Retiree Migration: Considerations of Amenity and Health Access Drivers

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Introduction

After a lifetime of working and saving, retirement to many is viewed as the golden years of one's life. It is in this time that an individual could participate in aspirations and activities that were difficult to explore under the constraints of family rearing and full time employment. This newfound freedom allows one to act on their true preferences and alter their lifestyle in a way that was not previously possible. One such example is in location decisions. Upon retirement, many find themselves to be "empty nesters" after children have grown and moved out of their childhood homes. This presents a natural opportunity to evaluate what location would be optimal to spend one's retirement years.

When examining the drivers of migration for retirees versus people still in the work force, one finds that the drivers between the two groups are not synonymous. For those in the labor force, the weight of locational attributes in decision making can be second best to employment opportunities. Workers may be leery to devalue their self investment in human capital by moving to places where their personal assets would be at risk or undervalued in the local job market (Storper and Scott, 2009). However, incomes of retirees are assumed to be invariant of their location decisions, and their migration decisions are generally no longer linked to job market conditions. With this increased flexibility, specific tastes and preferences are easier to be indulged in by retirees. One such preference is for natural amenities. Natural amenities are environmental qualities that make an area appealing. Approximately three fourths of U.S. counties that are classified as retirement designations fall into the top quarter of counties having the highest ranking of natural amenities (McGranahan, 1999). Specific location attributes that retirees typically favor moves to include: warmer climates, down the metropolitan hierarchy to smaller cities and towns, and lower cost of-living areas. (Longino, 2003)

While retirees may favor smaller cities and towns, one feasibility constraint for retirees should be access to health care services. Even if a migrant is currently in a good health state, statistically the older one gets the higher probability of health complications such as coronary heart disease, stroke, or cancer. Not having adequate access to proper

medical care could be a matter of life and death. Typically these high quality comprehensive medical centers are in large metropolitan cities that include connections to research universities and large networks. When a retiree migrant is possibility deciding between easy medical access versus possibly secluded natural amenities, which attribute is more important? This tension between natural beauty and quality urban medical care is the thrust of this research.

The goal of this paper is to examine the drivers of retiree migration by explicitly considering the roles of natural amenities as well as health care access needs of the elderly. Because there are different tastes and preferences between younger retirees versus the oldest, separate models will be estimated for 5 age cohorts 65-70, 70-75, 75-80, 80-85, 85+. We hypothesize that both natural amenities and health access variables should be positive and significant drivers of migration for all retiree cohorts. We suspect that natural amenities will be of larger importance in the younger age cohorts; whereas health access will be relatively more important at the oldest ages. Simultaneously examining natural amenities and access to health services as migration drivers creates an interesting potential contradiction. While rural areas will generally have a higher natural amenity ranking compared to urban cities, it is the urban cities that typically have access to the most comprehensive medical care. The corner solutions would be a high natural amenity county with no access to care and low natural amenity county with high access to care. We hope to also gain insight on the plausibility of these corner solutions for retiree migrants in all age cohorts, as well as insight in the weights of amenity versus health drivers based on the significance and magnitude of their respective coefficients.

Migration Background

Retired migrants have been noted by policy makers as being ‘‘pure gold.’’ Retirement migration has the ability to boost private spending, broaden the tax base, and improve the local economy’s service sector. (Longino and Crown, 1989) This boost to local economies has been noted by politicians such as former Florida Governor, Jeb Bush, who felt retiree migration was an important economic development strategy, and appointed a commission whose task was ‘‘to evaluate Florida’s competitive position in

attracting retirees and to recommend ways to make Florida more retiree friendly'' (Serow, 2003).

Retiree migration is important to policy makers for numerous reasons. Low population counties have long been second to their urban counterparts in terms of job growth-linked income gains (McGranahan and Beale, 2002). Rural retirement counties have benefited significantly from retiree in-migration as demonstrated by population growth, increased family incomes, greater economic diversity, and reduced unemployment rates. In-migrating retirees contribute to the sustainability of local businesses, churches, charities, and other civic activities (Levin, 2006). Thus, many rural communities which do not believe they can attract employment-driven growth instead strive for retiree migration as a driver of economic development.

However, not all senior migrants would generate positive economic stimulus since retirees are not a homogenous population. The literature shows that the elderly have three different motivations for migrating. The first is the retirement/amenity movers. This class tends to be among the 'young old,' pension-rich, married, and in better health. The second class is the moderate/chronic disability movers. These are typically those who are poorer, widowed, older, and in need of informal care giving. This class is also termed a return migrant, as they are normally returning to their state of birth or to the state of their children's residence. Finally, the third type of elderly migrants is the major disability movers. These are generally those who are moving to a formal care institution. (Conway, 2003) Certainly, these three types of movers have vastly different consequences for economic development at the county and state level. Those seeking economic development gains would be interested in attracting the "young" wealthy amenity migrants. We therefore look to see which county characteristics are particularly pleasing to these young wealthy amenity migrants in hopes to help those interested in economic development correctly market to their desirable demographic.

Health Services Access as Migration Drivers

While natural amenities should be a significant driver for later life migration, access to health care services should also be a consideration for retirees in location decisions. The demography literature seems to disregard access to health services for the younger old migrants since they are in relatively better health than the oldest old, and don't require the amount of health services in comparison. However, this flow of logic raises two causes of concern. First is that people in good health are not guaranteed to be in that health state indefinitely. Second is the idea that preferences for health services are solely determined by one's current health state. Demand for health services by nature can be unpredictable (Arrow 1963). People that undergo an unexpected calamity such as a stroke can go from a relatively high health state to low health state very rapidly. The unpredictably of the need to access services suggests that people will demand reasonable access to hospital care not because they use it frequently, but because they realize the importance of such access in the event of a tragic situation.

