JDJ Consulting Group

Final Report

Have Migration Trends Changed Permanently in Florida?

An Analysis of Migratory and Demographic Patterns within the State of Florida

Senior Consultant - Justin McDonald

Senior Consultant - Daniel MacPherson

Senior Consultant - John Odom

JDJ Consulting Group

JDJ Consulting Group

Department of Economics
Florida State University
288 Bellamy Building
Tallahassee, FL 32306-2180

Phone: (850) 644-6362
E-mail: JDJConsulting@JDJC.com

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Executive Summary

In 2009, the Bureau of Economic and Business Research (BEBR) concluded that Florida suffered a population decline. This remarkable decline was the first since 1946 and arrives only years after record migratory growth in Florida (Coueignoux, 2009). The Florida legislature is understandably worried about this and has asked JDJ Consulting to investigate the latest migration trend.

The Florida legislature wanted the investigation to answer several important questions. First: Is the latest migration report the beginning of a new trend or an anomaly? Second: What demographics have been leaving the state of Florida? And third: What factors have attributed to the decline and will a reversal occur in the future?

JDJ Consulting first began our investigation by examining aggregate migration flows to and from Florida. When considering net in-migration to Florida, the problems worrying state legislature are apparent. In 2006, the net inflow to Florida dropped by 90,000, and this sharp decline continued into 2007 when it fell by an additional 102,000. In 2008, the net inflow fell at a much milder rate, but it was enough to result in negative net inflow to the state. Nearly 25,000 more residents left Florida than migrated-in, whereas in 2004 and 2005 net inflow was above 200,000. Although 2008 is the last year of available data, we can infer that net in-migration to Florida fell further in 2009.

Using regression analysis, we isolated the year in which this break occurred. The base year for comparison was the five-year average of net migration from 1995 through 2000. Our analysis concluded that the structural break occurred in 2006. Additionally, we concluded that 2005 was the last healthy migration year for Florida.

The demographic make-up of in- and out-migrants was examined next in our analysis. The analysis depended on summary statistics and regressions, with the data extracted from two population surveys. The demographic make-up covered the periods before and after the structural break.

The summary statistics discovered several clear differences between current residents of Florida and recent out-migrants from the state. Out-migrates from Florida were over-represented in the following categories: Young (19-34 year olds), White and Unemployed. Out-migrants were under-represented in the following categories: Homeowner, Black, Hispanic and Retired. The results gave us the first indication that the majority of out-migrants were younger job-seekers willing to leave Florida in search of employment.

To support our summary statistics, we ran several regressions to look for statistical significance. Most of the categories mentioned above showed significance, and their coefficients had the correct sign and magnitude. Our initial findings were further supported by a replication of our summary statistics and regressions with our second population survey.

The final part of the demographic make-up from Florida examined changes over time. We wanted to see whether the structural break that occurred in 2006 also affected the probability of certain demographics from out-migrating. The results show that a family's probability of relocating increased while the probability of out-migrating for blacks and homeowners decreased in the past several years.

The state-to-state flows showed that in-migration over the past several years was a problem as well. Our analysis decided to look at in-migration demographics and see whether these demographics have changed since the structural break in 2006. Our summary statistics and

logistic regression showed that the same demographics that were likely to out-migrate were just as likely to in-migrate. The only exceptions were Hispanics, Blacks and the Unemployed.

After gaining a general idea of the demographics of out- and in-migrants, we investigated why these cohorts left. Based on the demand-side and supply-side factors of migration we determined four key economic indicators: the unemployment rate, housing prices, wage levels, and state GDP. These factors were examined to see if any change corresponded with our current migration pattern. They were compared with national and other state data to create a benchmark of a normal and healthy level.

Florida's housing price bubble began the migratory slowdown. The increase in housing prices deterred many migrants from entering Florida as housing costs represent about 30% of a household's income. This reaction to housing costs started in 2006. When the bubble burst housing prices eventually fell to the national level, eliminating it as a deterrent to migration. Unfortunately, the recessionary environment replaced housing prices as the main obstacle to migration.

Since 2007, Florida's unemployment rate has contributed to out-migration. Job-seekers left the state for better employment opportunities elsewhere. As Florida's unemployment rate returns to the national average, we expect this level of out-migration to decrease. Our forecast of the unemployment rate indicates that this will happen in the next few years.

From our analysis of Florida's GDP, we believe that the general economic condition of Florida will improve. In the next few years, Florida's economy will experience an expansion. Prior research has shown a positive correlation between business cycles and migration (Pandit,

1997). Based on our analysis and this correlation we expect to see an increase in migration to Florida.

Once the key economic indicators have fully recovered we expect Florida's migration to recover as well. The record high levels seen in 2004 and 2005 are not expected to reappear. Rather, we predict migration levels similar to that of the late 1990's, at around 120,000 net in-movers annually.

Introduction

The state of Florida's primary driver of growth has been migration into the state. The new residents increase the tax base through the purchase of taxable goods such as houses and cars. As a result, the state of Florida's increasing government expenditures have been primarily offset by tax inflows from new migrants. If the recent trend of declining inflow continues it might be necessary for Florida to further cut government expenditures and to revamp a tax code dependent on in-migration.

The overarching question which the Florida Legislature ultimately seeks to answer is whether Florida's population loss in 2009 was an anomaly or the beginning of a new trend. To fully understand the issue there must be a careful investigation into the many factors that determine Florida's population growth and its decline in 2009. Our report will address the following: Has Florida experience a new migration trend, and what states are now competing with Florida? What demographics are leaving the state of Florida? What factors attributed to the decline, and can we reverse it?

To answer these questions we needed several approaches. First we examined domestic migration in the United States with respect to Florida, considering both gross in- and outflow. In doing so we could identify from which states the most abrupt changes in migration patterns occurred as well as states that may be competing with Florida for migration. This gave us an idea of what states became more attractive than Florida as destinations for migrants, and we could then compare the key economic indicators across these states. While this approach provided us with valuable insights, we needed a second approach to identify the demographic composition of those migrating in and out of Florida. Here we utilized a comprehensive micro-data set of

individuals and their mobility provided by the U.S. Census. This rich data source allowed us to identify the demographic make-up those moving to and from Florida, as well as those who did not leave the state. After determining which demographics had the highest propensities to leave, or not move into, Florida we then sought to answer why. We needed to first understand which factors led to the changes in migration decisions and then deduce the duration of this change in mobility patterns. Below we address these questions and approaches in further detail.

Is Florida experiencing a new migration trend? Net migration is composed of two factors: out- and in-migration flows. To develop a conclusion it was necessary for us to examine both of these factors individually. The investigation was also inter-temporal as migration trends do not develop in one-time period but occur over a series of years. The investigation began by looking at IRS state-to-state migration flows. The state-to-state data provided us with out- and in-migration flows for Florida. The data is state-specific so data was available for every state in the U.S. Additionally, we had access to the data annually beginning in 2000 and ending in 2008. This access allowed us to answer the question: what states are competing with Florida?

The second question: "What types of demographics are leaving?" could not rely on aggregate migration flows. Rather, individual specific data was necessary for this analysis. Our analysis identified two surveys that were used: the American Community Survey (ACS) and the March Supplement of the Current Population Survey (CPS). Both of these surveys ask whether or not the individual has moved in the past year along with individual-specific demographic data.

In addition to summary statistics from both surveys, regression results were done to measure the likelihood of out-migrating based-on demographic qualities. The logistic regression,

together with our summary statistics, told us what demographics are out-migrating from, and what are moving in, to Florida.

If we combine the first two questions, then an additional question emerged: "Has the demographics of migrants changed? This question was answered through a pooled interaction regression analysis of both out- and in-migration characteristics. A supplement to this investigation relied on an analysis of school enrollment trends within Florida over a 10-year period.

What factors attributed to the decline, and can we reverse it? This question was approached multiple ways. First, we discovered the specific reasons for the migration reversal. We began at the aggregate-level with state-to-state flows. While Florida net migration is declining, other states are realizing increases in this measure. We looked at the reasons why, and whether these conditions will persist in the future.

The Underlying Economics

Although on the surface the topic of this report seems entirely demographic-based, there are many themes and ideas firmly rooted in economic theory. Despite being studied mostly by demographers, migration is generally a decision made by rational individuals responding to economic incentives. Greenwood (1997) discusses several determinants of migration that are often thought of as economic variables, such as wage differentials, unemployment rates and local public spending.

The current condition of the national economy has an impact on the magnitude of migration within that nation and there are a couple micro-based models to describe decisions to migrate within an economic framework. These include a demand-side and a supply-side approach. Within this report we use these two economic theories to help answer the question "Can Florida attract migration in the future?"

It is well documented that macroeconomic conditions, such as periods of prosperity or recession, greatly affect mobility rates (Pandit, 1997). During contractionary phases of the business cycle, the relative cost of moving is higher. Furthermore, the troughs of the cycle bring higher unemployment rates, making relocation even riskier. This is exacerbated by the fact that during times of a recession, female labor participation rates are higher, making migration less probable as dual-income households have lower propensities to migrate (Pandit, 1997). Likewise the expansionary phases of the business cycle generally result in higher employment and are associated with higher mobility rates. Although migration to Florida began declining in 2006, the first year Florida realized negative net migration was 2008 during the past recession (NBER, 2010).

The supply-side approach posits that inflows of labor to a location paying high wages (relative to the cost of living in the location) correspond with persons moving away from a relatively low-wage paying location (Knapp & Graves, 1989). This model has often been used to describe the relocation of agricultural workers to urban areas. The large inflow of laborers to urban areas from rural areas has contributed to urban growth (Knapp and Graves, 1989).

