Baby Boom retirees and Florida's job structure*

Jim Dewey
University of Florida

Dave Denslow
University of Florida

ABSTRACT

By 2030, approximately 26% of Floridians will be age 65 or older, up from 17% in 2010. In standard regional general equilibrium models, retirees and the local workers who produce goods and services for them drive up housing prices and thus crowd out workers that produce for export beyond the local area. Job skill in Florida's metropolitan statistical areas (MSAs) in 2004 (before the peak of the housing bubble and ensuing crash) was 4 percentage points below the national average, using national average pay as a measure of occupational skill. Half of the shortfall is attributable to Florida's specialization in serving retirees and another third is attributable to lower shares of college graduates, which is in turn related to retiree specialization. As an example of less direct mechanisms through which retirees may make an area less suited to high-skill jobs, the elasticity of airline departures with respect to the retiree share of the local population is estimated to be –4.2. By 2030, approximately 40% of voters in Florida will be age 65 or older, magnifying their impact on policies affecting job skill. The population of retirees will be spatially concentrated, with about one third of Floridians living in counties where 30% or more of residents are age 65 or older. Absent urgent and aggressive policy intervention, Florida's workers that retire over the next 20 years are likely to be replaced by less educated and less skilled workers less suited to the knowledge economy, and the gap between Florida's average job skill and the national average is likely to widen substantially.

Keywords: retirees, job structure, job skill, Florida labor markets

*Authors' note: Prepared for presentation at the 2012 Florida Regional Economic Symposium at Florida Southern College April 13th, 2012. The authors are also grateful to Eve Irwin and Ray Schaub for excellent research assistance. Any remaining errors are our own.

1. INTRODUCTION

Florida specializes in industries and occupations related to providing services for retirees and tourists. That would be no cause for concern but for two things. First, the influx of retirees and tourists can vary widely, causing large swings in employment. Second, many of the jobs created pay little and require little education. As a result relatively few of Florida's young people, especially young men, have college degrees. Figure 1, based on data from the 2010 American Community Survey, shows the share of men and women with a bachelor's degree or higher for the U.S. and Florida. The most striking number in this figure is the low share of Florida's men 25 to 34 who have degrees—only 21.6%. Partly, this reflects that nationally men are now less likely than women to graduate from college. Unless the pattern depicted in the figure reverses, and despite the rising share of women graduating from college, as those currently 45-64 retire they will be replaced in Florida by entering workers less likely to have a college degree.

This coincides with the arrival of the global knowledge economy in which ideas have more and more become the source of wealth. Innovation is combinatorial. New ideas are formed by combining existing ideas. As an example, the iPod combines micro hard drive storage, the lithium ion battery, the LCD display, the DRAM cache, and signal compression (the fast Fourier transform). New products and processes arise from the interaction of creative and trained scientists and engineers who share their knowledge of the frontiers in their various specialties, so the skills of other young specialists enhance the productivity of those with whom they work. A cascade of recent studies has made it clear that variation in the share of workers with talent and high educational attainment is the major source of variation across metropolitan statistical areas (MSAs) in their economic growth. See, for example, Glaeser, Ponzetto and Tobio, (2011), Glaeser and Gottlieb (2009), Carlino, Carr, Hunt, and Smith (2011), and a host of studies by economists at the New York Federal Reserve including Abel, Gabe, Ross, and Stolarick (2010), Abel, Dey, and Gabe (2011), Jaison Abel and Richard Deitz, (2009) . Abel, Todd, and Gabe (2010a and 2010b).

Generalizing from these studies, having one more worker with a college degree instead of only a high school diploma boosts a city's output by approximately $100,000 a year. About $35,000 of that is extra pay for the worker with a degree. The remaining $65,000 goes about half to other workers and about half to the owners of firms and land. A worker with a degree makes his co-workers, as well as the machines, buildings and land he and they use more productive. Nearly everyone gains from these spillovers, even high-school dropouts who earn more per person.

It is also clear from these studies that cities are diverging in their shares of college-educated workers. Cities that are knowledge centers are moving farther and farther ahead of the others. College-educated workers attract college-educated workers. Partly, this is because they want diversified opportunities and good job matches. Also, the more talented their co-workers, the faster their pay will rise. College graduates who move to a city with a larger share of college graduates initially earn no more, but as they learn from others, their pay rises rapidly. Cities are diverging because college graduates draw more college graduates.

Two very different possible futures may be envisioned for Florida. The first is to continue to focus heavily on serving retirees and visitors. It leads to few high-skill jobs related to the knowledge economy and the schools and communities that go with a low-skill work force. In the second, Florida takes advantage the comparative advantage its natural environment provides in attracting high-skill workers to become a major player in the knowledge economy, with multiple

innovation clusters and the businesses and jobs spun off from them. Build a road to nowhere or a school in the middle of a desert and nothing happens. Build roads and good schools in highly desirable locations and match them with business friendly regulatory, legal, and tax systems and more high-skill jobs will come.

Due to the convergence of three factors, Florida is likely near a tipping point where policy makers can choose to urgently and aggressively pursue policies favorable to high skill jobs or the state will soon have amassed so much momentum in the other direction that it cannot be reversed. The first is the agglomeration economies exhibited by high skill jobs, described above. Such agglomeration economies may be either a blessing or a curse for policies aimed at attracting them. On the positive side, once the supply of highly skilled workers to a local labor market passes some threshold, it can become increasingly attractive to additional high skilled workers. (Moretti 20011a and 2011b) If Florida's natural attractiveness and favorable policies can move us past that threshold, rapid high-skill development can follow. But, if Florida's cities get too far behind, other labor markets will be too attractive for Florida to hope to compete.

Second is the national trend of labor market polarization. (Acemoglu and Autor, 2011; Autor, 2010; Autor, Katz, and Kearney, 2006) Over the past three decades, the share of workers in occupations that used to constitute the middle of the wage distribution, for example bookkeepers, has declined. At the same time, wages relative to the national average have grown notably for those at the high end of the skill distribution, increased slightly for those at the low end, and fallen for those in the middle. Correspondingly, real wages have risen most for those with the highest levels of education, been stagnant for high school graduates, and fallen for high school drop outs. As Dewey and Denslow (2012) show, these trends have been pronounced in Florida. In Florida, will high- or low-skill jobs replace those that used to make up the middle? Agglomeration economies for high-skill jobs together with the fact that Florida has historically been long on low-skill jobs suggest the answer is more low-skill jobs.

This paper takes up a third factor—the coming wave of baby boomer retirements. The effect of retirement on economic development is considered in the context of the prevailing theory of the how export-oriented industries and innovation are allocated among cities, the Rosen-Roback model (Glaeser 2008 and Glaeser 2010 provide a good overview). In it, export industries are attracted to cities by low rents, low wages (conditional on skill), and high productivity. Workers seek locations that have high wages relative to the cost of housing and other goods and services and are pleasant places to live. Cities specialize in the export sectors with the highest productivity in that location, whether because of natural resources, transportation, or agglomeration economies. Sectors that exhibit complementarities are likely to cluster together.