Probable demand for health services also stems from demand for health services being a function of both one's current health state as well as one's personal characteristics. The health literature states that demand for medical services is positively correlated with wage rates as well as higher levels of education (Grossman 1972). The RAND health experiment, which was a large experiment to assess demand responses to changes in insurance coverage, showed that across income groups as income rises so does the probability of use of medical services (with the exception of inpatient care). The RAND experiment also revealed that demand elastitices for Medicare are nonzero, and response to cost sharing is non-trivial (Manning 1987).

The generalized personal characteristics of the younger elderly migrants would classify them as relatively higher users of medical services. These migrants are typically classified as having high education levels as well as previous high income jobs. We further add that these high income jobs would be more probable to provide their worker's health insurance coverage in their working years. If a wealthy migrant developed preferences for his/her levels of health care utilization under a lifetime of insurance coverage that by nature induces moral hazard (Pauley 1974), it could suggested that these levels of

preferences for utilization would continue into the migrant's retired years. This would especially be the case since those over 65 are eligible for universal coverage under Medicare. Given the annuitization of Medicare, recipients have more incentive to spend even when the benefits are far smaller than the costs (Topel 2006). Having these personal characteristics that increase demand for health care, as well as health insurance, would lead one to believe that demands for health services from young, healthy retirees are significant (Glasgow 1995). It should be noted that while retirees would not derive utility directly from the actually going to the doctor, utilizing provided care that could possibly extend life should be valuable to retirees because the utility they induce from goods and leisure can be enjoyed longer (Topel 2006).

Additionally, seniors don't need access to just any medical services, but rather a particular set of medical services. The department of Health and Human Services classifies counties as being medically underserved based on shortage of primary care, the population to provider ratio, poverty rate, and travel distance/time to accessible source of care. While this is the classification for the general population, seniors should also consider more specific health services access tailored to their needs. The probability of suffering from heart disease and heart related incidents such as stroke and heart attack increases with age. Migrants should not only be considering access to primary care, but also access to MDs specialized in emergency care and cardiac disease as well as hospitals with cardiac intensive units. Additionally, seniors demand orthopedic surgeons and facilities that accommodate hip and knee replacement surgery. The federal classifications of medically underserved counties such as the HPSA are not specific enough for this demographic. The Health Professional Shortage Areas are designated by the US department of Health and Human Services as areas having shortages of primary medical care, but do not include the specialty care seniors demand.

Data

One of the greatest limitations of studies on migration at the county or zip code level is the unavailability of access to individual level migration decisions. Such data is only available at the Restricted Data Center through the Census Bureau. Data at this level of specification is necessary when considering natural amenities, since there can be a high

variability within a narrow geographical space. The most geographically precise public use data are migration flow data at the county level from the Population Division of the U.S. Census Bureau. We were able to categorize total migrant flow by age cohorts and identify the migrants that were ages 65+. To be considered a migrant, the person's current county of residence in 2000 must be different than the county of residence in 1995. This therefore excludes all moves within the same county. For county level natural resource characteristics, variables were gathered from the USDA's natural amenity index. This index ranks counties' amenity value on a scale of 1-7. We will also utilize the USDA's data on components of the index which includes: January mean temperature, January sunlight, July mean temperature, July humidity, topography code, and percent water cover. Health variables were obtained from the Area Resource File, which is a collection of data from over 50 sources such as the American Hospital Association, Bureau of Labor Statistics, and National Center for Health Statistics. The ARF is maintained by the Department of Health and Human Services and contains many county health and population characteristics. Finally, data on classification of medically underserved counties was taken from the department of Health and Human Services. Because our migration data is looking at migrants in 2000, all independent health and county characteristic variables are either for 1995 or 1990. If we were to use 2000 variables, we would have an endogeneity issue since it would be difficult to tell if it was the migration that was determining county characteristics or the reverse. By using 1995 and 1990 variables, we make the assumption that it was this level of county characteristics that induced a migrant to decide to reallocate to the respective location.

Empirical Methodology

Not having access to data on individual migrant characteristics for moves at the county level, limits the econometric methodologies in analyzing migration decisions. If this information were available to the public, one could use a probit model with a dependent variable representing the yes/no decision to move to a high amenity or medically underserved area. Having total flow data per county as a dependent variable makes probit estimation inappropriate. We therefore use a linear regression model with

dependent variables for the migrant inflow per county for each five-year age cohort. A separate model is estimated for each division of the retirees. We also will estimate three separate models of total county retiree inflow based on if the county is classified as being rural, micropolitian, or metropolitan. Because spatial data is naturally plagued by some heteroskedastity, comparing like counties with each other will reveal characteristics that are particularly important within a specific class of counties.

The independent variables are site characteristics that would influence retiree location decisions, and can be classified into categories of amenity variables, economic characteristics, and access to health services. The health access variables were chosen based on the health needs of this aging population. Since elderly have a high rate and probability of heart related problems, variables that include doctors specializing in heart disease are included. Other general traits such as number of non federal MDs as well as nursing home beds and hospital beds are also included.

One must keep in mind that nursing homes provide a variety of uses for the elderly. While they are obviously the home to elderly who can no longer care for themselves, it also serves as a temporary location for those who have undergone orthopedic surgery or stroke to rehabilitate. Therefore nursing home beds would be important for all retirees and not just the oldest of the old. The final variables used in estimation are listed in Table 2 and generally self-explanatory with a few needing further elaboration. For high values such as total population and population over 65, we divided the value by 10,000 to get the number into similar range of the other independent variable values. Similarly, total number of hospital and nursing home beds and well as total non federal doctors was scaled by divided by 1,000.