In the demand-side model, a shift in the demand for labor sets off a series of multiplier effects; stemming from the increased (or decreased) change in wages. The result is an increase (or decrease) in in- or out-migration (Knapp & Graves, 1989). The supply of labor is even responsive to small changes in the real wage rate. Wages are the main incentive to move. The probability of finding employment is important as well and is assessed by considering relative unemployment rates. The demand-side model for in-migration can be found in the equation below (Knapp & Graves, 1989).

$$in\text{-}migration = f(\, wages\ (+)\ ,\ unemployment\ (-)\,)$$

Section 1: Migration Flows with Respect to Florida

1.1 Data

The data required to conduct an analysis of migration flows is inter-temporal and aggregated at the state level. We have gross flows of people who moved to Florida and which state they migrated from, and we will be looking at annual frequencies between two years. An example would be the number of people who moved from Florida to Georgia between the years of 2007 and 2008. We will be focusing on the years 2000 through 2008. Unfortunately, 2009 data is not yet available. Prior to 2000 we will use data that consists of 5-year migration flows which we will convert to a per-annual average. This data gives the 5-year flows for the years 1985-1990 and 1995-2000.

The data outlined above comes from two primary sources: the U.S. Census Bureau and the Internal Revenue Service (IRS). The Statistics of Income (SOI) division of the IRS keeps track of state-to-state migration flows based on tax returns. For the state of Florida alone, we have the gross inflows and outflows to every other state and abroad for the years 2000-01 through 2007-08 [6-21]. There are two data sets for each year, one for gross inflow and another for gross outflow. For the entire United States, we have the gross inflows and outflows to every state and abroad for the years 2004-05 through 2007-08 [14-21].

The Census data is from two decennial Census years: 1990 and 2000. From the 1990 Census we used the *Census State Data Table 4: State of Residence in 1990 by State of Residence in 1985* [4]. Similarly, from the 2000 Census, we used the *Census 2000 PHC-T-23 Table 3: Gross and Net Migration by Age for the United States, Regions, and States* [5].

The state-to-state flows for Florida consisted of 16 separate data sets, one for gross inflow and another for gross outflow for each of the eight years: 2000-01 through 2007-08 [6-21]. Each data set is cross-sectional, identifying gross flows to and from Florida with respect to every other state. We have turned these 16 data sets into three time series data sets: gross inflow, gross outflow, and net inflow.

Every state except Florida is listed with the flow to and from Florida for each year mentioned above. From the gross inflows and gross outflows we computed the net in-migration for each state, division, region, and total for each year. In addition, the annual averages from the 1990 and 2000 Censuses are included as comparable points of reference. This data is listed in alphabetical order and organized by U.S. regions and divisions. The divisions, regions, and annual totals are also summed to give a broad picture of how migration to and from Florida has changed over this time period. The detailed regional and alphabetical listings including each state can be found in the data appendix.

The state-to-state flows for the entire U.S. has the identical format as our Florida only data. We used a cross section for the years 2004-05 through 2007-08 with two data sets per year which was then manipulated into a time series over these years [14-21]. Rather than create a data set with gross and net flows for each state, we focused on the states that provide the greatest number of migrants to Florida each year and the states that Floridians often migrate to. The states that send the greatest amount of outflow to Florida are: New York, California, New Jersey, Texas, Georgia, Illinois, Massachusetts, North Carolina, Ohio, Pennsylvania, and Virginia. Each of these states is represented with their own data set which tracks the gross outflow from the given state to all other states over the relevant time period. From here we calculate year-to-year percent

changes to identify the states that are receiving increased inflow from the states that typically feed Florida, and the states that are losing inflow from these states.

Similarly we wanted to look at the states that Floridians outflow to and the states that could be competing with Florida for in-migration. Using the same U.S. state-to-state data from 2004-05 to 2007-08 we focused on ten states: Alabama, Georgia, Kentucky, North Carolina, South Carolina, Tennessee, Virginia, Texas, Arizona, and New Mexico. Much of Florida's outflow tends to go states in close proximity, such as Georgia and Alabama. We also wanted to capture "half-back" states and the southwestern states that may be stealing some of Florida's inflow. "Half-back" refers to someone who migrated from a northern state to Florida and then later decides to move elsewhere, like the Appalachian, Blue Ridge, or Smokey Mountains regions [3]. Each of the ten states listed above is given their own dataset showing net inflow to the given state from all others over the relevant time period. Once again we compute year-to-year percentage changes to identify where these states are receiving their inflow, be it from Florida or states that generally outflow to Florida. The states with the most significant changes in inflow are shown in the results section of this report, while those states with less relevant migration patterns are included only in the data appendix.

Both data sets utilized from the U.S. Census Bureau came in a format comparable to the IRS state-to-state data for the entire U.S. From these data sets we took only what was needed, the gross inflow to Florida from all other states and the gross outflow from Florida to all other states. The main difference here was that the flows where over a five year period that we then annualized. The resulting data was supplemented to the existing data sets for Florida inflow and outflow relative to all other states in both the alphabetical and regional listings.

Additionally we would like prove statistically the year in which a structural break in normal migration patterns to Florida occurred. To accomplish this and provide empirical evidence we focused on net in-migration to Florida. The gross flows again came from the IRS tax return data and the 2000 Census, from which net in-migration was calculated. The sample space of net in-migration to Florida includes the net flows from all other states from the period of 2001 through 2008 and the per annum average from 1995 to 2000, with a few exceptions. States with annual gross in- and outflows of less than 1,000 people were omitted. This included the District of Columbia, Iowa, Montana, North Dakota, South Dakota, and Wyoming. In any given year there would be less than 1,000 people migrating from one of these states to Florida, as well as less than 1,000 people moving from Florida to any of these states. Three other states were also omitted from the sample space. Louisiana stood out as a large outlier because after Hurricane Katrina many residents of the state relocated to nearby states including Florida. Similarly, after reconstruction many people returned to Louisiana. Two other states, Alaska and Hawaii, were left out of the sample space as well. Being outside of the continental U.S., moving to or from these states incurs a much a higher cost and does not reflect true migration patterns within the U.S. as a whole.

1.2 Empirical Strategy

Here we seek to identify how the structure of migration patterns have changed, and will do so in the following ways: First, we will simply look at how gross inflow, gross outflow, and net inflow have changed for Florida over the past decade. Next, we take a regional perspective, identifying which regions of the United States have realized the largest shift in migration flows. Lastly, we will focus on the states that have historically fed the largest number of migrants to Florida, such as New York and New Jersey, as well as the states to which Florida tends to send

the largest outflows of people, typically other Southeastern states. After accomplishing these tasks, we will then attempt to identify in which year a structural break occurred- when the migration flows to and from Florida significantly changed.

To identify the regions and states that have realized the largest shift in migration patterns we examined the net and gross flows of domestic movers to and from Florida for the years 2000 through 2008. As a point of reference we also included the 5-year average migration flows based on the 2000 and 1990 decennial Censuses. In addition to looking at the magnitude of flows entering and leaving Florida, we computed year-to-year percentage changes starting in 2006, when net inflow to Florida began a steep decline. This will help identify which regions and states have seen the most pronounced changes in migration trends in the more recent years.

We will use the regions defined by the U.S. Census Bureau, which are: the Northeast, South, Midwest, and West. These regions are further divided into divisions[14]. The Northeast is comprised of the New England and Mid Atlantic divisions for example. The net and gross flows of migrants to and from Florida from all the other states will be organized in this fashion. Each state will be listed under its division followed by divisional and regional totals over the relevant time period. An alphabetical listing of gross inflow, gross outflow, and net in-migration by state is also provided in the data appendix.

To identify the structural break we have conducted a panel analysis of all states, except those explicitly mentioned earlier as being omitted, while including binary variables to represent each year. We hope that these dummy variables isolate the breaks in the norm associated with the years when the structural break occurred. The base year, the year for which we do not include a dummy variable, is the yearly average net migration from 1995 to 2000. We hope to prove

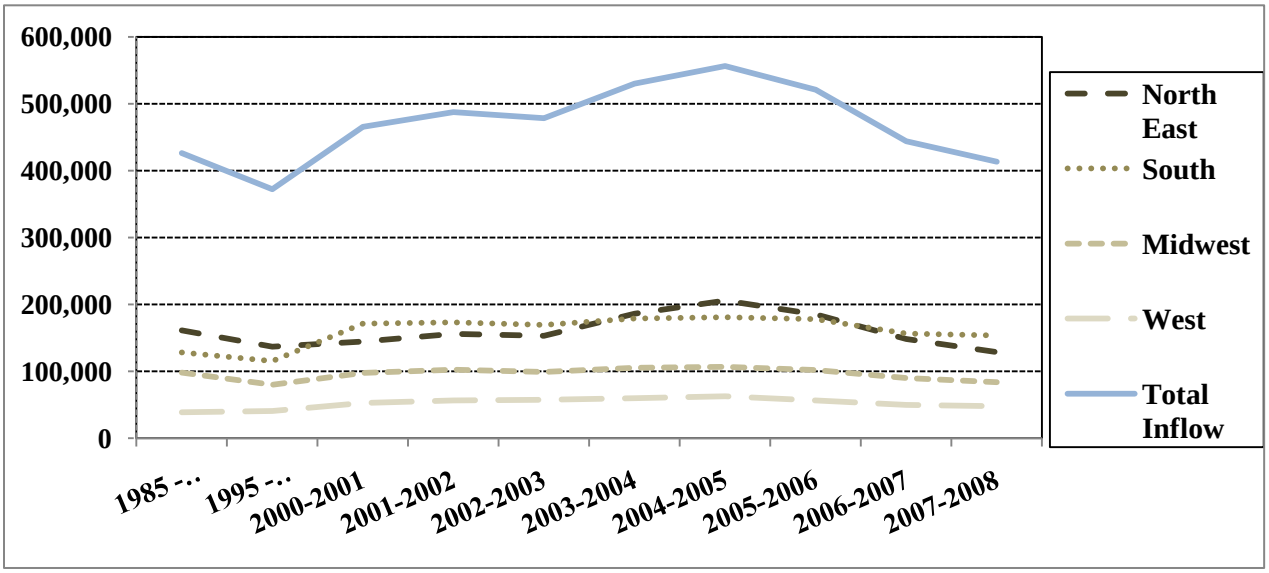
statistically when this change occurred by identifying a structural break through the yearly binary variables. Finding a statistically significant negative coefficient would tell us for that year net inflow to Florida was significantly lower than the average net migration patterns during 1995 to 2000.