In the model, the way to treat retirees who migrate to Florida's cities is as export-oriented *firms*. Though that may at first seem counter-intuitive, their money comes from outside the city and, like firms and unlike workers, they prefer low-wage areas, making personal services cheaper for them. In an area with amenities that are particularly attractive to retirees—sunshine, scenery and golf courses, perhaps—they bid up both rents and wages of workers that produce for local consumption (e.g. personal service workers), pushing away other export oriented firms.

In a simple version of the model which forms a useful benchmark, all workers value amenities equally, there are constant returns in export industries, rent adjusted for within city location increases with population, retirees and workers demand the same amount of housing, and the same number of workers is required to provide local goods and services to support a retiree as is required to support an export worker. In that model, a unique combination of rent and wages is consistent with equilibrium, so an exogenous change that results in one additional retiree

resident in equilibrium is met by an equal decline in the non-retiree population to keep rent at the initial level—retirees crowd out workers in other export industries one for one.

Moving away from this benchmark, the tendency of high-skill jobs to exhibit agglomeration economies exacerbates such crowding out, while the fact that all workers may not value amenities equally at the margin results in a less than perfectly elastic supply of workers to the local export sector, softening the crowding out. Crowding out may also be softened if retirees foster complementarities with high-skill jobs. To take a simple example, retirees might increase the tax base, making it possible to fund education more highly at a given tax rate, attracting high-skill workers who demand first rate public schools for their children. Of course retirees might also restrict education funding by voting for lower tax rates, driving away high-skill workers. Summing up the theory, crowding out is greater the stronger the agglomeration economies exhibited by export industries, the more elastic the supply of workers to the area, the less elastic the area's housing supply, and the weaker the complementarities between retirees and export workers.

The findings reported here indicate that, in practice and on average, retirees strongly crowd out high-skill jobs. First, an increase in the share of a Metropolitan Statistical Area's (MSA) population 65 years of age or older by 5 percentage points, about the mean difference between Florida's cities and the nation's, reduces average job skill as measured by the national average pay of the typical job in an MSA to the overall national average pay by 2 percentage points, holding constant measures of tourism, education, workforce experience, labor market size, and employment growth. (Henceforth, the terms city and MSA are used interchangeably to refer to an integrated, largely self-contained, local labor and housing market.) This accounts for about half of the difference between Florida and the nation. Given that retirees are also associated with lower average education levels, the full effect of an increasing retiree share is likely considerably larger.

Second, retirees could impact job structure through their impact on air travel. Workers in jobs that produce goods for sale outside a city fly much more frequently than workers in jobs that produce for local consumption. By shifting the composition of jobs toward local services, adding retirees may reduce overall air travel. Based on analysis of MSA level data on passenger departures, a 1 percent increase in the share of the MSA population age 65 or older is associated with a 4.2 percentage point fall in airline departures, holding constant total population. As is argued in more detail in section 3, the magnitude of this effect suggests the direct increase in air demand due to an exogenous increase in retirees is overwhelmed by the decline in air travel due to the export workers crowded out by additional retirees.

Third, by 2030, those 65 or older are likely to constitute 26% of Florida's population, up from 17% in 2010. The higher propensity of older residents to vote magnifies their influence on policies, such as education, where their preferences are likely to conflict with attracting high-skill jobs—by 2030, 40% of the state's voters are projected to be 65 or over. The retiree population will be more concentrated in some counties than others, with a third of Floridians projected to live in counties where 30% or more of residents are age 65 or older, further magnifying their influence in those areas.

Together these elements paint a bleak picture of the prospects for increasing the skill level of Florida's job structure. The coming wave of baby boomer retirements seems likely to interact with labor market polarization and the agglomeration economies exhibited by many high-skill jobs to accelerate growth of low-skill jobs in Florida and choking off high-skill job growth. Barring aggressive public investment in infrastructure and education, which seems unlikely, job

skill in Florida will fall increasingly behind cities at the forefront of the knowledge economy.

2. THE COMING BABY BOOMER RETIREES

Table 1 shows Florida's total population and population age 65 and over for 2010 from the 2010 Census and projections for later years from the University of Florida's Bureau of Economic and Business Research. In 2030 Florida will have become more a state of older residents. The state overall will resemble the age structures of Collier, Flagler, Indian River, Lake, and Martin counties today. Of course, even the best projections may not perfectly predict future outcomes, and recent migration to Florida has diverged from past patterns, at least temporarily. It is worth considering how confident one can be that Florida's future demographics will match those shown in Table 1, given recent experience.

From 2000 to 2008, Florida had a higher net domestic migration total—retirees and non-retirees combined—than any other state. (Cox and McMahon, 2009) Over the past three years the net flow has slowed, as Florida's housing sector collapsed. That resulted in the usual predictions that Florida's days as a retiree destination, a primary driver of its overall economic and population growth, are over. While the net 338,000 tax filers who moved from New York to Florida over the years 2000 through 2009 added $11 billion to Florida's annual income, 2009 was the first year for which there are data when Florida was not New York tax filers' primary destination. North Carolina took the lead, 8,608 to 8,026.

Of course, 2009 was not a typical year. Besides fewer retirees moving to Florida, not many workers came expecting to find jobs. In addition, no one ever expected all retirees to come to Florida. Florida has some 8% of the nation's over-65 population. Of those, over half had lived in Florida before retiring. That means continuing to attract 4% of those retiring elsewhere will keep Florida on its historic path. Especially as the boomers hit 65, as the first of them did last year, retirees will continue to be the source of a major part of Florida's economic activity. There will be a delay, mainly because of the ongoing trauma in the housing market. True, the stock market collapse did cause some in their sixties to delay retirement, but studies show that the average delay is short. (McFall, 2011; Goda, Shoven, and Slavov, 2011; Coile and Levine, 2010) Offsetting that somewhat, many in their sixties who lost their jobs retired sooner than planned.

Far more important is the disruption of the housing market. Retirees who cannot sell their houses easily up north for a good price or who fear Florida house prices will continue to fall, are less likely to move here. It is hard to say how long the housing disruption will last, though it will be years and not months. At least Florida's prices are coming back into equilibrium with those in the north and in other southeastern states. Figure 2 shows an index of house prices in Florida and other southeastern states, adjusted for inflation, with 2000 set equal to 100. During the boom years, 2000 to 2006, prices in Florida doubled, while rising 20% to 30% in the rest of the southeast. Now Florida is effectively back to the equilibrium of the late 1990s.

The fundamentals that made Florida attractive in the past have not changed. Compared to North Carolina, one can swim in the ocean comfortably and play golf more days per year. Florida still has hundreds of miles of sandy beaches and remains the subtropical corner of a rich continent. Evidence that all this matters is that the most substantial recovery among the sectors of Florida's economy is tourism. Often tourism precedes buying a second home or moving for retirement. Welcoming retiring baby boomers as a large share of Florida's economic activity is a question of when and how, not whether.