Results

Because this study is using national spatial data, it was not surprising to find heteroskedasticity present by conducting White's test. This is corrected by utilizing robust standard errors since hetroskedatiscity does not lead to biased coefficient estimates, but does produce biased standard errors.

Comparing results among the 5 age cohorts reveals drivers that are clearly important to all retiree migrants. Among the economic type variables, percent of people with a high school diploma was both significant and positive among all the cohorts. Median home price was also significant and positive. While the magnitude on this value is small for a log value, it would be intuitive that slightly higher home prices signify more desirable living conditions.

Also, our results found that population preferences are homogenous across all the age cohorts. One of perhaps the most important drivers was county population of individuals aged 65 and older. It is clearly evident that seniors want to move toward a network with individuals of similar characteristics as them, age being one of them. Additionally, seniors prefer to live in less densely populated areas, as indicated by the variable total county population being negative and significant. The variable adjacent being negative and significant reveals that retirees do not want to be in a county adjacent to a metropolitan county. This seems logical since most adjacent counties could be considered suburbs classically occupied with those commuting to work in neighboring cities, and typically raising families. These adjacent counties dominated by young families would value things such as playgrounds and good school systems, things that wouldn't be important to the retirement community. Two conflicting variables were the incremental distance to nearest metro population with greater than 250,000 people, and greater than 1,500,000 people. Distance to the smaller metropolitan was positive whereas the larger metropolitan was negative. This signals that retirees prefer to be closer to larger metropolitans than smaller. When considering health care access this is the appropriate sign, as a metro with 1.5 million people would likely have top quality hospitals and health professionals.

This leads us to the performance of the health care access variables. One limitation of this study is that currently each health variable represents each individual county's health access in terms of infrastructure and total number of health specialists. However, this approach is misleading for states that have many small counties, where travel times between counties are very short. Therefore currently being in an adjacent county to an excellent hospital would show that county as perhaps having poor medical

access. The next step in the future of this work is to change the health variables from total count variables into travel distances. Therefore it would be travel distance to nearest hospital instead of how many hospitals the county has. Nevertheless, initial results show that certain health variables did prove to be significant to retirees. Total number of physicians in the county was both positive and significant for all ages. However, total number of hospital beds was negative and significant for all retirees. Our insight into this variable is that since seniors prefer counties with lower population densities, having a high number of hospital beds signifies a high population. So in this case perhaps being in less populated areas is the reason behind the negative coefficient. Total number of cardiac health professionals was also significant for the oldest retirees.

The natural amenity variables showed that as expected, warm winters are extremely important to retirees. All age cohorts had positive significant values for January mean temperature. This is consistent with county inflow trends that show many retirees fleeing "The Rust Belt" for the "Sun Belt". The younger retirees also prefer more hours of Sunlight in January, which may be more of a byproduct characteristic of warm winter temperatures. Many other individual amenity variables such as topography or being in a county classified by USDA as being coastal were not significant for 65-75 year old retirees. However, for the oldest retirees, percent of county covered by water was negative and Average July temperature was positive. While percent of county covered by water could be positive in its aesthetic beauty of rivers or lakes, it could also represent higher property values and insurance coverage due to higher risk of incidents related to being near a large body of water.

After noting which amenity variables are especially important to retirees, it is then important to compare these values to the way in which the USDA ranks and measures how high a county ranks on its natural amenities. The USDA has ranked all continental US counties on a scale of 1-7 based on each county's average January temperature, hours of sunlight in January, average July temperature, average July humidity, topography code, and percent land covered by water. The way a county receives its ranking is by taking the z-score of each of these variables, adding all the z-scores together, and then evaluating how far away the summed z-score is from the mean. Table 1 shows this ranking.

One drawback of this ranking is that it assuming that the population values each amenity component of the scale equally. Our improvement to this measurement is by rescaling the index by weighting the components that are most favored by our population of study. This approach seems very intuitive since the literature has shown repeatedly that average January temperature is one of the key drivers of retiree migration, as is confirmed by our regression analysis. While we know this variable is important, the numerical weight still needed to be derived. To find the appropriate weights for each of the amenity variables, we used the regression coefficients of each variable and then dividing each coefficient by sum of all the amenity coefficients. This weight was then multiplied by its respective amenity variable to get the weighted variable. To calculate the counties total amenity score, we summed the weighted amenity variables and then normalized it to a scale of 0 to 100. To further simplify, all scores equaling 100 receive a 10, all scores between 90 and 99.9 received a 9 and so on.

The correlation between the USDA's index and our weighted index is .3407. This seems appropriate since a value of 1 would prove no need for the weights, and 0 would indicate that something went awry. Additionally, when comparing our index to the USDA index, we use a scale of 0 to 10 and the USDA's scale is 1-7. This is important to keep in mind when comparing scores between the two. A few interesting county comparisons between the two indexes are Maricopa, AZ and Broward, FL. According to our index, both Maricopa and Broward score among the highest with amenity values of 10. Not coincidently, Maricopa also had the highest inflow of all retirees in 2000, and Broward come in 5th in terms of total retiree migrant inflow. However, on the USDA's index Maricopa and Broward have an amenity score of 6 which would not even put them in the top tier. (Table 5)

In addition to examining migration aggregately, we analyzed the drivers of migration for retirees that migrated to counties classified as rural, micropolitan, and metropolitan. The intuition behind examining total inflow based on classification is that a retiree who specifically chooses to move to a rural county will likely have different tastes than a mover who chooses to move to a metropolitan county. Also, we can compare

counties' characteristics among other similar counties highlighting important features when comparing them in a similar class.