1.3 Findings: Regional Migration Flows

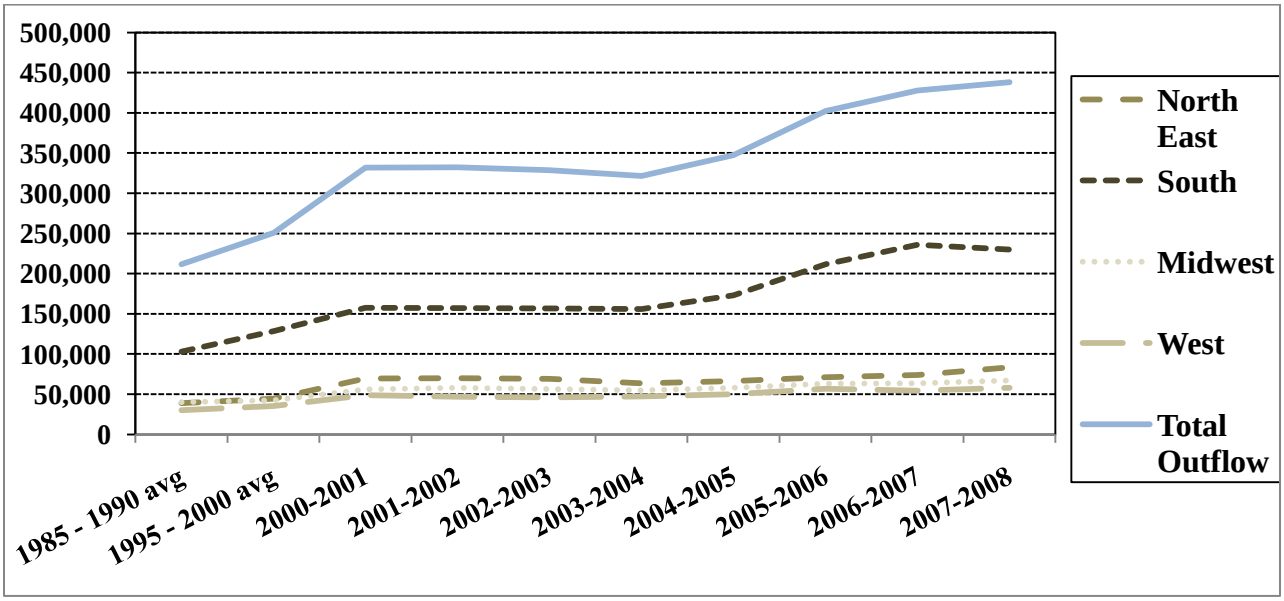
Although there has been much talk about 2009's population decline, the downward trend in migration began much earlier in Florida. The changing trend is seen in both in- and out-migration data. Through our analysis we have attempted to identify the year in which a structural break occurred. We consider 2005 the last "normal" year, and this is apparent when considering Graphs 1.A-1.C below. Graph 1.A looks at historical Florida gross inflow. Graph 1.B shows historical gross outflow and Graph 1.C looks at net in-migration to Florida. Looking at Graph 1.C, in 2005, nearly 209,000 more U.S. residents moved into Florida than left the state that year. This number is slightly above the net inflow seen in 2004. In 2006 net inflow to Florida dropped by 90,000, and this sharp decline continued into 2007 when it fell by an additional 102,000. In 2008 the net inflow fell at a slower rate, but it was enough to result in net outflow from the state. In addition to the three graphs below Table A.3 in Data Appendix A gives the net migration numbers for these years. Although 2008 is the last year of available data, we can infer that net in-migration to Florida fell further contributing to the 2009 negative population growth estimate for the state. Despite net in-migration falling to almost -25,000 in 2008, Florida's population grew due to a natural increase. It is safe to assume that natural population increase stays relatively constant in the short run, that being said, net migration must have fallen even further to result in a population decline for Florida in 2009.

Graphs 1.A through 1.C capture the changes in domestic migration that have Florida officials worried. The rise and fall of gross inflow to the state is largely a result of fluctuations coming from the North East region of the U.S., while changes in gross inflow from the West and Midwest are very small. It is clear that people stay relatively close when moving out of Florida as the largest increases in gross outflow from the state resulted from individuals moving to other states in the Southern region of the U.S. More detailed tables can be found in the data appendix which shows the gross and net flows to and from Florida per region, division, and state over this time period.

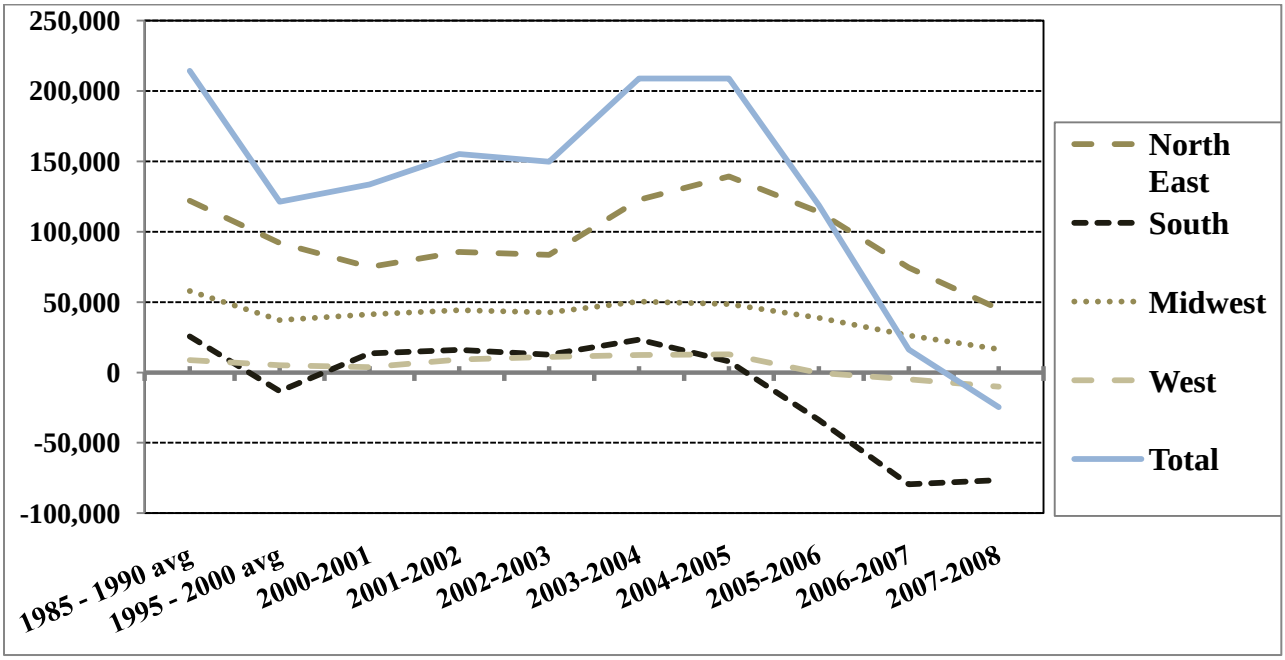
Graph 1.A: Historic Gross Inflow into Florida



Graph 1.B: Historic Gross Outflow from Florida



Graph 1.C: Historic Net Migration in Florida



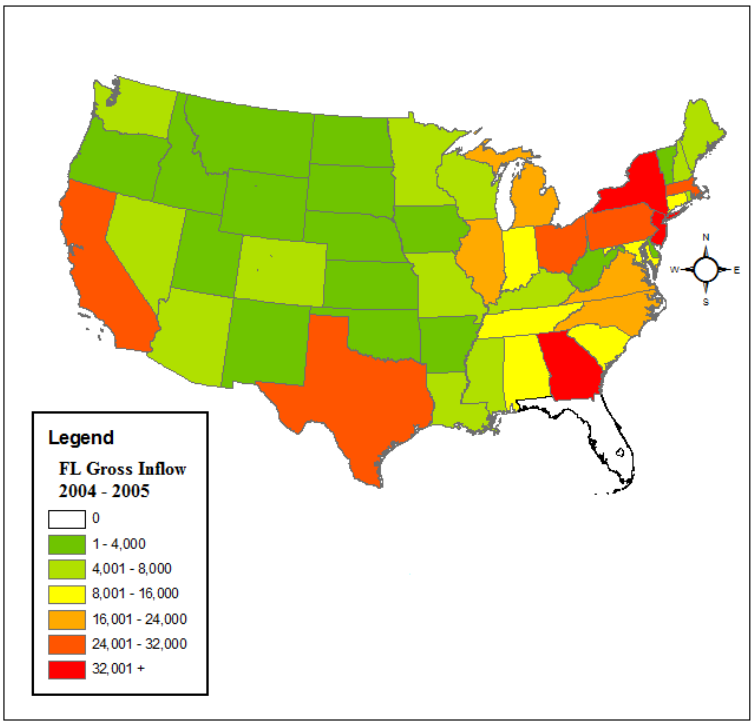
1.4 Findings: State-to-State Migration Flows