3. RETIREES AND FLORIDA'S JOB STRUCTURE

3.1 Correlation between Job Skill and Retirees

This section considers the correlation between average job skill and geographic, demographic and economic characteristics across US metropolitan statistical areas (MSAs), with the correlation between retiree population and job skill of particular interest. The measure of job skill (*INDEX*) can be thought of as valuing each job in a city at the national average wage for that job and then calculating the ratio of this hypothetical average wage to the national average wage. See Dewey and Denslow (2012) for details. It thus removes wage variation due to compensating differentials for amenity and cost of living differences, or temporary local shocks, focusing only on the national average value added by the average worker in that job. The measure is calculated based on occupation and MSA specific wage data from the Occupational Employment Statistics (OES) program of the US Bureau of Labor Statistics in which average wages are computed based on a 3 year rolling sample. For purposes of this paper, 2004 wage data is used, which should remove any contamination from the most rapid inflation of the housing bubble and from the ensuing crash. The regression reported below includes state fixed effects to control for state specific policies that affect job skill and for the fact that the OES data is collected through state departments of labor and may reflect state specific job classification idiosyncrasies.

Workers can and do move among U.S. cities, to earn higher pay for their skills among other reasons, and such mobility entangles supply and demand for skill. Provide few jobs for chemists in a city and locally trained chemists will leave and local youth will be less likely to become chemists. Similarly, a local educational system that trains good scientists and engineers will attract high-tech firms. Therefore, the correlates identified reflect elements of both skill supply and skill demand.

The share of the population 65 and older (*RETIREE*) according to the 2000 Census is used to measure the importance of retirees. While they also increase the demand for certain high paying jobs in medical and financial services, the direct effect of retirees is expected to create more demand for low-paying jobs. However, if retirees create complementarities for high-skill jobs, they could be located with them. Also, amenities that attract retirees might attract high-skill workers.

The share of MSA GDP from the leisure and hospitality sector for 2002 (*TOURISM*) is used as a measure of tourism. *TOURISM* is derived from the U.S. Bureau of Economic Analysis' data on GDP for metro areas (available at www.bea.gov). Tourism is expected to be associated with low value added jobs. However, again, characteristics that make an area attractive for tourists could also be attractive to high skill workers.

The share of the population age 25 and older with a college degree (*COLLEGE*) from the 2000 Census is used to measure educational attainment in the MSA. The share of the population between ages 15 and 65 that is 15 to 29 years of age (*YOUNG*) according to the 2000 Census is used as a measure of (the lack of) labor market experience.

The size of the labor market is measured by the natural logarithm of the total number of employees in 2004 (*SIZE*), calculated from the OES data. The size of the labor market is important for two reasons. First, cities are increasingly differentiated by function instead of industry, and larger cities are becoming more specialized in higher paying occupations. (Puga and Duranton, 2005) Second, in larger labor markets workers are able to obtain more specialized training while young, raising not only their immediate pay but their prospects for future em-

ployment and pay. Thus average job quality is expected to be higher in larger labor markets. *GROWTH*, the average annual continuously compounded rate of growth of employment from 1999 to 2004 calculated from the OES data, is included to control for the possibility that rapidly growing labor markets tend towards expansion in low paying occupations which are easier to staff.

CAPITAL is defined as 1 if the observed MSA contains a state capital and 0 otherwise. The presence of a state capital should tend to increase the job quality index, housing as it does highly paid and skilled state officers, judges, and civil servants, and that effect will be larger the larger the state is relative to the capital. Further, this effect should be more pronounced the more populous the state relative to employment in the capital. Therefore, the interaction of *CAPITAL* and the (natural log of) the ratio of state population (2000 Census) to MSA employment (2004 OES), denoted *CAP×REL*, is included.

Summary statistics (employment weighted) for the variables included in our model, for 305 MSAs nationally and for 20 Florida MSAs, are shown in the first panel of Table 2. Across the 20 Florida cities, the average job skill index is 4.1 percentage points below the US city average. Florida has more retirees, tourists, and growth, fewer college educated workers, and smaller labor markets (from the view point of the average worker), all of which are likely to be associated with low job skill. Largely as a by-product of the in-migration of empty-nesters (workers 55-64), Florida does have higher average workforce experience.

Since the dependent variable represents an average over all workers in an MSA, its variance should be inversely proportional to MSA employment. Accordingly, weighted least squares is employed. The regression results are in the second panel of Table 2. Standard errors are robust and clustered by state. Together the variables account for 89% variance in the job skill index across cities. All coefficients have the expected signs and are large enough to have economically significant implications. *GROWTH* is statistically significant at the 0.1 level, *YOUNG* at the 0.01 level, and all others at the 0.001 level or better.

To understand the coefficient on *RETIREE*, increasing the share of retirees from 0.17 to 0.26 in Florida, while the national average increases only from 0.13 to 0.18, as is projected to happen between 2010 and 2030, would reduce average job skill by 1.2 percentage points, increasing the gap between Florida and the nation 30%. While these findings are consistent with retirees strongly crowding out high-skill jobs, they likely understate the case, since the share with a college degree should not be taken as exogenous to the share of retirees. Dropping *COLLEGE* and rerunning the model, the coefficient on *RETRIEE* grows in absolute value to -0.506, with a slightly larger standard error, and the percentage of variation explained falls only to 78%.

The last column of Table 2 presents the amount of the difference between Florida's job structure and the nation's accounted for by each factor, calculated by multiplying the estimated coefficient by the difference between the mean of each variable for Florida and the nation. Not surprisingly, *RETIREE* and *COLLEGE* have the two biggest impacts. *TOURISM* and *YOUNG* have the next largest, and roughly offsetting, impacts.

Dropping the state dummies and rerunning the regression produces only small changes in the magnitude of the coefficients, all variables have the same signs and statistical significance, except *GROWTH*, *CAPITAL*, and *CAP×REL* become insignificant, and as a group the variables account for 84% of the variation in the job skill index across cities. In that sense, the model is robust. To test how well Florida fits into the national picture, a dichotomous variable that takes the value 1 for each of the 20 Florida MSAs and 0 for MSAs elsewhere, but no other state dummy variables, is added. The coefficient on the Florida dummy variable is -0.001 and completely

insignificant (p=0.727), indicating Florida fits the national pattern.

3.2. Retirees and Airport Departures

Within the Rosen-Roback framework, it is possible to argue there are ways in which retirees might complement high tech firms. To take one example, even though retirees fly less, on average, than prime-age adults, they do fly some, so adding retirees to a given local population might boost the number of departures, making the area more attractive to export firms. On the other hand the retirees will crowd out some export workers who are likely to fly more frequently, reducing departures. Therefore, the impact of retirees on air travel depends on the relative magnitude of these effects.