Counties that do not have an urban cluster in the county are classified as rural counties. When solely considering rural counties, we find that the natural amenity variables perform better than they do with the sample of micropolitian and metropolitan counties. Average January temperature, hours of sunlight in January, July Humidity, and Topography components were all significant. It would seem that those looking to locate in a rural setting would greatly value these natural aesthetic values and seek out such areas. It seems it would be these migrants who would be more willing to trade off some of the benefits that metropolitan counties offer to that of a beautiful mountain view or comfortable year-round weather. The other variables seem to be consistent with all other regressions with the exception of the conflicting signs of HPSA and number of MDs. While the number of MDs is significant and positive, the HPSA variable which identifies if a county is considered medically underserved is also positive. This is a contradiction that needs further analysis as it does not make sense.

Counties that have at least one urban cluster of at least 10,000 but no more than 50,000 people are classified as micropolitan counties. Most of the variables for micropolitan counties were consistent with the expected signs. Those that had positive significant values as was predicted include: Average January Temperature, county population over 65, and number of cardiac doctors. However, the sign on the HPSA variable was again positive when it should be negative. This is in direct contraction of the positive and significant value for number of cardiac doctors in the county.

We next examine metropolitan counties, which are counties that have at least one urbanized area of 50,000 or more inhabitants. For these counties HPSA has the correct negative significant sign and total MDs is also positive and significant. Total number of hospital beds has a negative significant sign, but since total population also has a negative sign, it seems likely that retirees may be less attracted to the largest metropolitans that would have the highest amount of hospital beds. As far as natural amenities, the only significant values were again average January temperature and number of sunlight hours in January.

Conclusion

This study looked to gain further insight into natural amenities and access to health services as drivers of migration for retirees. We find that when we examine the particular variables that compose the natural amenity index, some amenities prove to be of particular importance to retirees. We exploit this by reweighting the index to the specific tastes and preferences of retirees. The reweighted index shows that many of the highest rated amenity counties also had some of the highest inflows of retirees, further confirming that retirees consider natural amenities in their location decisions. Particularly, when we examined only the rural counties, we find that many of the natural amenity variables are significant and positive. It seems that retirees who are settling in rural counties are doing so because of the aesthetics and natural amenities of the area. This is important for rural policy makers that can emphasize marketing their areas' natural beauty to the youngest retiree migrants which in turn can help spur economic growth to communities.

When we analyze how access to health services interacted with natural amenities, we find that retirees do consider health care access in their location decisions. Migrants consistently want to be within a closer distance to a city of greater than 1500k people that would have high quality health care access. Similarly, number of physicians in the county was also consistently positive.

We would therefore conclude that the likelihood of reaching a corner solution of either migrants seeking counties with high amenities and no health access, and high health access with low amenities is unlikely. While there will be some outliers that could include individuals with severe health problems or those that are very adventurous, the majority of retirees would like a combination of these services in their retirement years.

While there are many limitations to this study, data is perhaps one of our biggest constraints. We hope to gain future access to restricted individualized data to be able to include important personal characteristics of each retiree. Similarly, changing our health access variables from county count variables to total travel time from center of county will be much more representative of actual access.

References

Arrow, K. J. (1963). “Uncertainty and the Welfare Economics of Medical Care.” The American Economic Review **53** (5): 941-973.

Chen, Y. and S. S. Rosenthal (2008). "Local amenities and life-cycle migration: Do people move for jobs or fun?" Journal of Urban Economics **64**(3): 519-537.

Clark, D. E., T. A. Knapp, et al. (1996). "Personal and Location-Specific Characteristics and Elderly Interstate Migration." Growth and Change **27**(3): 327-351.

Conway, K. S. and A. J. Houtenville (2003). "Out with the Old, In with the Old: A Closer Look at Younger Versus Older Elderly Migration*." Social Science Quarterly **84**(2): 309-328.

Glasgow, N. (1995). "Retirement Migration and the Use of Services in Nonmetropolitan Counties1." Rural Sociology **60**(2): 224-243.

Grossman, M. (1972). "On the Concept of Health Capital and the Demand for Health." Journal of Political Economy **80**(2): 223-255.

Jordan, R. (2007). "Moving to nice weather." Regional Science and Urban Economics **37**(3): 375-398.

Joseph, A. E. and D. S. Cloutier (1990). "A framework for modeling the consumption of health services by the rural elderly." Social Science & Medicine **30**(1): 45-52.

Joseph, A. E. and D. S. Cloutier (1991). "Elderly migration and its implications for service provision in rural communities: an Ontario perspective." Journal of Rural Studies **7**(4): 433-444.

Knapp, T. A., N. E. White, et al. (2001). "A Nested Logit Approach to Household Mobility." Journal of Regional Science **41**(1): 1-22.

Levin, K. A. and A. H. Leyland (2006). "A comparison of health inequalities in urban and rural Scotland." Social Science & Medicine **62**(6): 1457-1464.

Longino, C. F. and D. E. Bradley (2003). "A First Look at Retirement Migration Trends in 2000." The Gerontologist **43**(6): 904-907.

Longino, C. F. and W. H. Crown (1990). "Retirement Migration and Interstate Income Transfers." The Gerontologist **30**(6): 784-789.

Manning, W. G., J. P. Newhouse, et al. (1987). "Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment." The American Economic Review **77**(3): 251-277.

McGranahan, D. A. 1999. Natural amenities drive population change. Pages 1–24*in* Report 781. Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture, Washington, D.C., USA.

Nord, M. (1998). "Poor People on the Move: County-to-County Migration and the Spatial Concentration of Poverty." Journal of Regional Science **38**(2): 329-351.

Serow, W. J. (2003). "Economic Consequences of Retiree Concentrations: A Review of North American Studies." The Gerontologist **43**(6): 897-903.

Storper, M. and A. J. Scott (2009). "Rethinking human capital, creativity and urban growth." Journal of Economic Geography **9**(2): 147-167.

