 2016). Florida's perspectives and initiatives towards aging serve as an example for other states and communities who want to meet the diverse needs of their growing older adult populations.

Limitations

The maps provided in this article, however, are not without limitations. Our dynamic maps could be improved with increased user interactivity, and we seek reader feedback on how these maps are useful or limited. Second, our display of data is limited by the GIS program parameters; the display intervals are arbitrarily selected by the program and are not natural breaks for data. Finally, our statistical analyses are sophisticated to the extent that we can discover which Florida counties are projected to grow at disproportionate rates, but they cannot identify causal mechanisms in population change.

Implications for Future Work

Further research is needed in the area of population aging. While the dynamic maps provide a means to interactively display more than 70 static maps, further work could produce dynamic maps that further disaggregate demographic categories. Research on percent change at the city-level in Florida could also inform policy at the city and community levels. Younger age groups could also be added.

Reflecting on population aging projections within Florida and the nation should foster more research, planning, and policy analysis. Recognizing the need for a competent workforce with positive attitudes towards older adults, more people must study gerontology and geriatrics as part of basic health professions training (Institute of Medicine, 2009). Efforts such as Health Resources and Services Administration's Geriatric Workforce Enhancement programs need to be expanded (HRSA GWEPs: <http://bhpr.hrsa.gov/grants/geriatricsalliedhealth/gwep.html>).

Business planning and the service industry. The time for decision-makers and stakeholders to act is now. Whether by devising and enacting plans or devising and implementing interventions and programs to address needs by 2020 or 2040 is, in part, moot. The increase in the U.S. older adult population will provide a wide array of opportunities for economic growth and development. Older adults can create new workforce opportunities in healthcare, business, technology, and growth in other job sectors of the nation (Goldman & Wolff, 2016). They also possess many unique skills and have a wealth of experience that make them a valued resource in their communities due to their social capital and ability to be social entrepreneurs (Halvorsen & Emerman,

2013; Halvorsen and Morrow-Howell, 2015). In addition to economic opportunities, there are also possibilities for Age-friendly community planning and development, like the county of Sarasota, Florida, which are possible through the use of the integrative maps provided in this article. Changes are on the horizon. All leaders must take action and start planning to meet the needs and demands of the growing older adult population and their families.

REFERENCES

- AARP. (2013). *Generating economic growth and new opportunities for business*. The Longevity Economy, Oxford Economics. Retrieved from <http://www.aarp.org/>.
- AARP. (2014). *Economic impact of aging Florida: Facts you should know*. Retrieved from <http://www.aarp.org/>.
- Abrahms, S. (2013). *Improving transportation services for seniors*. Retrieved from <http://www.aarp.org/>.
- Age Friendly Sarasota. Retrieved from <http://agefriendlysarasota.org/>
- Ager, P. & Brückner, M. (2013). Cultural diversity and economic growth: Evidence from the US during the age of mass migration. *European Economic Review*, 64, 76-97.
- Anderson, N.D., Damianakis, T., Kröger, E., Wagner, L.M., Dawson, D.R., Binns, M.A., ... The BRAVO Team. (2014). The benefits associated with volunteering among seniors: A critical review and recommendations for future research. *Psychological Bulletin*, 140(6), 1505-1533.
- Archury, T.A., Preisser, J.S., Gesler, W.M., & Powers, J.M. (2005). Access to transportation and health care utilization in a rural region. *Journal of Rural Health*, 21(1), 31-38.
- Bradley, D.E. (2011). Litwak and Longino's developmental model of later-life migration: Evidence from the American Community Survey, 2005-2007. *Journal of Applied Gerontology*, 30(2), 141-158.
- Black, K., Badana, A., & Hyer, K. (2016). Caregivers' considerations on age-friendly community features. *Annals of Gerontology and Geriatrics Research* 3 (2), 1041.
- Bureau of Economic Analysis. (2016). *NAICS (1997 forward)* [Data File]. Retrieved from <http://www.bea.gov/itable/>.
- Centers for Disease Control and Prevention. (2003). *Live births, birth rates, and fertility rates, by race: United States, 1909-2003*. Vital Statistics of the United States: 1980-2003. Retrieved from http://www.cdc.gov/nchs/products/vsus/vsus_1980_2003.htm.
- Centers for Disease Control and Prevention. (2010). Life expectancy at birth, at 65 years of age, and at 75 years of age, by race and sex: United States,