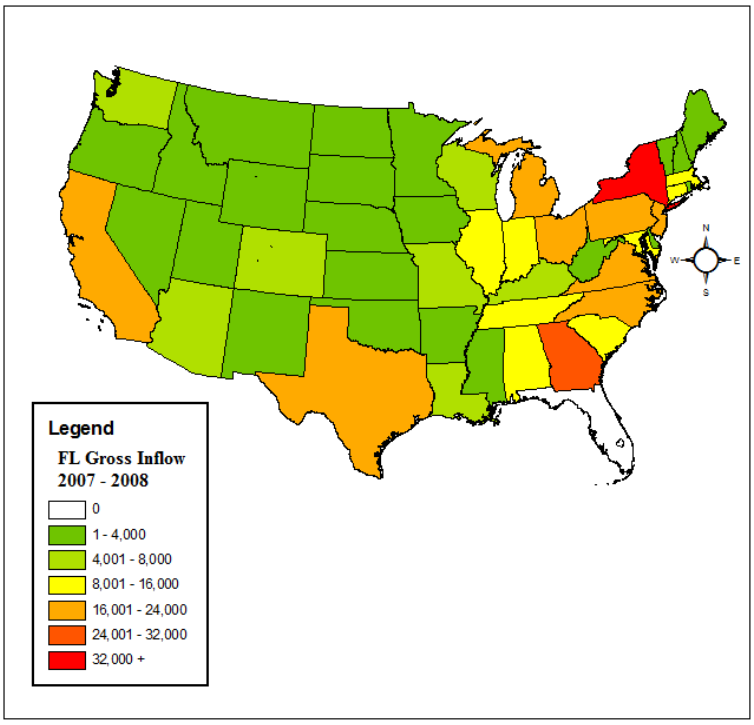
Inflow to Florida

In addition to displaying the aggregate flows of persons coming to and from Florida with respect to the Census defined Regions of the United States, it is beneficial to take a closer look at the magnitudes of flows at the state level. Figures 1.D and 1.E below compare the gross inflow to Florida from all other states in 2005 and 2008. As later proven by our analysis of a structural break in section 1.5, 2005 was the last normal year of migration trends, while 2008 was a poor year for net migration in Florida. It was the first year it fell negative as well as the most recent year with data available. Only the continental states are shown on the maps below.

The states colored red are those that contributed gross inflows greater than 32,000 persons. In 2005 these states included Georgia, New York, and New Jersey. California, Texas, Pennsylvania, and Ohio are all colored a deep orange, as each lost between 24,001 and 32,000 residents to Florida in 2005. Looking at Figure 1.E we see that this changed drastically in 2008 when only one state, New York, continued to send more than 32,000 individuals to Florida. Similarly all of the deep orange states mentioned previously only provided between 16,001 and 24,000 persons to Florida in 2008. Other states with notable decreases in the amount of outflow to Florida between these years are Illinois, Massachusetts, and New Jersey, for which there are tables in Data Appendix A.

Figure 1.D and 1.E. Inflow to Florida 2004-2005 and 2007-2008



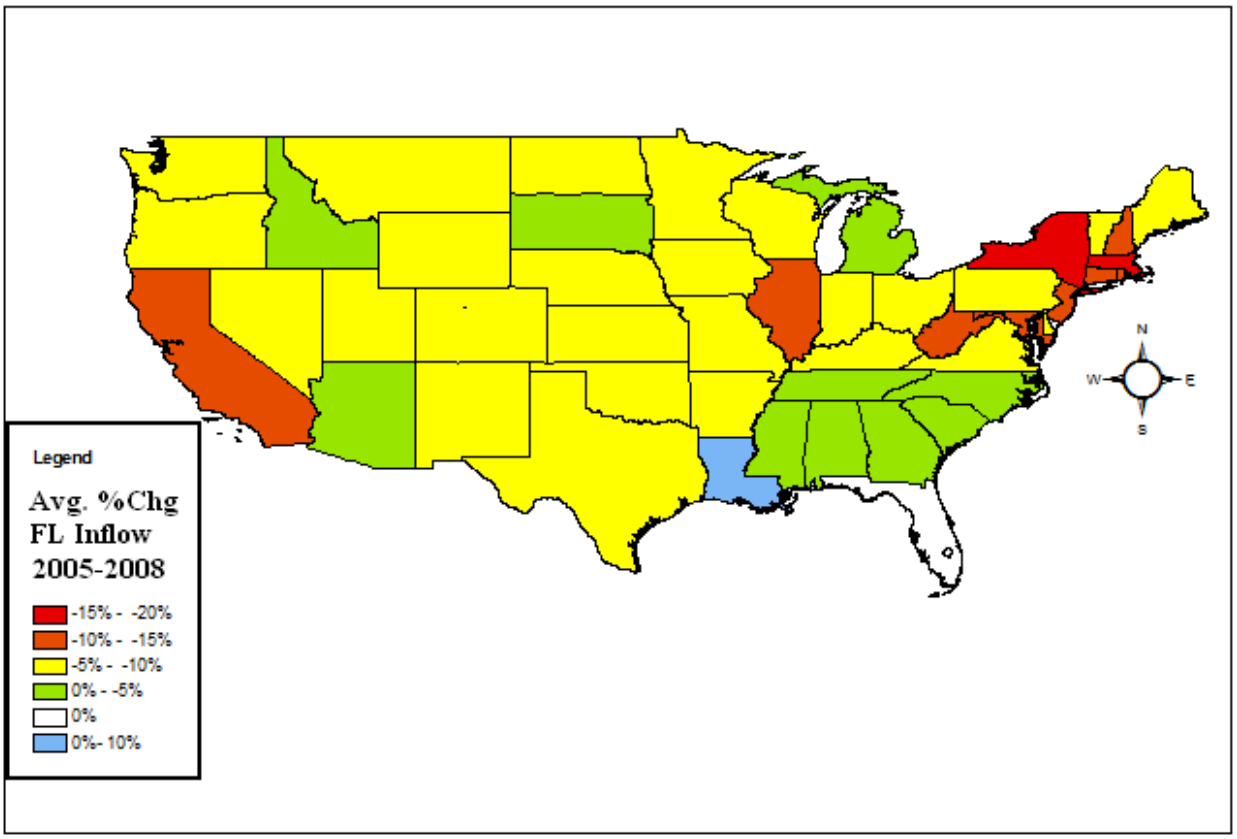


Given that there are states with large populations and flows of people coming to and from Florida it is also beneficial to consider migration flows in terms of percentage change. By doing so we can compare states that send large amounts of inflow, such as New York, to those states with more modest population flows.

Figure 1.F below shows the average annual percent change in gross inflow to Florida from 2005-2006 through 2007-2008. We see that inflow to Florida from (most) other states have been on the decline. Looking at Figure 1.F. we see that Louisiana is the only state from which Florida realized an increase in inflow as an average annual percent change from 2006 to 2008. Because of Hurricane Katrina we believe Louisiana stands out as an outlier. After Katrina hit the state in October of 2005 many residents relocated temporarily to nearby states.

The decline in gross inflow has been most severe from the North East. Inflow from New York and Massachusetts is down between 15 and 20%. While inflow from Connecticut, New Hampshire, and New Jersey has declined between 10 and 15% as a per annum average from 2005 to 2008. California and Illinois also fall in the -10 to -15% range. Florida has realized a decline in gross inflow from most states in the -5 to -10% range; however from the majority of the states in the South, inflow has decreased only between 0 and -5% over these years. Outflow from Florida to other states in the South is a concern, however.

Figure 1.F. 2006-2008 Average Year-to-Year Percent Change in Gross Inflow to Florida



Out-Migration from Select States

Next, we will take a closer look at some of the key outflow states to see how total outflow has changed and how it compares to the changes in outflow specifically to Florida. Also, it will be important to know where residents of these states are migrating to if not Florida. In the following tables and paragraphs, we examine at least one state from each Region of the U.S.

New York has historically been the largest feeding state for Florida. California and Texas, by having large populations, tend to be a large source of inflow too. Also, Georgia, being in such close proximity, tends to send a large number of migrants into Florida. Table A.7, in Data Appendix A, shows how these states have been providing less in-migrants beginning in 2006 using year-to-year percentage changes

Table A.7 in the appendix shows how inflow to Florida from New York has fallen on average 16% per year from 2006 to 2008. In Table 1.1 (below) we further investigate how the total outflow from New York has changed in both magnitude and in distribution. While overall gross outflow from New York has been declining since 2005, outflow to Florida has fallen at a faster rate as shown by the percentage of outflow to Florida relative to the total domestic outflow from New York each year.