Walters, W. H. (2002). "Later-Life Migration in the United States: A Review of Recent Research." Journal of Planning Literature **17**(1): 37-66.

Walters, W. H. (2002). "Place Characteristics and Later-Life Migration." Research on Aging **24**(2): 243-277.

Table 1: USDA Amenity Ranking

Deviations from the mean
1 = Over -2 (low)
2 = -1 to -2
3 = 0 to -1
4 = 0 to 1
5 = 1 to 2
6 = 2 to 3
7 = Over 3 (high)

Table 2: Summary Statistics

	Mean	Std. Dev.	Min	Max
Inflow 65-70	297.23	854.93	0	19234
Inflow 70-75	226.92	670.08	0	14146
Inflow 75-80	185.05	504.30	0	10184
Inflow 80-85	143.56	361.07	0	6384
Inflow 85+	165.33	378.59	0	5561
Inflow 65+	1018.11	2701.53	0	55342
Unemployment Rate	5.97	3.05	1	37.9
Urban Code	5.47	3.45	1	12
Poverty	16.78	7.91	0	63.1
HS diploma	69.53	10.33	31.6	95.5
HPSA	0.24	0.43	0	1
Average Jan Temp	32.83	12.12	1.1	66.8
Hours Sunlight Jan	151.56	33.39	48	266
Average July Temp	75.85	5.39	55.5	93.7
Average July Humidity	55.83	14.63	14	80
Topography Code	8.87	6.58	1	21
Percent Water	4.54	11.18	0	75
Coastal	0.20	0.40	0	1
Log Median Home Price	10.76	0.43	9.61	13.12
Adjacent	0.32	0.46	0	1
Nearest MSA in km	72.76	60.39	0	408.18
Distance to 250k city	58.02	100.23	0	621.56
Distance to 500k city	40.78	66.68	0	490.53
Distance to 1500k city	89.78	118.59	0	599.21
Population older 65*	1.06	3.23	.0014	93.85
Total population*	7.90	26.48	.011	886.31
Hospital beds**	0.34	1.17	0	30.89
Non-Fed MDs**	0.24	0.78	0	24.78
Cardiac MDs	5.83	27.15	0	690
Nursing home beds**	23.90	74.75	0	1407

Number of Observations is 3040 for all variables
*These variables are scaled by dividing by 10,000
**These variables are scaled by dividing by 1,000

Table 3: Drivers by County Population Type

	Rural	Micro	MSA
Dependent: Inflow 65-85+			
Unemployment	-2.91*	-19.21*	1.69*
	(1.20)	(6.33)	(32.96)
Poverty	1.656*	12.17*	-4.60*
	(0.57)	(2.71)	(19.71)
HS diploma	-0.37*	5.99*	68.54*
	(0.50)	(2.98)	(14.28)
HPSA	11.47*	109.69*	-412.09*
	(6.78)	(60.94)	(139.86)
Jan Temp	2.32*	9.98*	64.33*
	(0.75)	(2.87)	(18.63)
Sunlight Jan	0.34*	1.35*	12.49*
	(0.18)	(0.71)	(3.03)
July Temp	-1.57	-0.03	60.83
	(1.82)	(5.59)*	(51.06)
July Humidity	-1.84*	-3.07	-15.55*
	(0.38)	(1.69)	(8.75)
Topography Code	2.14*	-2.39	8.56
	(0.62)	(2.89)	(15.88)
Percent Water	0.66	1.65	-9.64
	(0.55)	(2.33)	(7.18)
Coastal	16.94	58.41	146.43
	(17.89)	(60.81)	(206.08)
Log Home price	120.48*	587.79*	812.37*
	(20.19)	(89.11)	(442.88)
met 250k (km)	0.009	-0.002	-0.71
	(0.03)	(0.15)	(1.11)
met 500k (km)	-0.02	0.08	-1.12
	(0.06)	(0.19)	(0.51)
met 1500k (km)	-0.09*	-0.04	-1.12*
	(0.03)	(0.13)	(0.51)
Pop older 65	1899.28*	2414.40*	1669.27*
	(174.69)	(250.19)	(287.02)
Total pop	-148.57*	-250.25*	-133.81*
	(31.03)	(30.83)	(34.45)
Hospital beds	-0.10	-0.27	-0.86*
	(0.08)	(0.13)	(0.37)
Non-Fed MDs	3.20*	3.4	12.24*
	(1.85)	(2.41)	(4.36)
Cardiac MDs	8.11	24.91*	-9.43
	(13.59)	(15.24)	(11.96)
Nursing home beds	-0.08	-0.33	-0.99
	(0.12)	(0.29)	(1.73)
R^2	0.7319	0.7098	0.7579
n	1325	677	1037