To model this simply, let P represent total annual passenger departures. Assume per capita trip demand, p, can be reasonably approximated as a (log linear) function of the share of the population 65 or over (α_R), tourism as a share of GDP (α_T), income per capita (y), population (N) and the number of departures, specifically $p(\alpha_R, \alpha_T, y, N, P) = e^{\gamma_0+\varepsilon}\alpha_R^{\gamma_R}\alpha_T^{\gamma_T} y^{\gamma_y} N^{\gamma_N} P^{\gamma_P}$, where is ε a mean zero error and the γ's are elasticities. The number of trips enters the per capita demand approximation for two possible reasons. First, economies of scale may make trips cheaper as volume increases. Second, the more frequent are trips and the more destinations available, the higher demand all else equal. Population enters because larger cities are likely to have a disproportionate share of corporate headquarters and other activities that involve inter-city travel. Tourism matters because those visiting from out of the local area often fly in and out.

Total departures are per capita departures multiplied by population, $P = e^{\gamma_0+\varepsilon}\alpha_R^{\gamma_R}\alpha_T^{\gamma_T} y^{\gamma_y} N^{1+\gamma_N} P^{\gamma_P}$. Taking logs gives and rearranging gives:

$$\ln P = \frac{\gamma_0}{1-\gamma_P} + \frac{\gamma_R}{1-\gamma_P}\ln\alpha_R + \frac{\gamma_T}{1-\gamma_P}\ln\alpha_T + \frac{\gamma_y}{1-\gamma_P}\ln y + \frac{1+\gamma_N}{1-\gamma_P}\ln N + \frac{\varepsilon}{1-\gamma_P}. \quad (1)$$

While it is expected that the scale elasticity of demand for departures, γ_P, is positive, it must also be strictly less than 1—the number of trips explodes as it approaches 1. Equation (1) also makes it clear that the per capita demand elasticity parameters (population, income, tourism, and retiree share) are only partial elasticities. A decrease in demand due to an increase in retiree share, for example, reduces the level of service by reducing the number of departures, which further reduces demand and departures.

Table 3 displays results of estimating equation (1) using a panel of departure data for 253 MSAs for 2001 through 2010 with four different methods: OLS, Tobit, panel estimation with random effects, and Tobit panel estimation with random effects. All variables are in natural logs, all regressions contain a set of year controls, and standard errors are in parentheses under coefficients. The dependent variable is MSA annual airport departures, summed over airports for MSAs with more than one. Departures are origination only, not including passengers in transit, from the Bureau of Transportation Statistics, RITA division, based on the T-100 All Market table. In cities with 0 departures, the natural log of departures is coded as 0, rather than undefined. MSA population (*POPULATION*) the share of population 65 or over (*RETIREE*), and income per capita (*INCOME*) are from the 2000 Census. *TOURISM* is the share of the sector "leisure and hospitality" in MSA output in 2010, as estimated by the Bureau of Economic Analysis.

All variables are significant at the 1% level or better except for income in the panel regressions, when it is not quite significant at conventional levels. The results are robust to adding departure data for 1990 through 2001, to doing the regressions for individual years, and to different weights. For MSAs with no departures in a given year, zero was replaced by one. The results

using the random effects Tobit panel specification are discussed, since they are the most appropriate. It is worth noting that coefficients in the other specifications are qualitatively similar, though smaller in absolute value.

From the coefficient on population, a 1% increase in population is associated with a 3.18% increase in departures. Some of that is due to the scale elasticity of departure demand—as an airport has more customers it offers more frequent flights at lower prices and to more destinations, inducing people to fly more. Some is due inherently to there being a higher per capita trip demand in more populous cities. The relative magnitude of the two effects is not clear—only that $(1+\gamma_N)/(1-\gamma_P)=3.18$. Assuming $\gamma_N=0$, so that the entire effect is due to the scale effect on trip demand, solving yields $\gamma_P=0.69$. In that case, anything that creates an exogenous increase of 10% in passenger departures directly induces another 6.9% increase through the scale effect. That is an upper bound. Suppose for illustration that all else equal the elasticity of per capita trip demand with respect to population, γ_N, is 0.5, so that a 10% increase in MSA population is associated with a 5% increase in per capita demand. Then, solving $1.5/(1-\gamma_P)=3.18$ yields $\gamma_P=0.53$. Then the feedback effect from an exogenous increase of 1% in passengers, $1/(1-\gamma_P)$, is now 2.12.

A topic for further research is to identify γ_N and γ_P separately. However, it seems clear that γ_P is positive, with 0.5 being a reasonable value, because of the larger planes, higher load factors, and more frequent flights from larger airports. Winston and Morrison (2012) estimate that costs per seat mile fall by 0.2% when aircraft size increases by 1%. In another paper, Winston and Morrison (2007) report that in a regression of log costs on log seats, the coefficient is 0.65. Compared to a 162-passenger Boeing 737, the seat-mile cost might be 20% higher on a 50-seat Canadair regional jet and 10% lower on a 365-passenger Boeing 777. Using data for 2000-2001, Bitzan and Chi (2006) report average seat size for aircraft departing airports from small (population less than 300,000) and large MSAs, as well as other measures, which are reproduced in Table 4 (appendix). Given that larger airports provide more frequent flights to more destinations at lower cost, a feedback effect of approximately two seems plausible, especially considering the possibility of cannibalization of small airports by large ones in nearby MSAs. In the year 2000, for example, the Peoria Illinois MSA had 169% more people than the isolated Billings Montana MSA, but only 60% as many commercial air departures, presumably because of the nearby large-city competition.

Care is needed in interpreting the coefficient on *TOURISM*, since the variable is the log of a share, and thus a 1% increase in our measure does not correspond to a 1 percentage point increase in the share of the Leisure and Hospitality Sector in GDP. For example, suppose the share is 0.2. Then a 1 percentage point increase in the share would correspond to a 5% increase in *TOURISM*. With that in mind, the estimated coefficient implies a 1% increase in *TOURISM* is associated with a 4.2% increase in total departures. Assuming $\gamma_N=0$, the coefficient implies the (partial) elasticity of trip demand with respect to *TOURISM* , γ_T,is 1.32. Assuming the scale elasticity, γ_P, is 0.5, then $\gamma_T=2.1$. That the impact of tourism would be large is quite intuitive. The size of the leisure and hospitality sector is an imperfect proxy, as hotels and restaurants serve business travelers as well as tourists. Future work might profitably attempt to separate the two.

Turning to the coefficient estimate of most interest for this paper, the negative coefficient on *RETIREE* represents the combined effect of the change in the occupational composition of the work force associated with retirees plus the fact that retirees themselves may demand less air

travel per capita than non-retirees, on average. Again, care is needed in interpreting the coefficient on *RETIREE*, since the variable is the log of a share, and thus a 1% increase in our measure does not correspond to a 1 percentage point increase in the share of those 65 and older in the MSA's population. Increasing *RETIREE* from 0.17 to 0.26, as is projected to occur in Florida from 2010 to 2030 corresponds to a 53% increase. The coefficient indicates a 1% increase in *RETIREE* is associated with a 4.2% decrease in total departures. Assuming $\gamma_N = 0$, the coefficient implies the (partial) elasticity of trip demand with respect to *RETIREE*, γ_R, is -1.32. Assuming instead $\gamma_P = 0.5$, $\gamma_R = -2.1$. Thus, increases in *RETIREE* is estimated to have a very large negative partial effect on departures, and the feedback effect makes it larger still.