Table 1.1: Gross Outflow from New York

Outflow From New York	2004-05	2005-06	2006-07	2007-08
Total Domestic Outflow	385,375	383,235	355,923	339,191
Outflow to Florida	85,619	76,947	60,064	50,195
% of Total Outflow to FL	22.22%	20.08%	16.88%	14.80%

Although inflow to Florida from New York has declined over this time period, some states have seen increases in inflow from New York. Table 1.2 shows a handful of states that have realized both increases and decreases in the amount of inflow. All states other than New York were given an ordinal rank by the average percent change in inflow from New York for the years 2006 through 2008. Only select states are shown in Table 1.2. We eliminated small states whose percent changes are misleadingly large and focused on states that may be competing with Florida for inflow from New York and the rest of the U.S. The ranking (1-50) of each state relative to all others is ordered from the largest average percent change to the smallest. We see that Florida is dead last, averaging more than 16% less inflow from New York each year from 2005 to 2008. Southwestern states that compete with Florida for retirement migration, such as New Mexico and Arizona, are also seeing large declines in their inflow from New York. The states that are realizing increased inflow from New York tend to be other Southern states like Texas and North Carolina.

Table 1.2: Percent Change in Gross Outflow from New York

Rank	Avg % Chg 2005-2008	
3	UTAH	8.26%
4	TEXAS	7.97%
8	ARKANSAS	6.42%
10	NORTH CAROLINA	5.15%
11	MISSOURI	4.08%
15	KENTUCKY	3.49%
17	ALABAMA	2.70%
25	GEORGIA	1.46%
44	NEW JERSEY	-5.18%
45	DELAWARE	-5.24%
46	ARIZONA	-5.47%
47	VIRGINIA	-5.88%
48	NEVADA	-9.59%
49	NEW MEXICO	-10.67%
50	FLORIDA	-16.17%

Similar to New York, outflow from New Jersey to Florida is falling at a faster rate than total outflow from the state. During the last normal year of migration flows to and from Florida, nearly 20% of New Jersey's total domestic outflow was to Florida. This fell to only 13% in 2008. Outflow from New Jersey has greatly increased to Texas and "halfback" states like North and South Carolina. Arizona has seen an abrupt drop in inflow from New Jersey during these years, although the decrease is not as severe. Tables A.9 and A.10 in Data Appendix A highlight these facts.

Pennsylvania is no different from the other Mid Atlantic states. Texas realizes increased inflow from the state along with many South Eastern states, such as the Alabama, Georgia, and the Carolinas. Once again Florida and New Mexico see the greatest decrease in migration from Pennsylvania. Please consult the data appendix (Tables A.11 and A.12) for a closer look at Pennsylvania.

California is a large state with large outflow, over a half million residents move from the state annually, and it is the where the bulk of migration from the West originates. Florida makes up a small share of California's overall outflow, but it is declining nonetheless. It seems to be a reoccurring theme that states with the largest increase in outflow going to Texas also see the largest decrease in Florida.

Table 1.3: Gross Outflow from California

Outflow From California	2004-05	2005-06	2006-07	2007-08
Total Domestic Outflow	552,659	594,330	562,517	500,691
Outflow to Florida	27,379	24,303	20,120	18,213
% of Total Outflow to FL	4.95%	4.09%	3.58%	3.64%

Overall, outflow from California to most states declined. While Florida continues to rank last in average year-to-year percent change from 2006 to 2008, it was closely followed by Arizona. The "halfback" states North and South Carolina realized small increases in migration from California over this period; but overall, due to a slowdown in migration from California, only a handful of states realized increased inflow from the state.

Table 1.4: Percent Change in Gross Outflow from California

Rank	Avg % Chg 2005-2008	
1	TEXAS	9.84%
9	SOUTH CAROLINA	2.13%
10	NORTH CAROLINA	2.00%
15	TENNESSEE	-0.08%
24	NEW MEXICO	-1.71%
32	GEORGIA	-2.59%
34	ALABAMA	-3.16%
36	WEST VIRGINIA	-3.27%
49	ARIZONA	-11.96%
50	FLORIDA	-12.64%

Outflow from Ohio, a major source of Florida inflow from the Mid West, continues this trend. Overall domestic outflow from the state has been larger than that from 2005 in every year since; but despite this increasing outflow, migration to Florida has fallen from over 14% to less than 11%. New Mexico and Florida ranked at the bottom of states realizing the greatest percent change in annual inflow from Ohio, while Arizona's gain is negligible. Again, Texas and the Carolinas see relatively large increases in the amount of inflow they receive from Ohio

Table 1.5: Gross Outflow from Ohio

Outflow From Ohio	2004-05	2005-06	2006-07	2007-08
Total Domestic Outflow	173,407	180,135	177,125	178,109
Outflow to Florida	24,772	24,323	21,079	19,264
% of Total Outflow to FL	14.29%	13.50%	11.90%	10.82%

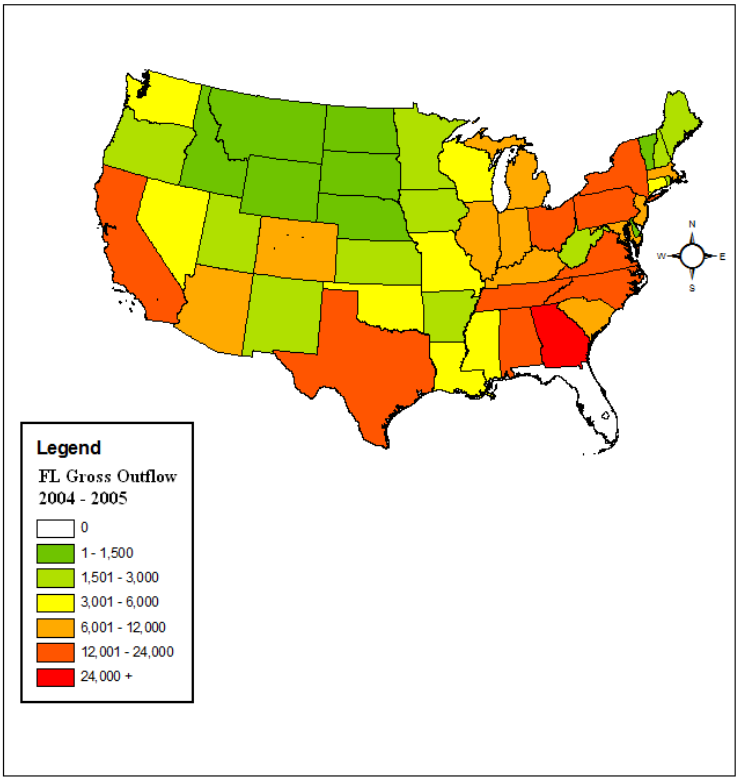
Table 1.6: Percent Change in Gross Outflow from Ohio

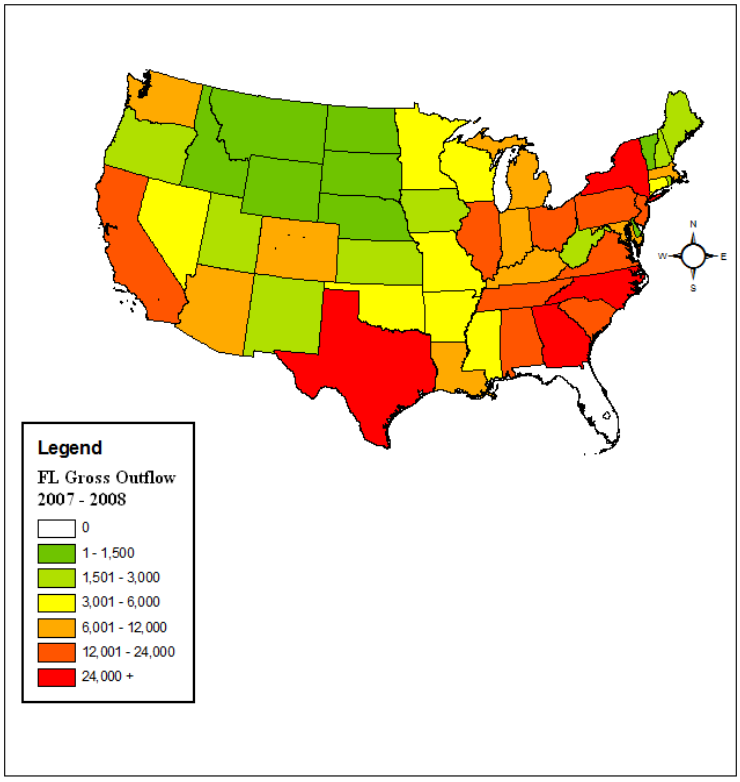
Rank	Avg % Chg 2005-2008	
7	TEXAS	8.64%
9	NORTH CAROLINA	7.31%
13	SOUTH CAROLINA	6.58%
23	ALABAMA	2.93%
30	TENNESSEE	1.91%
31	GEORGIA	1.87%
37	ARIZONA	0.79%
38	VIRGINIA	0.58%
48	NEW MEXICO	-4.00%
49	FLORIDA	-7.92%

Outflow from Florida

Coupled with the decrease in gross inflow to Florida has been an increase in out-migration from the state. In 2005, there was only one state that received more than 24,000 migrants from the state of Florida, which was Georgia. Comparing this to 2008 (Figure 1.H), we see four states that Florida residents relocated to at this magnitude: Georgia, North Carolina, Texas, and New York. Meanwhile, many states receiving between 6,000 and 12,000 migrants from Florida in 2005 received more than 12,000 from Florida in 2008. These states include South Carolina, Illinois and New Jersey. The increase in outflow from Florida to North and South Carolina raises the concern regarding "halfbacks"; while increases in outflow to states such as Texas, New York and New Jersey are more likely people relocating because of employment.