- Hyer et al.: Preparing for Florida's Older Adult Population Growth with User-f
selected years 1900–2007. Retrieved from <http://www.cdc.gov/nchs/data/hus/2010/022.pdf>.
- Chambers, A. (2016). *Department of elder affairs announces first dementia caring community in Florida*. Retrieved from http://elderaffairs.state.fl.us/doesa/press/2016/Dementia_Caring_Community_Announcement_4_16.pdf.
- Clearwater Office on Aging. (2016). Clearwater Florida Office on Aging. Retrieved from http://www.myclearwater.com/gov/depts/parksrec/aging/about_us.asp.
- Conway, K.S., & Rork, J.C. (2010). “Going with the flow” — a comparison of interstate elderly migration during 1970 – 2000 using the (D)PUMS versus full census data. *Journal of Gerontology: Social Sciences*, 65B(6), 767–771.
- Das, R. (2015). A silver tsunami invades the health of nations. *Forbes*. Retrieved from <http://www.forbes.com/sites/reenitadas/2015/08/11/a-silver-tsunami-invades-the-health-of-nations/#3ee561bb4c59>.
- Department of Elder Affairs (2015). *Dementia care & cure initiative*. Retrieved from <http://elderaffairs.state.fl.us/doesa/dcci.php>.
- Disrupt Aging. (2016). Retrieved from <http://www.aarp.org/etc/everwhere/statics/disrupt-aging/home.html?cmp=RDRCT-DSO-DISAGING-vanitymain2-011516>.
- Economic and Development Research (2015a). *Florida population by age group*. Retrieved from <http://edr.state.fl.us/Content/population-demographics/data/>.
- Economic and Development Research (2015b). *Florida economic future and the impact of aging*. Senate Committee on Children, Families, and Elder Affairs. Retrieved from http://edr.state.fl.us/Content/presentations/economic/FIEconomicFuture&theImpactofAging_2-5-15.pdf.
- Economic and Development Research (2015c). *Medium Projections of Florida Population by County, 2015-2040*. Population and Demographic Data. Retrieved from <http://edr.state.fl.us/Content/population-demographics/data/>.
- Economic and Development Research (2015d). *2010 census counts and projections of Florida population by county and age, race, sex, and Hispanic origin, 2015-2040*. Population and Demographic Data. Retrieved from <http://edr.state.fl.us/Content/population-demographics/data/>.
- Economic and Development Research (2015e). *Florida census day population: 1970-2040*. Population and Demographic Data. Retrieved from <http://edr.state.fl.us/Content/population-demographics/data/>.
- ESRI. (2012). ArcGIS Desktop: Version 10.2. Redlands, CA: Environmental Systems Research Institute.
- Fairlie, R.W. (2013). *Kauffman index of entrepreneurial activity: 1996-2012*. Retrieved from <http://www.kauffman.org/>.
- Federal Interagency Forum on Aging-Related Statistics. (2012). *Older Americans 2012: Key indicators of well-being*. Retrieved from <http://www.agingstats.gov/agingstatsdotnet/main/site/default.aspx>.
- Goldman, L. & Wolf, R. (2016). Millbank Memorial Fund. *How can states support an aging population? Actions policymakers can take*. Retrieved from <http://www.milbank.org/publications/milbank-reports/525-how-can-states-support-an-aging-population-actions-policymakers-can-take>.
- Halvorsen, C.J., & Emerman, J. (2013). The Encore movement: Baby Boomer and older adults can be a powerful force to build community. *Generations*, 37(4), 33-39. Retrieved from <http://www.ingentaconnect.com/content/asag/gen/2013/00000037/00000004/art00007>.
- Halvorsen, C.J. & Morrow-Howell, N. (2015). Toward a theory on entrepreneurship in later life: The influence of age. Paper presented at the 68th Gerontological Society of America Conference, Orlando, FL.
- Hobbs, F. & Stoops, N. (2002). *Demographic Trends in the 20th Century*. U.S. Census Bureau, Census 2000 Special Reports, Series CENSR-4, Washington, DC: U.S. Government Printing Office.
- Hwang, U., Shah, M.H., Han, J.H., Carpenter, C.R., Siu, A.L., & Adams, J.G. (2013). Transforming emergency care for older adults. *Health Affairs*, 32(12), 2116-2121.
- Hughes, B.S., Kuhn, R., Margolese-Malin, E.S., Rothman, D.S., & Solórzano, J.R. (2015). Opportunities and challenges of a world with negligible senescence. *Technological Forecasting & Social Change*, 99, 77-91.
- Hurd, M.D. (2015). *Planning for the rising costs of dementia*. RAND Corporation. Retrieved from <http://www.rand.org/capabilities/solutions/planning-for-the-rising-costs-of-dementia.html#>.
- Institute of Medicine. (2009). *The U.S. Commitment to Global Health. Committee on the U.S. commitment to global health: Recommendations for the public and private sectors*. Washington, D.C.: National Academies Press. Retrieved from <http://www.ncbi.nlm.nih.gov/books/NBK23788/>.
- Jenkins, J. (2016). *Disrupt aging: A bold new path to living your best life at every age*. New York, NY: Public Affairs.
- Linder, F.E. & Grove, R.D. (1947). *Vital rates in the United States, 1900-1940*. Federal Security Agency. Washington, D.C.: United States