To put this in context, suppose an MSA requires one worker to provide local services for every two local income recipients. Consider a city with 500,000 residents, of whom 50,000 are retirees. Assuming for the simplicity of the illustration all non-retirees are workers, 250,000 of the other 450,000 would be providing local services (25,000 for retirees plus 225,000 for workers) and 200,000 would be producing for export. On average, the 200,000 producing for export beyond the MSA would engage in business travel much more frequently than the 250,000 producing local services. Waitpersons, cooks, and even physicians do not fly as often as programmers, engineers, and midlevel managers of export-oriented corporations.

Now consider a city with 500,000 income recipients of whom 100,000 are retirees. Of the other 400,000, 250,000 would still be needed to provide local services, leaving only 150,000 producing for export. In this simple example, a change in the composition of residents by adding retirees results in a one-for-one reduction in the number of workers producing for export, given that we are holding the total population constant. Each extra retiree would cause an exogenous change in flight departures equal to the average departures per retiree minus the average departures per export worker. If the average retiree departs twice a year and the average export worker six, the extra retiree would directly reduce departures by four. If the airport service multiplier is two $(\gamma_P = 0.5)$, the total effect of one more retiree (holding population constant), would be to reduce departures by eight.

This simple example corresponds to the simple Rosen-Roback model in which all workers value amenities equally, export industries exhibit constant returns to scale, rent increases with population, retiree and worker housing demand is the same, and retirees and export workers require the same number of supporting workers engaged in production of local goods and services. Though a special case, it is a useful first approximation and benchmark. Of course, crowding out could be stronger or weaker, depending on agglomeration economies, complementarities, and the supply elasticities of housing and labor. Estimating the total effect of retirees on departures requires a multiple equation general equilibrium model—a topic for future research. However, the large magnitude of the negative coefficient on *RETIREE* strongly suggests the total effect of higher numbers of retirees on air travel is likely negative.

Other topics for further research include controlling for hubs and distance from other cities, and attempting to evaluate how well our coefficient estimates are identified—statistical identification in such models is made extremely difficult by the recognition that all the variables of interest are jointly determined in the inter-regional general equilibrium. But this exploratory work serves two important purposes. First, it shows that the effects of in-migrant retirees can be complex. They do more than just add to an existing population, they change the nature of the location they move to in fundamental and intricate ways. Second, it is an independent piece of evidence confirming that large numbers of retirees tend to move a city's job structure decidedly to-

ward low-skill jobs both directly, by creating a demand for them, and indirectly, through induced changes in the nature of the community, like decreased air travel.

4. Retirees, Voting, and Geographic Concentration

In addition to understanding the more direct effects of retirees on job structure considered above, an important question for Florida's workforce future is whether retirees will support policies favorable to encouraging high-skill job creation. Will they support education, infrastructure, and the arts at the same time that, as historian David Colburn (2007) notes, they will be "most concerned about quality-of-life issues, personal expenses, and health care …." Colburn reminds us that "not all retirees are solely focused on their self-interest." But retirees and others moving into Florida, he writes, "will continue to be caught up in local and regional matters rather than state issues." Moreover while all else equal retirees make a net positive contribution to the state budget, there is also evidence retirees from out of state are less likely to feel tied to the community and therefore less likely to support, for example, education. (Fletcher and Kenny, 2008) While additional work is needed to obtain a deeper understanding of the issues, existing evidence is not promising.

Presumably the influence of Florida's seniors on Florida politics will rise along with their population share. Table 5 shows the share of Florida's total population 65 and older and the share of Florida's adult population (18 and older) 65 and older according to the 2010 census. Then it shows BEBR's projections of those shares from 2015 through 2030. By 2030 the share of residents age 65 and up is projected to rise to 26% of total population and to almost a third of the adult population.

Given that voter turnout rises with age, the share of voters 65 or older will be higher than their population share. The last column of Table 5 shows an estimate for 2010 and projections for later years of the share of voters age 65 or older. Voter shares are calculated by averaging voter turnout rates nationally in the 2002 and 2004 elections (to average years without and with presidential races) for those 18 to 64 and for those 65 and older gleaned from Stanley and Niemi (2006). Since the turnout figures are self-reported, they are likely too high. (McCarty, Poole and Rosenthal, 2006) However, this biases the estimates in column only if those 65 and over differentially over or understate voting. Moreover, these numbers are not meant to be definitive, but to illustrate that the share of voters over 65 is likely to substantially exceed the share of adults over 65. By 2030, it is likely that approximately 40% of voters will be 65 or older in Florida.

Though retirees are not a homogeneous voting group now and are not likely to be in twenty years, they do have many interests in common, a fact that should be weighed when thinking about the future of a state where four out of ten voters may be seniors. Also useful for looking ahead twenty years is thinking about how senior residents are likely to be spread across the state. A state with a senior resident share of 26% spread evenly will not be the same as one in which the share varies from 13% to over 40%, as is likely. Senior residents are now living unevenly across Florida's counties, with a number of places attracting high shares. Ranking by 2010 share of population 65 and older, from lowest (Leon, 9.4%) to highest (Sumter, 43.4%), the median resident of Florida (not the same as the resident of the median county) was in a county (Broward) with 14.3% of its residents 65 and older, meaningfully lower than Florida's 17.3%.

Using the 2010 census and the most recently published age-sex county population projections from the University of Florida's Bureau of Economic and Business Research (Smith and Rayer 2010), Table 6 shows measures of how retirees are now and are projected to be concen-

trated. It should be noted that the projections underlying Table 6 were not constructed with this purpose in mind. Deeper modeling may suggest a distribution of older residents that is either more skewed or less. This is simply a useful starting point for thinking about the implications of how senior residents will mix with younger people unevenly across Florida.

In Table 6, the row for 2010 shows that 17.3% of Florida residents were 65 and older though the median resident lived in a county with 14.3%. In the younger half of counties (ranked low to high by senior share) the average senior share was 12.1% (weighted by population), compared with 21.0% in the older half. In the younger Florida counties, the political influence of seniors was close to the national average; in the older counties, much heavier.

Another way of picturing the uneven distribution of seniors is shown in Figure 2. The horizontal axis, labeled "ptile" shows population percentiles when counties are ranked by the share of the population 65 and older. The vertical line shows the location of the median counties (Broward in 2010 at 14.3%, Taylor in 2020 at 18.9%, and Okaloosa in 2030 at 24.2%). The zero percentile shows the youngest counties (Leon in 2010 at 9.4%, Hendry in 2020 at 11.8% and again in 2030 at 13.1%) and the 100th percentile shows the oldest (Sumter in 2010 at 43.4%, Charlotte in 2020 at 37.8% and again in 2030 at 44.0%).