*significance at 10 percent
Robust Standard Errors reported in parenthesizes

Table 4: Migration Drives by Age Cohort

	Inflow 65-70	Inflow 70-75	Inflow 75-80	Inflow 80-85	Inflow 85+
Unemployment	7.87*	5.99*	2.56*	0.77	-0.64
	(3.17)	(2.37)	(1.46)	(0.85)	(0.88)
Urban Code	0.29	-0.29	0.38	0.13	0.80
	(3.59)	(2.56)	(1.81)	(1.15)	(1.44)
Poverty	0.19	0.49	0.69*	1.07*	1.41
	(1.81)	(1.37)	(0.99)	(0.64)	(0.71)
HS diploma	9.31*	7.23*	5.51*	4.31*	4.07*
	(1.94)	(1.49)	(1.07)	(0.69)	(0.69)
HPSA	-21.80	-14.67*	-13.13*	-8.17	-15.02*
	(15.75)	(11.66)	(8.14)	(5.15)	(5.18)
Jan Temp	10.50*	7.18*	4.89*	2.51*	1.67*
	(3.13)	(2.27)	(1.53)	(2.09)	(0.86)
Sunlight Jan	2.48*	1.62*	0.81*	0.34*	0.08
	(0.42)	(0.32)	(0.21)	(0.14)	(0.14)
July Temp	3.97	4.04	3.31	3.29	4.06*
	(7.73)	(5.43)*	(3.57)	(2.09)	(1.77)
July Humidity	0.03	0.03	-0.15*	0.05	-0.01
	(1.22)	(0.89)	(0.57)	(0.35)	(0.33)
Topography Code	1.40	0.33	0.22	0.11	-0.04
	(2.13)	(1.62)	(1.05)	(0.61)	(0.54)
Percent Water	-0.64	-1.36	-1.44*	-1.18*	-1.39*
	(1.30)	(1.03)	(0.73)	(0.50)	(0.54)
Coastal	-1.72	-1.84	10.48	12.05	21.65
	(33.89)	(27.18)	(19.17)	(12.86)	(13.87)
Log Home price	158.96*	114.77*	88.80*	72.49*	87.43*
	(59.42)	(43.84)	(30.74)	(19.60)	(19.58)
Adjacent	-42.85*	-37.71*	-36.44*	-29.68*	-27.64*
	(20.66)	(15.89)	(11.62)	(7.48)	(7.70)
met 250k (km)	0.23*	0.20*	0.12*	0.06*	0.03
	(0.07)	(0.19)	(0.04)	(0.03)	(0.03)
met 500k (km)	-0.09	0.19	-0.05	-0.05	-0.08*
	(0.36)	(0.06)	(0.05)	(0.3)	(0.04)
met 1500k (km)	-0.17*	-0.13*	-1.12*	-0.09*	-0.09*
	(0.08)	(0.06)	(0.04)	(0.03)	(0.03)
Pop older 65	613.83*	476.43*	312.80*	184.71*	162.97*
	(99.48)	(82.72)	(54.12)	(30.68)	(29.29)
Total pop	-51.44*	-39.00*	-24.19*	-13.31*	-10.33*
	(11.32)	(9.51)	(6.70)	(4.42)	(4.75)
Cardiac Units	43.28	22.54	13.97*	6.83	9.83
	(90.44)	(66.52)	(47.48)	(30.95)	(32.34)
Hospital beds	-0.28*	-0.24*	-0.20*	-0.16*	-0.18*
	(0.11)	(0.09)	(0.06)	(0.04)	(0.04)
Non-Fed MDs	3.66*	3.05*	2.70*	2.07*	1.72*
	(1.53)	(1.21)	(0.87)	(0.60)	(0.65)
Cardiac MDs	-7.25	-4.20	-1.89	0.94	3.06*
	(4.95)	(3.45)	(2.23)	(1.28)	(1.22)
Nursing home beds	-0.15	-0.18	-0.18	-0.19	-0.15
	(0.48)	(0.37)	(0.26)	(0.17)	(0.18)
R^2	0.6653	0.6963	0.7565	0.806	0.8231

*significance at the 10 percent
Robust Standard Errors report i parenthesizes

Table 5: 25 Highest Amenity Ranked Counties

	Weighted Index	USDA Index
1	La Paz AZ	Ventura CA
2	Yuma AZ	Humboldt CA
3	Imperial CA	Santa Barbara CA
4	Maricopa AZ	Mendocino CA
5	Broward FL	Del Norte CA
6	Pinal AZ	San Francisco CA
7	Pima AZ	Los Angeles CA
8	Collier FL	San Diego CA
9	Hendry FL	Monterey CA
10	Palm Beach FL	Orange CA
11	Terrell TX	Lake CO
12	Presidio TX	Santa Cruz CA
13	Highlands FL	Contra Costa CA
14	Charlotte FL	Calaveras CA
15	DeSoto FL	Mariposa CA
16	Hardee FL	Mono CA
17	Greenlee AZ	San Mateo CA
18	Martin FL	Marin CA
19	Osceola FL	Summit CO
20	St. Lucie FL	Sonoma CA
21	Polk FL	San Luis CA
22	Glades FL	Douglas NV
23	Okeechobee FL	Napa CA
24	Indian River FL	Gila AZ
25	Lee FL	Alpine CA

Table 6: 25 Lowest Amenity Ranked Counties

	Weighted Index	USDA Index
1	Alger MI	Red Lake MN
2	Keweenaw MI	Wilkin MN
3	Lake of the Woods MN	Tipton IN
4	Chippewa MI	Norman MN
5	Ontonagon MI	Mower MN
6	Luce MI	Pembina ND
7	Marquette MI	Traill ND
8	Ashland WI	Dodge MN
9	Beltrami MN	Grand Forks ND
10	Alpena MI	Pennington MN
11	Mackinac MI	Kittson MN
12	Cook MN	Grundy IA
13	Presque Isle MI	Cass ND
14	Gogebic MI	Benton IN
15	Delta MI	Champaign IL
16	Alcona MI	Lyon IA
17	Schoolcraft MI	Kossuth IA
18	Powell MT	Winneshiek IA
19	Koochiching MN	Clinton IN
20	Cavalier ND	Clark WI
21	Bottineau ND	Roseau MN
22	Roseau MN	Rock MN
23	Houghton MI	Obrien IA
24	Lake MN	Piatt IL
25	Hubbard MN	Ransom ND