Figure 1.G and 1.H: Outflow from Florida 2004-2005 and 2007-2008



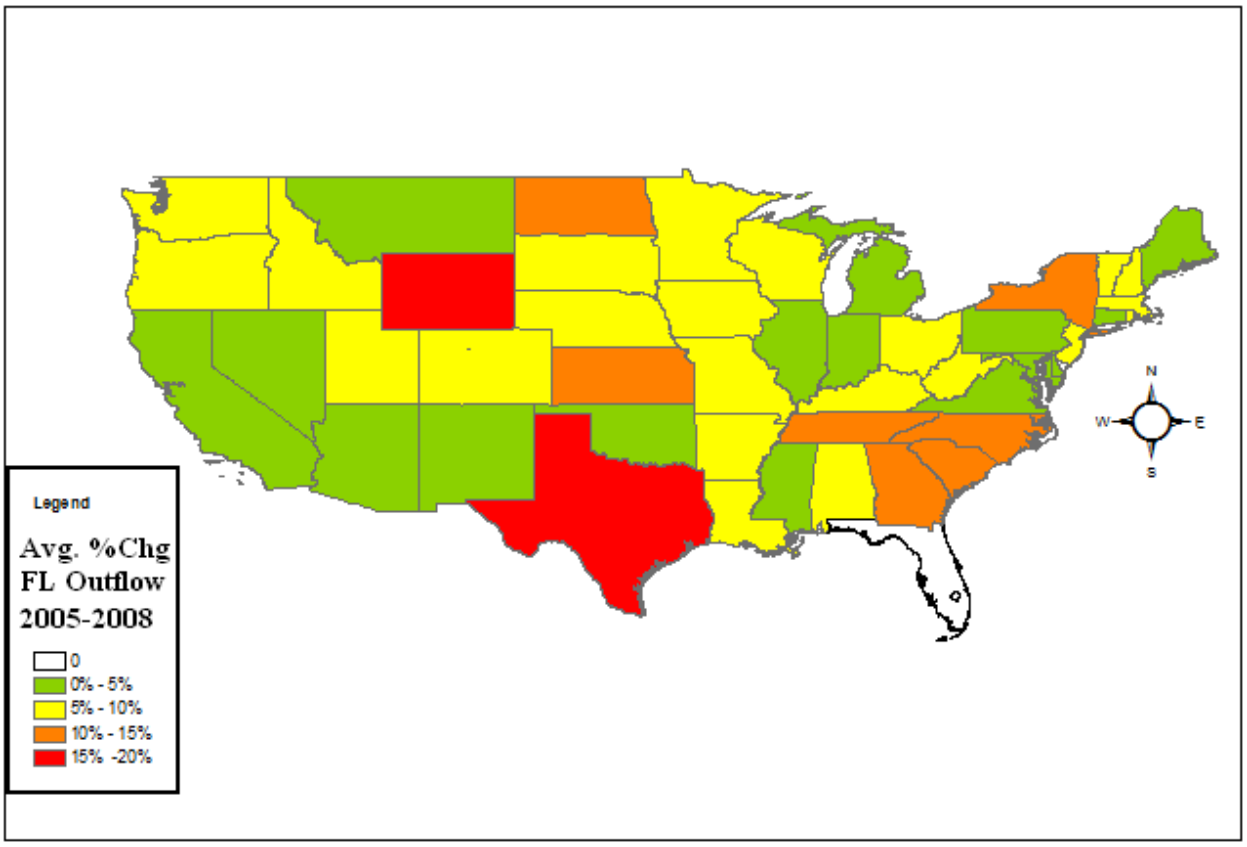


Let us consider changes in outflow from Florida in terms of average year-to-year percentage change from 2006 to 2008. As shown in Figure 1.I, we see that the average yearly percent change in outflow from Florida during this time period is positive to every state. A few states received an increase of less than 5% in gross inflow from Florida, but most states realized outflow from Florida increase by over 5%. Gross outflow from Florida to Texas and Wyoming increased the most in terms of percent change, between 15 and 20%. Wyoming, with less than 1,000 in-migrants from Florida annually, is likely to be more volatile, and therefore, an outlier in our analysis. Texas, however, is a large state receiving just over 25,000 migrants annually from Florida during the early 2000's. This increased to 30,000 and 35,000 in 2007 and 2008 respectively.

New York and many South Eastern states received average yearly gains between 10-15% in outflow from Florida. Similar to Texas, New York received around 20,000 migrants from Florida for much of the 2000's, but this number has grown considerably over the last few years. In the South, Florida has greatly increased its outflow to Georgia, Tennessee and the Carolinas from 2006 to 2008. But it is difficult to infer whether these are retirees or people relocating for employment until conducting a demographic analysis.

Table A.8, in the data appendix, shows the percentage change of outflow from Florida to 12 select states. The most notable state is Georgia which received a 28.8% increase of gross inflow from Florida from 2005 to 2006, followed by a 20.4% increase in 2007. The increasing amounts of Floridians moving to North Carolina, South Carolina, Kentucky, and Tennessee (see Data Appendix A Table A.8) may be the "half-backs" discussed earlier. Similar to the closer looks we have taken at states from which Florida has seen declining inflow, we will look at the select states to which Florida has increased its outflow, as well as states that may be competing with Florida for migration.

Figure 1.I: 2005-2008 Average Year-to-Year Percent Change in Outflow from Florida



In-Migration: Select States

North Carolina saw a large spike in gross inflow in 2006, which grew more modestly in 2007 but has since leveled off. The largest contributing states to this recent increase in gross inflow are Michigan and Florida. A concern is that states which typically provide retired migrants to Florida are now seeing their residents retire initially in the halfback states. Instead of halfbacks they are only 'half-downs.' With North Carolina seeing an average annual percentage increase in gross inflow of over 7% from New Jersey and Ohio as well as increases above 5% from New York and Pennsylvania. This apparent change in elderly migration is a serious concern.

Table 1.7 Gross Inflow to North Carolina

Inflow to North Carolina	2004-05	2005-06	2006-07	2007-08
Total Domestic Inflow	235,799	267,527	277,346	274,996
y2y% Change	-	13.46%	3.67%	-0.85%

Table 1.8: Percent Change in Gross Inflow to North Carolina

Rank	Avg % Chg 2005-2008	
2	MICHIGAN	17.46%
3	FLORIDA	14.25%
8	ARIZONA	8.13%
10	NEW JERSEY	7.95%
11	NEW MEXICO	7.69%
12	OHIO	7.31%
19	PENNSYLVANIA	5.48%
20	NEW YORK	5.15%
32	TEXAS	3.11%
38	CALIFORNIA	2.00%

Arizona and New Mexico are two South Western states that have been rivaling Florida for retirement migration. Arizona received an increase in gross inflow from the previous year in 2006, but since then they have less inflow to the state. The states that tend to feed Florida, such as New York, New Jersey, Illinois, and Massachusetts, are sending fewer migrants to Arizona as well. New Mexico is seeing a similar trend. The states mentioned above are averaging between 5% to 9% percent less domestic migration into Arizona annually from 2006 to 2008. Below are Tables 1.9 and 1.10 highlighting the changes in inflow to Arizona, while similar tables for New Mexico can be found in Tables A.13 and 14 of the data appendix.

Table 1.9: Gross Inflow to Arizona

Inflow to Arizona	2004-05	2005-06	2006-07	2007-08
Total Domestic Inflow	222,514	231,452	202,706	189,870
y2y% Change	-	4.02%	-12.42%	-6.33%

Table 1.10: Percent Change in Gross Inflow to Arizona

Rank	Avg % Chg 2005-2008	
2	MICHIGAN	14.85%
8	MAINE	3.23%
9	GEORGIA	3.16%
12	FLORIDA	1.67%
31	TEXAS	-3.00%
40	NEW YORK	-5.47%
44	ILLINOIS	-7.32%
46	NEW JERSEY	-8.04%
47	MASSACHUSETTS	-9.05%
49	CALIFORNIA	-11.96%

Texas saw a tremendous growth in gross inflow in 2006 (due to Katrina), which has slightly fallen in the past two years. Still, 2007 and 2008 were well above their 2005 migration levels. The only state Texas has seen a decrease in inflow has been Vermont. The largest contributors to Texas' inflow change have been Michigan and Florida. States that generally feed Florida retired migrants, such as New York and New Jersey, have greatly increased the amount of outflow to Texas, however, these states have large working age populations as well. Similar to Texas, many states realized a large spike in migration in 2006 which then leveled off in subsequent years. South Carolina, Tennessee, and Georgia had large spikes in gross inflow in 2006, which slightly decreased in 2007 and 2008, but the drop in inflow left these states above their 2005 numbers as well. Tables for each of these states can be found in Data Appendix A.

Table 1.11: Gross Inflow to Texas

Inflow to Texas	2004-05	2005-06	2006-07	2007-08
Total Domestic Inflow	367,442	497,625	461,085	463,563
y2y% Change	-	35.43%	-7.34%	0.54%

Table 1.12: Percent Change in Gross Inflow to Texas

Rank	Avg % Chg 2005-2008	
2	MICHIGAN	17.52%
3	FLORIDA	16.40%
5	ARIZONA	12.34%
8	NEW JERSEY	11.45%
15	GEORGIA	10.23%
16	CALIFORNIA	9.84%
19	OHIO	8.64%
23	NEW YORK	7.97%
33	PENNSYLVANIA	6.63%
38	NEW MEXICO	5.89%
39	MASSACHUSETTS	5.61%
44	ILLINOIS	3.76%

1.5 Structural Break Analysis

Although the previous graph of net in-migration, Graph 1.C, shows a distinct drop in net migration to Florida in 2006, we feel it is important to prove statistically that this is in fact occurred. The five-year average of net inflow to Florida from 1995 to 2000 is not included as a binary variable to avoid the dummy variable trap and to serve as a base year. The average net migration to Florida between the years 2000 and 2005 is what we believe to be normal migration patterns, increasing by 12,000 annually. Net inflow to Florida from 1995 to 2000 averaged over 121,000 per year. In 2001 this grew to over 133,000 and then increased to over 155,000 in 2002, a growth of 12,000 net in-migrants per year each time.