Figure 3 illustrates how in 2010 about half of Florida's residents live in counties with relatively low shares of seniors. Right around the median, that share steps up quickly to a higher level, plateaus and then rises sharply as a few counties that specialize in retirement make their influence felt. The pattern is projected to be the same in 2020 and 2030, but at higher levels. By 2030, about one third of the population will be in counties where 30% or more of residents are 65 or older. In thinking about how businesses are likely to locate across the state and about whether changes in political and other structures will make firms that bring high-skill jobs more likely to locate in Florida, it is important to be aware that Florida's age structure does and will vary widely over its cities, counties, and metropolitan areas.

5. CONCLUSION

By 2030, those 65 or older are likely to constitute 26% of Florida's population. The higher propensity of older residents to vote magnifies their influence on policies, such as education, where their preferences are likely to conflict with attracting high-skill jobs—by 2030, 40% of the state's voters are projected to be 65 or over. The retiree population will be more concentrated in some counties than others, with a third of Floridians projected to live in counties where 30% or more of residents are age 65 or older, further magnifying their influence in those areas. The findings reported here indicate that retirees strongly crowd out high-skill jobs. An increase in the share of an MSAs' population 65 years of age or older by 5 percentage points, about the mean difference between Florida's cities and the nation's, reduces average job skill as measured by the national average pay of the typical job in a city to the overall national average pay by 2 percentage points. As retirees are also associated with declining average education levels, the full effect of increasing retiree shares is likely considerably larger. One channel through which retirees might impact job structure is through their impact on air travel. Workers in jobs that produce goods for sale outside a city fly much more frequently than do workers in jobs that produce for local consumption. The elasticity of departures with respect to the population share of retirees is -4.2, which suggests any additional air travel owing directly to increases in the number of retirees will be more than offset by the decline in air travel owing to the loss of export jobs additional retirees crowd out.

Learning that Florida's cities average four percentage points below the cities across the country in a job skill index might not cause a reasonable person immediate concern—four points does not sound like a lot. Why should Floridian's be concerned if retirees drive it down a bit further? First, with 7.2 million workers on non-farm payrolls at an average annual wage of $40,750, the current gap creates a loss of almost $120 billion a year at the current, and the baby boom retirees might increase that to near $150 billion. Second, the job skill index does not include such things as a low and falling labor force participation rate among the least educated relative to the U.S. (Dewey and Denslow 2012), high rates of unemployment and even incarceration for youths, or high take-up of disability payments at the older end. If those were included, they would add to the lower end of the skill spectrum, adding to the cost of the gap. Third, the effects are particularly concentrated on Florida's young people, who represent the state's future.

The most important reason for concern, however, is the speed with which Florida could fall into a very low-skill equilibrium which would be difficult to ever break from. When there are strong interactions, major social changes can sometimes occur with surprising speed. The interaction of globalization, a falling share of the work force with college degrees, the political and labor market effects of a rising share of retirees including the crowding out of high-tech workers and the capture of scarce government resources, the polarization of the labor market caused by technology and global competition, and the feedback effects from agglomeration economies working in reverse—all of these could join together to create an unexpected and unintended Florida, and in the not very distant future.

It would be easy to recommend steps to be taken to avoid a low-wage future if one could do so without being constrained by the difficulty of implementing them. Such steps include more investment in education starting in early childhood, more emphasize on STEM, changing government taxing and spending in ways that reduce the tax burden on export businesses or provide them with better support, better infrastructure, and so on. Every analyst has their own list. Unfortunately, every such list would seem difficult to implemented quickly in practice.

Of course, the very low-skill future the analysis of this paper and Dewey and Denslow (2012) point to might not occur, even absent such steps. Undoubtedly there will be surprises. Technological changes, for example, may facilitate cheap but effective education, from pre-K through undergraduate years. Families, markets, and governments may respond in surprising and constructive ways to the challenges posed by globalization and technology. But a relaxed wait-and-see attitude seems ill-advised—that could result in people looking back with regret, twenty years from now, on a lost opportunity.

One perhaps surprising insight: with respect to encouraging high-value-added jobs, tourists have two advantages over retirees. Tourists and retirees are similar in that they come here not to work but to relax. But tourists stay for short visits, resulting in two important differences. First, they generate more airport traffic, creating feedback effects from more frequent flights, higher load factors, and more destinations that are attractive for export businesses. Second, they pay taxes, sales taxes directly and property taxes indirectly, but don't vote. It is no accident that Orange county is the largest net contributor to the Florida Education Finance Program. This is said with some hesitation, as the paper did not assess all the major costs and benefits, but perhaps more should be done to encourage tourism.

More generally, Florida urgently needs thoughtful analyses from many sources of how to create the sort of future it wants. Speculating, this may mean devolving more power to local governments. The challenges considered above are more likely to meet creative solutions at the local level, in cities not dominated by retirees. The state may even wish to encourage a sort of check-

erboard development, with retirees concentrated in local areas in which they are free to forget about educating children and youths and devote their lives to golf and beaches. Alternatively, there may be ways to encourage retirees to seek fulfillment through greater involvement in the local areas, which may be more likely than their strong attachment to the state.

Rather than fighting the decline head on, Florida might do well to consider shifting priorities to trade schools, and train the very best landscapers, plumbers, beauticians, firemen, and policemen it can. Such a policy could raise the return to human capital investment by those who currently do not finish high school, and perhaps boost the employment to population ratio for such workers.

Whatever the course to be taken, informed decisions can be made only if the major implications of the interactions between the agglomeration economies exhibited by high-skill jobs, the coming baby boom retirements, and labor market polarization are acknowledged and understood. To fully understand the implications of these trends, the development of city-by-city models, building on indicators created by both local and state organizations, but stressing the potential for interactions among them and based on careful empirical testing, would be helpful. Such models can provide local leaders—and even state leaders—with the truest pictures possible of the results of various current options.