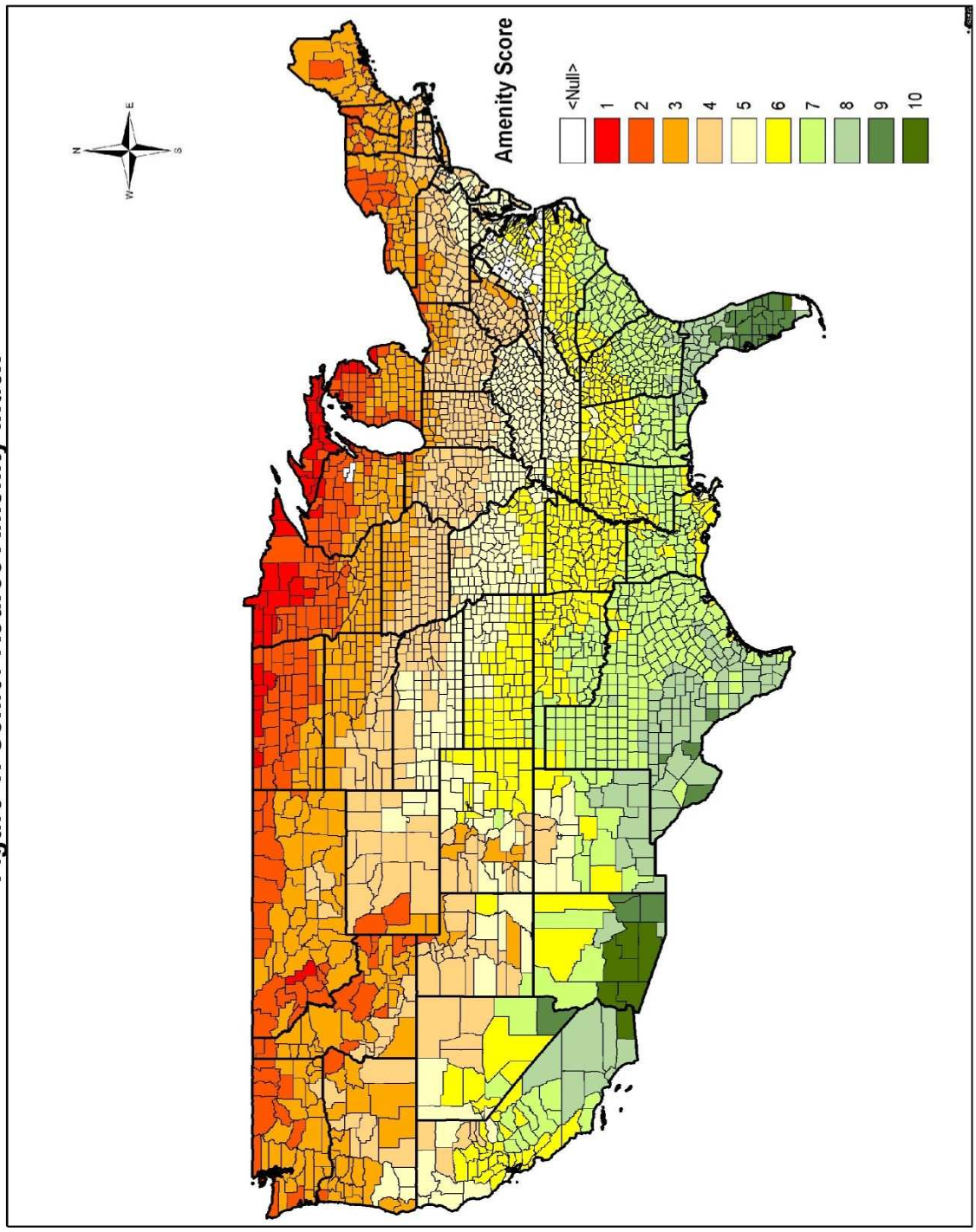

Figure 1: Senior Retiree Amenity Index

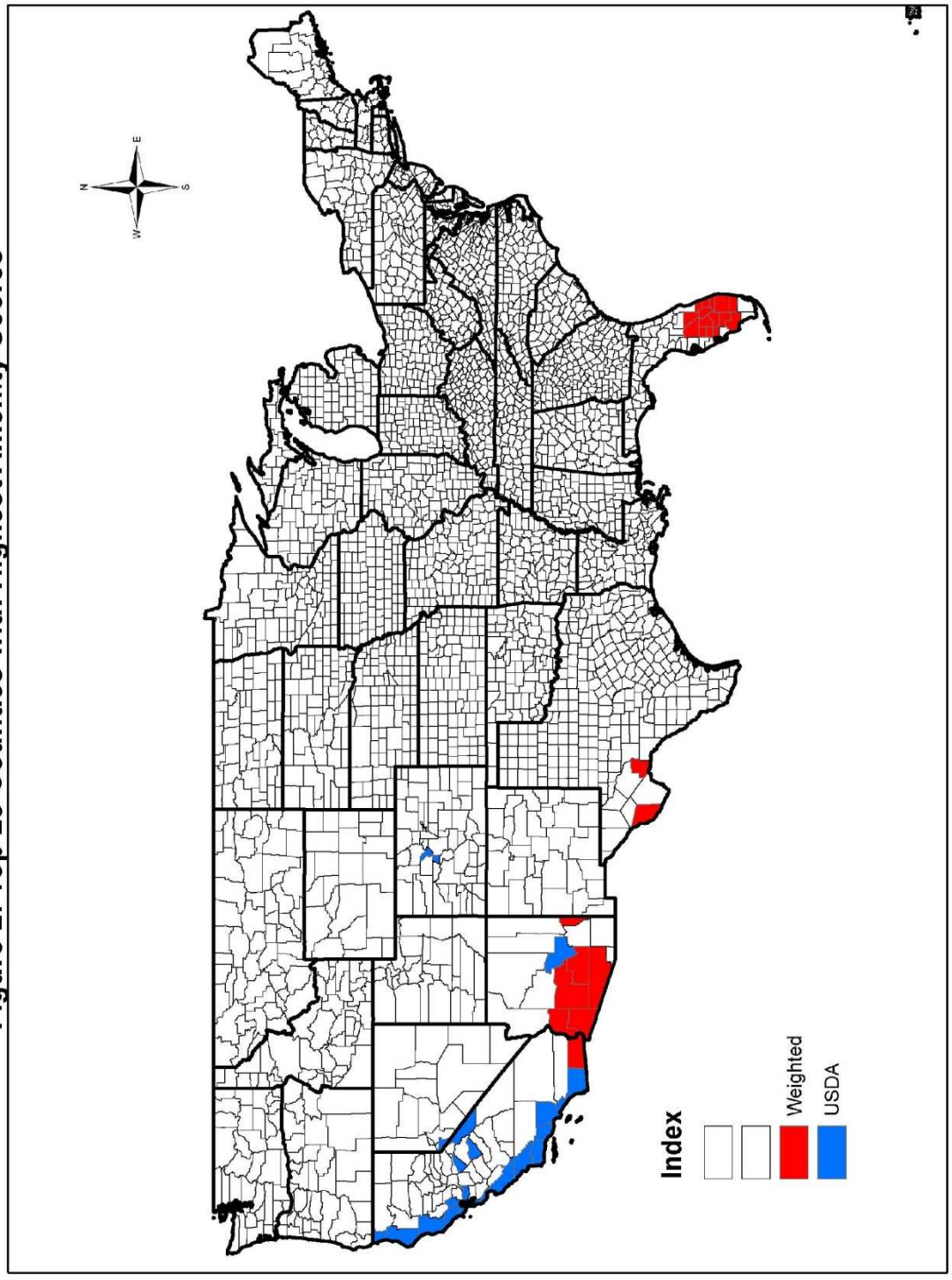

Figure 2: Top 25 Counties with