Given that the 1995 to 2000 average net migration is the omitted dummy variable; all coefficients of other years show their relation to the average net inflow over this time period. Since this is a panel analysis including forty-one states in the continental U.S., the intercept and coefficients represent the average net inflow to Florida from each of these states. The intercept, or constant, represents the gross inflow Florida would expect from the average state (of those included in the sample space) in a normal year. The coefficients for each yearly dummy are to be interpreted with respect to the intercept. A negative coefficient, for example, shows that net inflow to Florida is less than the intercept year. The results can be found below.

Table 1.13: Net Migration Regression Output

Net Migration	Coefficient	P>|z|	[95% Conf. Interval]	
Intercept	2887.3	0.028	310.8	5463.7
2001	295.7	0.665	-1044.5	1635.8
2002	838.1	0.220	-502.1	2178.3
2003	719.5	0.293	-620.7	2059.6
2004	2137.2	0.002	797.0	3477.4
2005	2142.4	0.002	802.2	3482.5
2006	-948.0	0.089	-1832.6	-63.5
2007	-2472.8	0.000	-3812.9	-1132.6
2008	-3441.1	0.000	-4781.3	-2100.9

Relating each coefficient to the intercept we see that net migration was expected to be higher every year from 2001 through 2005. 2001 through 2003 saw relatively small positive coefficients which were not statistically significant. The coefficients for the 2004 and 2005 dummy variables, however, were large and positive, as well as significant at the 1% level. These were the two years when migration to Florida peaked, both years Florida realized over 208,000 in net migration. The dummy variable for 2006 is our focus; we believe the structural break occurred in this year. The coefficient is negative and significant at the 10% level, proving that net migration for this year was significantly lower than that of a normal migration year. The dummy variables for 2007 and 2008 were also negative and significant at the 1% level. In 2008 the negative coefficient is large enough to where adding it to the intercept results in a negative number. This was expected considering 2008 was the first year in which Florida received negative net migration.

Section 2: Demographic Analysis of In- and Out-Migration

Section 2.1: Data

The logistic regression relied on two data sources: the American Community Survey (ACS) [22-23] and the March Supplement of the Population Survey[24-32]. Both of these surveys come from the U.S. Census Bureau. The logistic regression was run through each independently of the other. The American Community Survey is an on-going survey sent to approximately 10% of the U.S. population annually. The ACS is an attempt to provide reliable estimates of the U.S. Population during non-Census years. The years for our study will be the 2008 and the 2005 survey. The data is retrieved from the Census's data analysis and extraction tool called DataFerret. Approximately 210 variables are available at the individual and household level. For our purpose, 15 variables were extracted. Please see Table 1 for all of the relevant variables.

We would like to discuss the reasons why the key descriptive variables were chosen. Both of our data sets provided us with an excess amount of descriptive variables to choose from. These variables ranged from the relatively mundane (i.e. Sex, Race, Age) to the fairly complex (Indian Health Care). To avoid confusing the client, the decision was made to limit our analysis to the fairly common (i.e. mundane) statistics. Some of these common statistics were not explicitly asked by either of the surveys, and proxies for these variables were used. For example, neither of the surveys asks the individual if he or she is retired. Instead, they are asked if they have received (and how much) Social Security in the past year. We used that as a proxy for retirement. Even our conservative selection of variables has led to descriptive statistics of 14 demographic qualities.

Table 2.1: Explanatory Variables for Logistic Regression

Gender		**Youth**	
Female	0	Age not between 18 to 34	0
Male	1	Age between 18 to 34	1
Education Attainment		**Total Household Income**	
No High School Diploma	0	Bottom 25th Percentile	0
High School Diploma	1	25th - 50th Percentile	1
College Degree	2	50th - 75th Percentile	2
		Top 25th Percentile	3
Hispanic		**Black**	
Not Hispanic	0	Not African-American	0
Hispanic	1	African-American	1
Married		**Homeowner**	
Single	0	Rent/Not a Homeowner	0
Married	1	Homeowner	1
Family		**Retired**	
No Children under 18	0	Not Retired	0
Children under 18	1	Retired	1
Employed		**Unemployed**	
Not in the Workforce	0	Not in the Workforce	0
Currently Employed	1	Currently looking for Work	1
Old			
Age not over 65	0		
Age over 65	1		

Before our regressions were run, extensive formatting of the data was done. First, out of the 3 million observations, around 189,446 observations were kept for 2008 and 180,970 were kept for 2005. These relevant observations were either current Florida residents or past Florida residents who migrated-out the year before. Since the logistic regression requires a dummy variable as the dependent variable, an additional variable was created called 'outmigration'. Observations of current Florida residents were assigned a 0 in the 'outmigration' column. Observations of past Florida residents were assigned a 1 in the 'outmigration' column.

Our explanatory (demographic) variables also had to be formatted to allow for our logistic regression to run properly. For example, the raw educational variable had 24 different classifications. We recoded it into only 3 classifications: No High School Diploma, High School Diploma, and College Degree. This process of condensing and simplifying the raw variables occurred frequently.

The March Supplement of Population Survey (MPS)[24-32] was obtained using a similar process. The data was gathered through the Census's DataFerret program. 7-years (20-2009) of the MPS were obtained. Since the MPS is a different survey than the ACS, the descriptive variables downloaded were different. However, through our process of recoding, the formatted data for both surveys used in the regression will be identical. For example, the educational variable from the MPS had 17 different classifications, not like the ACS which had 24 classifications. Our recoding process then condensed it into the identical 3 classifications we have discussed earlier.

The limitation of the MPS is the size of each annual dataset. For 2009, the survey contains only about 7,500 observations related to Florida and past Florida residents. Of the 7,500, only 214 of these observations were of out-migrants. Comparing this to the ACS, where over 189,000 observations are available; we see a large discrepancy in the size of the two datasets. We expect a similar number of observations for the other years of the MPS that we use.

The demographic make-up of both surveys will be slightly different from the true demographic make-up of the whole population. Certain demographics are underrepresented in the surveys, and weights have been applied to correct for this problem. The adjustments are

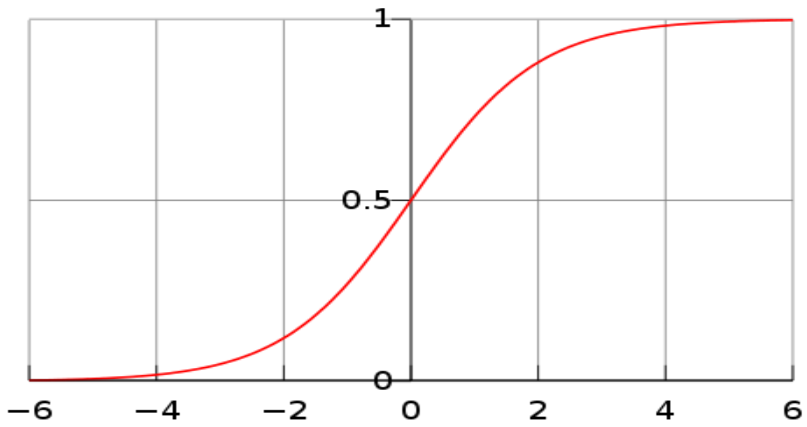
based on the 2000 Census (U.S. Department of Labor, 2006). The adjustments are reflected in our summary statistic results for both of the surveys.

2.2 Empirical Strategy

Individual-level summary statistics of non-migrants and out-migrants of Florida was done. The individual-level characteristics are: gender, marital status, age, race, income-level, educational attainment, homeownership, poverty level and retirement. The summary statistics are compared against each other looking for clear differences to emerge that will distinguish out-migrants from the rest of Florida's population. Individual-level summary statistics were performed in two periods: a more recent year and a historic year. The comparison of these two years tells us if the demographic make-up of out-migrants has changed in the past several years. A logistic regression was used to calculate the probabilities that key demographic characteristics have on moving out of Florida. The completed logistic regressions told us of the relative magnitude of each characteristic and if the characteristic is a significant determinant of out-migration.

The decision to use a logistic regression was due to the binary nature of our dependent variable. The variable (out-migration) was assigned only two values: 1 or 0. It would be assigned a 1 if the observation out-migrated. A 0 if the observation did not depart from Florida. A logistic regression's inputs can be from negative to positive infinity, but its output is between 0 and 1. A graphical representation of a logistic curve is found below.

Graph 2.A: A Logistic Curve



An ordinary least-squares (OLS) regression wasn't used due to the binary nature of our dependent variable. A couple of the underlying assumptions of OLS cannot be true under our conditions. According to Dr.Allison, by violating these two assumptions we may encounter a biased coefficient estimate and a biased t-test statistic for our results (Allison, 2001).

The relative magnitude can be measured in two different ways from our output results. The first measurement comes from the coefficients obtained for each explanatory variable. The coefficient tells you the likelihood of out-migration occurring if a 1-unit increase in the explanatory variable occurs. The size of the coefficient will be a measure of the magnitude.