REFERENCES

1. Abel, Jaison and Richard Deitz, "Do Colleges and Universities Increase Their Region's Human Capital?" October 2009. Federal Reserve Bank of New York Staff Report
2. Abel, Jaison and Todd Gabe, "Human Capital and Economic Activity in Urban America," February 2010. Federal Reserve Bank of New York Staff Report
3. Abel, Jaison and Todd Gabe, "Labor Market Pooling and Occupational Agglomeration," October 2010. Federal Reserve Bank of New York Staff Report
4. Abel, Jaison, Ishita Dey, and Todd Gabe, "Productivity and the Density of Human Capital," September 2011. Federal Reserve Bank of New York Staff Report
5. Abel, Jaison, Todd Gabe, Adrienne Ross, and Kevin Stolarick, "Knowledge in Cities," September 2010. Federal Reserve Bank of New York Staff Report.
6. Acemoglu, Daron, and David H. Autor, "Skills, Tasks and Technologies: Implications for Employment and Earnings," *Handbook of Labor Economics Volume 4,* Orley Ashenfelter and David Card (eds.), Amsterdam, Elsevier, 2011.
7. Autor, David, "The Polarization of Jobs Opportunities in the U.S. labor Market: Implications for Employment and Earnings," Center for American Progress and The Hamilton Project, May 2010.
8. Autor, David, Lawrence Katz, and Melissa Kearney. "The Polarization of the U.S. Labor Market," *American Economic Review Papers and Proceedings*, 96(2), May 2006.
9. Carlino, Gerald, Jake Carr, Robert Hunt, and Tony Smith, "The Agglomeration of R&D Labs," 2011, Philadelphia Federal Reserve
10. Clifford Winston, Clifford and Steven Morrison, "Another Look at Airport Congestion Pricing," American Economic Review 97:5 (2007), pp. 1970-1977.
11. Clifford Winston, Clifford and Steven Morrison, "The Fare Skies: Air Transportation and Middle America," Brookings publication, March 6, 2012.
12. Coile, Courtney C. and Phillip B. Levine, *Reconsidering Retirement: How Losses and Layoffs Affect Older Workers*, Brookings Institution Press, Washington, D.C., 2010.
13. Colburn, David R., *From Red Dog Democrats to Red State Republicans: Florida and Its Politics since 1940.* University Press of Florida, Gainesville, 2007, pp. 218-219.
14. Cox, Wendell and E. J. McMahon, "Empire State Exodus: The Mass Migration of New Yorkers to Other States," Empire Center for New York State Policy, *Research Bulletin*, October 2009.
15. Denslow, Dave, Jim Dewey, Susan Floyd, and Eve Irwin. "Indicators of Florida's Economic Competitiveness." Technical Report. Economic Analysis Program, Bureau of Economic and Business Research, University of Florida. May 2011.
16. Dewey, Jim and David Denslow. Low, declining, polarizing: job skill in Florida. Working Paper. Economic Analysis Program, Bureau of Economic and Business Research, University of Florida. April 2012.
17. Dewey, Jim, Dave Denslow, and Bob Lotfinia, "Measuring the Quality of Florida's Job Structure," Technical Report. Economic Analysis Program, Bureau of Economic and Business Research, University of Florida. May 2006.
18. Edward Glaeser and Joshua Gottlieb, "The Wealth of Cities: Agglomeration Economics and Spatial Equilibrium in the United States," February 2009.
19. Edward Glaeser, Giacomo Ponzetto and Kristina Tobio, "Cities, Skills, and Regional Change," March 2011

20. Fletcher, Deborah and Lawrence Kenny, "The Influence of the Elderly on School Spending in a Median Voter Framework," *Education Finance and Policy*, Summer 2008, pp. 283-315.
21. Goda, Gopi Shah, John B. Shoven, and Sita Nataraj Slavov, "What Explains Changes in Retirement Plans during the Great Recession?" *American Economic Review Papers & Proceedings*, May 2011.
22. John Bitzan, John and Junwok Chi, "Higher Airfares to Small and Medium Sized Communities: Costly Service or Market Power?" *Journal of Transport Economics and Policy*, Vol. 40, No. 3, September 2006, 473-501.
23. McCarty, Nolan, Keith T. Poole, and Howard Rosenthal, *Polarized America: The Dance of Ideology and Unequal Riches,* MIT Press, Cambridge, 2006.
24. McFall Brooke Helppie, "Crash and Wait? The Impact of the Great Recession on the Retirement Plans of Older Americans," *American Economic Review Papers & Proceedings,* May 2011
25. Moretti, Enrico, "Local Labor Markets," Orley Ashenfelter and David Card, eds., *Handbook of Labor Economics*, Vol. 4, Amsterdam, North Holland, 2011.
26. Moretti, Enrico, "Local Multipliers," *American Economic Review Papers & Proceedings*, May 2011, pp. 373-377.
27. Puga, Deigo and Gilles Duranton, "From sectoral to functional urban specialization," *Journal of Urban Economics* 57(2), March 2005: 343–370.
28. Smith, Stanley K. and Stefan Rayer, *Population Projections by Age, Sex, Race, and Hispanic Origin for Florida and Its Counties, 2009-2030*, Florida Population Studies, Volume 43, Bulletin 157, June 2010.
29. Stanley, Harold W. and Richard G. Niemi, *Vital Statistics on American Politics 2005-2006*, CG Press, Washington D.C., 2006.

APPENDIX

Table 1

Year	Total Population	Population Age 65Up	Share 65 and Up
2010	18,801,310	3,259,602	17.3%
2015	19,881,179	3,829,541	19.3%
2020	21,246,926	4,526,783	21.3%
2025	22,573,559	5,366,674	23.8%
2030	23,821,251	6,194,272	26.0%

Note: Based on Smith and Rayer (2010). The 2010 figures are from the 2010 Census whereas the projections are based on pre-census estimates. Revised projections benchmarked on the 2010 census are not expected to change the picture in any way relevant to this discussion.

Table 2

	US		FL		FL-US	Regression Results			FL-US
	Mean	Std Dev	Mean	Std Dev	Mean	Coef	Std Err	p-val	Impact
INDEX	1.000	0.051	0.9588	0.0328	-0.041				
RETIREE	0.117	0.029	0.1703	0.0537	0.053	-0.350	0.088	<0.001	-0.019
TOURISM	0.040	0.024	0.0563	0.0216	0.016	-0.516	0.137	0.001	-0.008
YOUNG	0.316	0.033	0.2907	0.0418	-0.026	-0.347	0.119	0.006	0.009
COLLEGE	0.268	0.064	0.2348	0.0411	-0.034	0.391	0.053	<0.001	-0.013
SIZE	13.461	1.202	13.129	0.8744	-0.332	0.014	0.003	<0.001	-0.005
GROWTH	0.015	0.013	0.0229	0.0121	0.008	-0.301	0.176	0.094	-0.002
CAPITAL						-0.037	0.009	<0.001	
CAP×REL						0.019	0.003	<0.001	

Table 3
AIRPORT DEPARTURES REGRESSIONS
(MSAs 2001 – 2010)
Dependent Variable: Log of Annual Departures by MSA

Version	(1)	(2)	(3)	(4)
Estimation Method	OLS	Tobit	Panel RE	Panel Tobit RE
Weights	Log Population	Log Population	None	None
POPULATION	2.69	3.01	2.75	3.18
	(0.08)	(0.10)	(0.27)	(0.18)
INCOME	2.68	2.81	2.72	2.85
	(0.61)	(0.77)	(1.95)	(1.94)
TOURISM	2.80	3.30	2.86	4.20
	(0.25)	(0.31)	(0.79)	(0.77)
RETIREES	-3.31	-3.90	-3.38	-4.20
	(0.34)	(0.43)	(1.08)	(0.99)
CONSTANT	-46.86	-52.22	-48.04	-55.72
	(5.53)	(17.62)	(17.62)	(17.57)
R^2	0.44	0.43	0.44	
Observations	2530	2530	2530	2530

Table 4

MSA Size	Small (<300,000)	Large (>300,000)
Load factor	58%	66%
Aircraft size (seats)	75	118
Share jets	52%	89%
Served by low cost carriers	8%	50%