Highest Amenity Scores

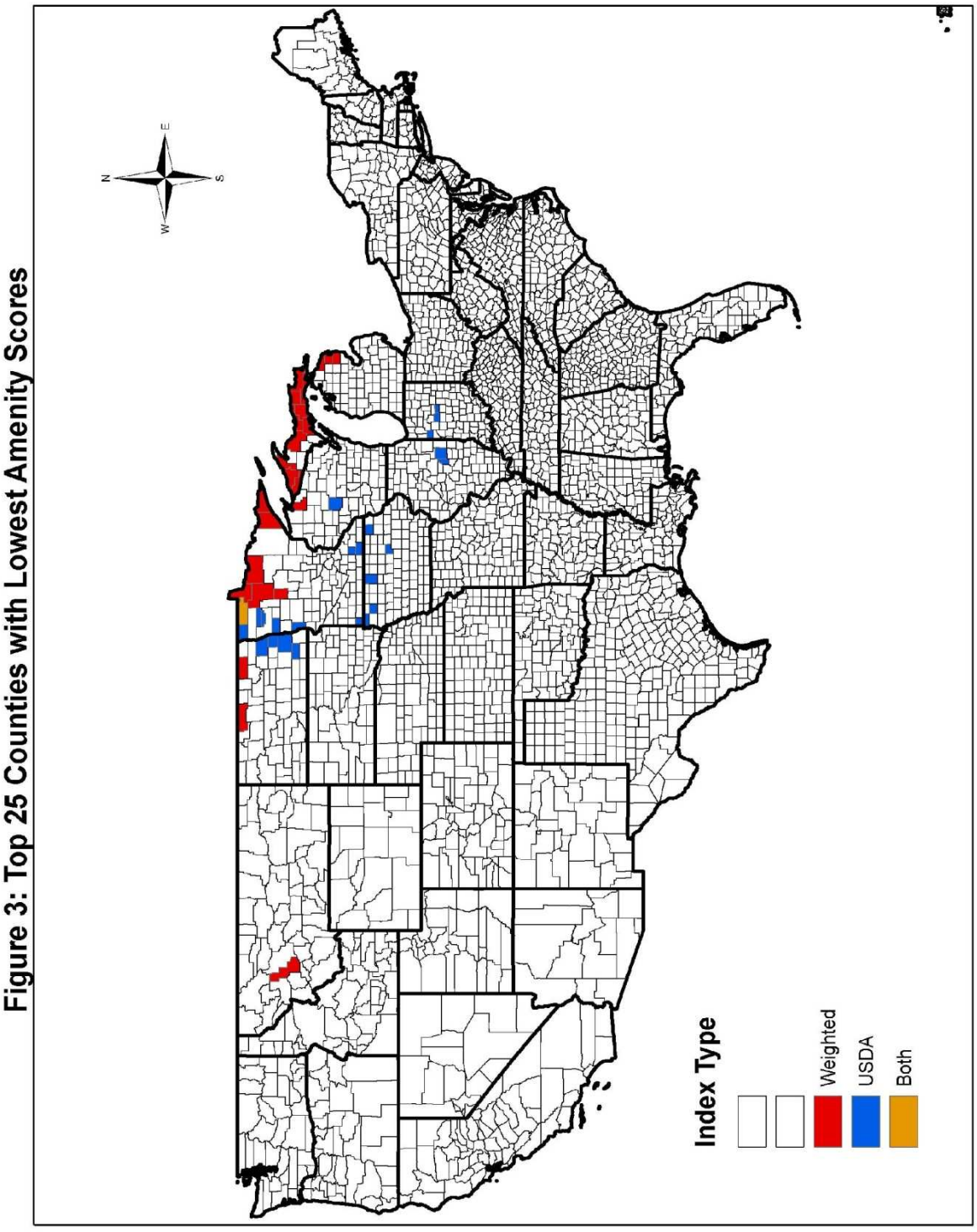
Figure 3: Top 25 Counties with Lowest Amenity Scores
N
E
S
W
Index Type
Weighted
USDA
Both