- Florida Public Health Review, Vol. 14 [2017], Art. 4
 Government Printing Office. Retrieved from: http://www.nber.org/vital-stats-books/vsrates1900_40.CV.pdf.
 Livingston, G., & Cohn, D. (2012). U.S. birth rate falls to a record low; decline is greatest among immigrants. Pew Research Center. Retrieved from <http://www.pewsocialtrends.org/2012/11/29/u-s-birth-rate-falls-to-a-record-low-decline-is-greatest-among-immigrants/>.
 Lyft. (2016a). *Healthcare solutions*. Retrieved from <https://www.lyft.com/>.
 Lyft. (2016b). *Lyft partners to give patient rides*. Retrieved from <https://www.lyft.com/>.
 Merrill Lynch. (2013). *Americans' perspectives on new retirement realities and the longevity bonus*. Retrieved from <http://wealthmanagement.ml.com/wm/Pages/Age-wave-Survey.aspx>.
 Moore, S., Laffer, A.B., & Griffith, J. (2015). 1,000 people a day: Why red states are getting richer and blue states poorer (Report No. 152). *The Heritage Foundation*. Retrieved from <http://www.heritage.org/>.
 Myer, J. (2012). *Centenarians: 2010. 2010 Census Special Report* (Report No. C2010SR-03). Retrieved from <https://www.census.gov/prod/cen2010/reports/c2010sr-03.pdf>.
 Robison, J., Shugrue, N., Fortinsky, R.H., & Gruman, C. (2013). Long-term support and services planning for the future: Implications from a statewide survey of baby boomer and older adults. *Gerontologist*, 54(2), 297-313.
 Rosenbloom, S. (2009). Meeting the transportation needs in an aging-friendly community. *Generations*, 33(2), 33-43. Retrieved from <http://www.aarp.org/>.
 Swoope, G., Hart, C. Panuccio, J. (2013). *Florida strategic plan for economic development: 5 year plan*. Retrieved from http://www.floridajobs.org/Business/FL5yrPlan/FL_5yrEcoPlan.pdf.
 Thompson, L. (2004). Long-term Care: Support for Family Caregivers (Issue Brief). Washington, D.C.: Long-Term Care Financing Project, Georgetown University.
 Turner, N. & Morken, L. (2016). *Better together: A comparative analysis of age-friendly and dementia friendly communities*. Retrieved from <http://www.aarp.org/>.
 University of Florida. (2013). *The net impact of retirees on Florida's state and local budget*. Retrieved from <https://www.bebr.ufl.edu/>.
 U.S. Census Bureau (2015). *Florida Quick Facts*. Retrieved from <https://www.census.gov/quickfacts/table/PST045215/12U.S>.
 Varn, K. (2016). Serving seniors a calling for Largo police officer who is retiring this month. *Tampa Bay Times*. Retrieved from <http://www.tampabay.com/>.
 Vijg, J. & de Grey, A.D. (2014). Innovating aging: Promises and pitfalls on the road to life extension. *Gerontology*, 60(4), 373-380.
 Vincent, G.K. & Velkoff, V.A. (2010). *The Next Four Decades, The Older Population in the United States: 2010-2050* (Report No. P25-1138). Washington, D.C.: U.S. Census Bureau, Current Population Reports.
 World Health Organization. (2004). *Towards age-friendly primary health care*. Retrieved from <http://www.who.int/ageing/publications/phc/en/>.
 World Health Organization. (2007). *Global age-friendly cities: A guide*. Retrieved from http://www.who.int/entity/ageing/publications/agefriendly_cities_guide/en/index.html.
 Woodruff, C., Rodriguez, R., & Aversa, J. (2015). *Broad growth across states in 2014* (Research Report no. BEA 15-25). Retrieved from http://www.bea.gov/newsreleases/regional/gdp_state/gsp_newsrelease.htm.
 W.P. Carey School of Business (2016). *Current State Rankings*. Arizona State University. Retrieved from <https://wpcarey.asu.edu/>.

Kathryn Hyer (corresponding author) is Professor, School of Aging Studies, and Director, Florida Policy Exchange Center on Aging, University of South Florida, Tampa, FL. Email at khyer@usf.edu. George MacDonald is Director of the Center for Research, Evaluation, Assessment and Measurement, College of Education, University of South Florida, Tampa, FL. Email at gmacdona@usf.edu. Kathy Black is Professor, University of South Florida, Sarasota-Manatee, Sarasota, FL. Email at kathy@sar.usf.edu. Adrian N.S. Badana is a doctoral student, School of Aging Studies, Florida's Policy Exchange Center on Aging, University of South Florida, Tampa, FL. Email at abadana@mail.usf.edu. Scott Patrick Murphy is Assistant Professor of Sociology, Miami Dade College, Miami, FL. Email at smurphy@mdc.edu. William E. Haley is Professor, School of Aging Studies, University of South Florida, Tampa, FL. Email at whaley@usf.edu. Copyright 2017 by the *Florida Public Health Review*.