Table 5

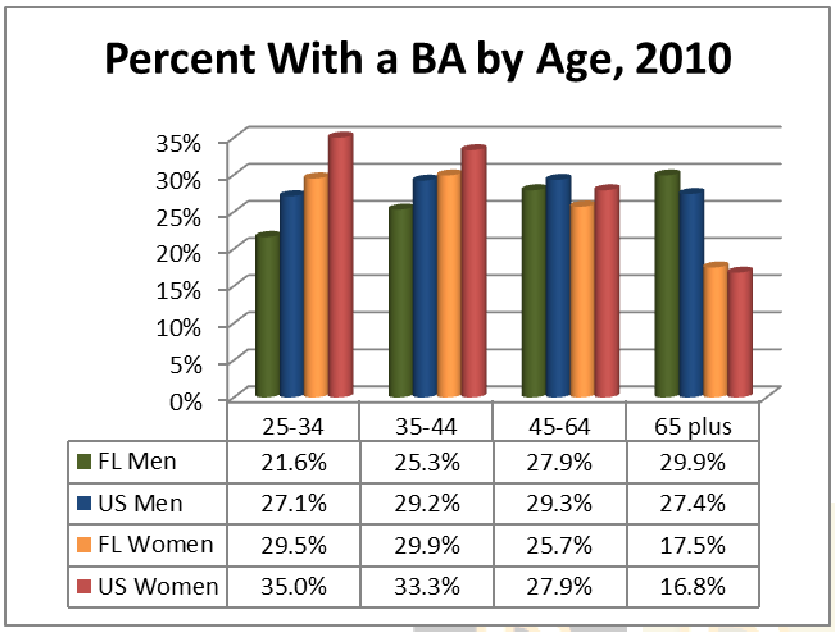
Year	65+ Share of Total	65+ Share of Adults	65+ Share of Voters
2010	17.3%	22.0%	28.7%
2015	19.3%	24.5%	30.9%
2020	21.3%	27.0%	33.8%
2025	23.8%	27.7%	34.6%
2030	26.0%	32.6%	40.0%

Note: Based on Smith and Rayer (2010). The 2010 figures are from the 2010 Census whereas the projections are based on pre-census estimates. Revised projections benchmarked on the 2010 census are not expected to change the picture in any way relevant to this discussion.

Table 6

Year	Mean 65 Plus	Median 65 Plus	Lower Half Average	Upper Half Average
2010	17.3%	14.3%	12.1%	21.0%
2020	21.3%	18.9%	15.5%	26.8%
2030	26.0%	24.2%	19.4%	32.6%

Figure 1



	25-34	35-44	45-64	65 plus
FL Men	21.6%	25.3%	27.9%	29.9%
US Men	27.1%	29.2%	29.3%	27.4%
FL Women	29.5%	29.9%	25.7%	17.5%
US Women	35.0%	33.3%	27.9%	16.8%

Figure 2

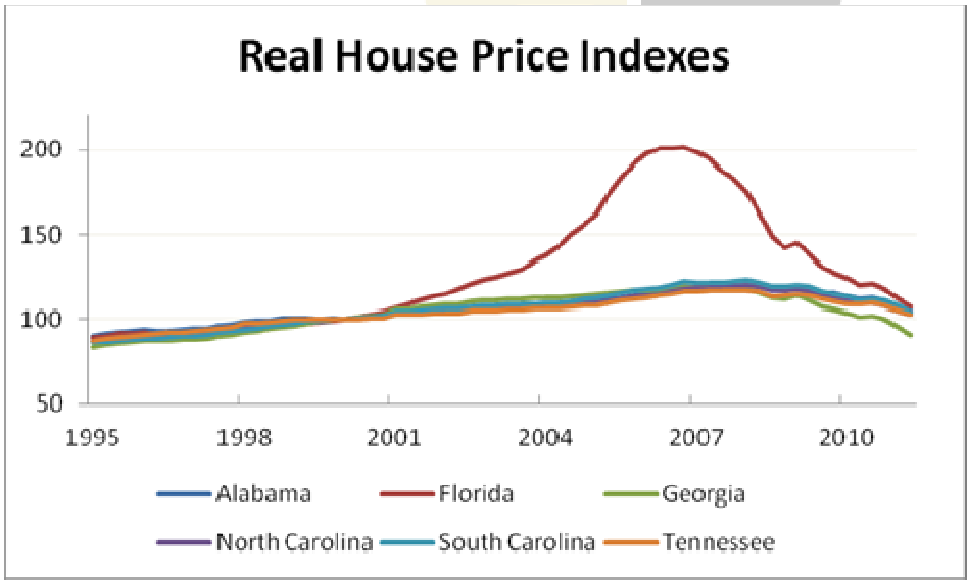
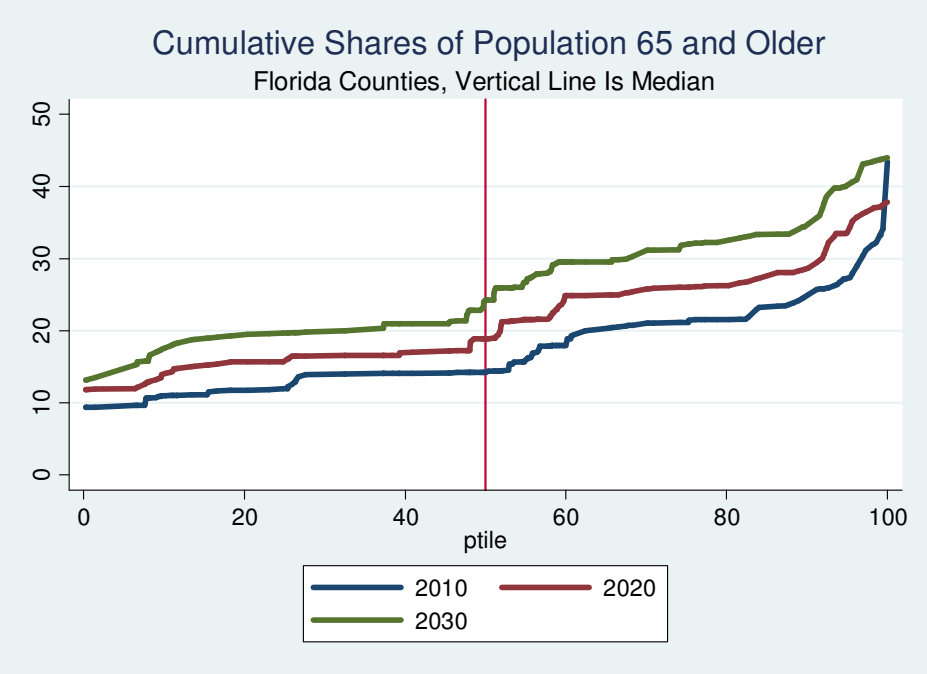


Figure 3


Cumulative Shares of Population 65 and Older
Florida Counties, Vertical Line Is Median
0
10
20
30
40
50
0
20
40
60
80
100
ptile
2010
2020
2030