The second relevant output result is the odds-ratio table. The odds-ratio table tells us the predicted odds of out-migrating if the individual contains that demographic characteristic. For example, if the odds-ratio on our Hispanic variable is 1.49 then the odds of a Hispanic individual out-migrating is 49% higher than non-Hispanics. The odds-ratios do control for the other explanatory variables when making that prediction.

The significance of each variable will be tested based on a chi-square test. The chi-square test will inform us whether this demographic characteristic is a significant determinant of out-migration. Our significance level will be at 5%.

The last part of this section deals with the changes in the propensity of demographics to leave Florida over time. To do this, we relied on the use of interaction variables to uncover whether a statistically significant change has occurred. An "interaction variable" is a variable constructed from other variables in the regression. In this case, the "interaction" is the previous dependent variables times a dummy variable. The dummy variable is 0 for certain years and 1 for other years. The deciding factor (whether it will be 0 or 1) was be based on our analysis of the aggregate structural break from the previous section. For example, if we discover that the change occurred in 2006, then the dummy will be 0 from 2002 through 2005 and 1 from 2006 through 2009. The creations of interaction variables will double the amount of independent variables in our logistic regression.

The interaction variables tested whether the probability of out-migrating has changed after the structural break occurred. Each descriptive variable was tested. Specifically, the interaction variables tested whether the slope of the variables changed between the two periods. The chi-square test for each interaction variable will determine if it is a statistically significant change.

2.3 Findings

We will begin with summary statistics from the Current Population Survey (CPS). Our data relies on the 2009 March Supplement of the CPS. In Table 9, the demographic make-up of non-movers and movers is compared. The results point to clear differences in the make-up of

these two groups. The clearest differences in Table 9 are marital status, the 18 to 34 age group, the 65 and older age group, and racial status.

These differences can easily be explained by prior research into historical demographic trends. It is well known that an individual's propensity to migrate-out peaks in their mid-twenties. Whether it is due to the flexibility of youth or the lower costs of migration, our summary statistics support prior research into the topic. For marital status, prior research has shown that marriage is a large deterrent against migration (Pandit, 1997).

The 65 and older age group difference goes against the research. The typical age schedule of migration sees a bump in migration during that age period. Our preliminary analysis appears to show that the elderly were less likely to leave. The most likely reason to explain the discrepancy is that Florida is a destination state for the elderly, and the bump is attributed to retirees migrating down to Florida, not away from Florida (Pandit, 1997).

The racial statistics show that Whites are over-represented in the non-mover category; while both Hispanics and Black s are under-represented. Again we can return to prior demography research for the answer. Both Blacks and Hispanics migrate less often than Whites. If they do migrate it is to an area where the existing minority population is already large. Additionally, once they've settled into an ethnically-rich area, they are very unlikely to leave. Florida's minority population is above the national average, making it attractive to minority in-migration but less attractive to minority out-migration. Our summary statistics supports this conclusion; and later on, our in-migration section will reconfirm it.

Table 2.2: 2008-2009 Florida Out-Migration Summary Statistics

Florida	Non-Mover	Mover
TOTAL 2008-2009		
	97.40%	2.60%
Marital Status		
Married	43.36%	34.58%
SEX		
Male	48.09%	50.93%
Female	51.91%	49.07%
AGE		
1 to 18	26.60%	26.17%
19 to 34	17.84%	34.58%
35 to 60	36.77%	28.97%
60 to 85	18.78%	10.28%
Race		
White	56.39%	67.76%
Hispanic	25.77%	15.89%
Black	14.18%	7.94%
Other	3.66%	8.41%

Table 10 furthers our analysis of the CPS data. In this table, the key differences that emerge are homeownership and retirement. The retirement difference is not surprising and can be explained from our prior analysis of the 65 and older age group. The homeownership variable difference is explained by the additional costs of migrating due to the act of selling a house. Additionally, due to the poor housing market, many individuals may not be able to sell their house and migrate elsewhere.

Table 2.3: 2008-2009 Florida Out-Migration Summary Statistics

Florida	Non-Mover	Mover
TOTAL 2008-2009		
	97.40%	2.60%
Educational Attainment		
Less than High School	34.62%	38.79%
High School Graduate	36.51%	36.92%
College Graduate	28.86%	24.30%
Household Status		
Homeowner	72.17%	26.17%
Poverty Status	0.95%	1.40%
Retired	15.68%	9.81%
Income Percentile		
Bottom 25th Percentile	19.22%	29.44%
The 2nd 25th Percentile	25.62%	20.56%
The 3rd 25th Percentile	28.28%	28.04%
The Top 25th Percentile	26.89%	21.96%

A key part of our analysis is to answer whether the demographic make-up of out-migrants has changed. We begin this analysis by comparing the most recent year with a historic year. The March Supplement of the CPS provides us with annual data starting in 1992. From our state-to-state analysis, we concluded that 2005 was the last healthy migration year in Florida, so we will be using the 2005 CPS for the comparison.

Looking at Table 11, we see that differences discussed before reemerge in our 2005 out-migration statistics. Three of the previous discussed variables (marital status, 18 to 34 year olds, and racial status) experience differences again. The 60 to 85 year old age group difference reappeared again, but the magnitude was lower. Overall, no apparent difference exists between the 2005 and 2009 summary statistics, but such an observation is best tested using a more statistic approach.

Table 2.4: 2004-2005 Florida Out-Migration Summary Statistics

Florida	Percentage	Percentage
TOTAL 2004-2005		
	97.44%	2.56%
Marital Status		
Married	43.08%	38.10%
SEX		
Male	47.93%	49.78%
Female	52.07%	50.22%
AGE		
1 to 18	28.51%	29.00%
19 to 34	18.07%	25.11%
35 to 60	36.39%	32.03%
60 to 85	17.03%	13.85%
Race		
White	57.11%	73.59%
Hispanic	24.90%	10.39%
Black	14.26%	12.55%
Other	3.74%	3.46%

Table 13 further supports our claim that the demographics of out-migrants have not substantially changed from 2005 to 2009. Much like 2009 summary statistics, the greatest difference between non-movers and movers was in homeownership rates.

Table 2.5: 2004-2005 Florida Out-Migration Summary Statistics

Florida	Percentage	Percentage
TOTAL 2004-2005		
	97.44%	2.56%
Educational Attainment		
Less than High School	38.18%	35.50%
High School Graduate	37.36%	41.56%
College Graduate	24.47%	22.94%
Household Status		
Homeowner	74.15%	45.45%
Poverty Status	1.49%	4.76%
Retired	14.91%	14.29%
Income Percentile		
Bottom 25th Percentile	18.84%	22.51%
The 2nd 25th Percentile	24.85%	34.63%
The 3rd 25th Percentile	27.11%	18.61%
The Top 25th Percentile	29.20%	24.24%

The Logistic Regression

The clear problem with our analysis so far is the lack of statistical support for our conclusions. Our analysis of the data relied primarily on a non-statistical observation method. This method can be useful for large and very apparent discrepancies (i.e. homeownership rates). But where the discrepancy is not very large then a statistical procedure becomes necessary. In this section, our report will rely on a logistic regression.

As already explained in our empirical strategy section, the logistic regression's purpose is to determine whether or not the probability of out-migration increases or decreases based on an individual's demographic qualities. For example, does the person's gender increase or decrease the chance of leaving Florida. It is our hope that this model will allow us to conclusively say that certain demographics' were more likely (or less likely) to move out of Florida in 2009. The demographic variables used in our logistic model can be found on Table 1.

Our results (Table 14) indicate statistical significance for the following variables: Young, Hispanic, Black, Unemployment and Homeowner. The strongest variable, as indicated by their coefficients and chi-square tests, was homeownership. This was followed by the two race variables: Hispanic and Black.

Table 2.6: Logistic Regression Results

Variable	Coefficient	S.E.	Chi-Square	Pr > ChiSq
Intercept	-2.0238	0.3589	31.7977	<.0001
Male	0.0568	0.1444	0.155	0.6938
Married	-0.0348	0.1694	0.0421	0.8374
Family	0.1864	0.1746	1.1401	0.2856
Education	-0.0829	0.1238	0.4483	0.5032
Young	0.5176	0.1732	8.9324	0.0028
Old	-0.0144	0.3411	0.0018	0.9663
Hispanic	-1.672	0.3115	28.8131	<.0001
Black	-1.985	0.3588	30.606	<.0001
Homeowner	-2.1142	0.1723	150.5949	<.0001
IncomePer	0.0668	0.0759	0.7736	0.3791
Unemployment	1.1312	0.2404	22.145	<.0001
Employment	-0.212	0.1964	1.1646	0.2805
Retirement	0.0495	0.3428	0.0209	0.8851

The interpretation of the coefficients is different in a logistic regression when compared to a normal regression. Remember, the logistic model is meant to predict the probability that someone has out-migrated from Florida. Out-migrants were assigned a 1, and non-movers were assigned a 0. Any variable that has a positive coefficient means that the probability of out-migrating increases if an individual possesses that characteristic. The opposite is true for a variable that has a negative coefficient.

Due to the rarity of out-migration (less than 3% of our sample out-migrated), the probability that our model will ever return a predicted value closer to 1 than 0 is rare. The large,

negative intercept handicaps this chance severely. However, the purpose of the logistic regression was not for predictive purposes; but rather, to evaluate what demographics were more likely to leave.

The odds-ratio results can be found below in Table 15. As discussed before in the empirical strategy, the odds-ratio is the probability of out-migrating if that individual possesses that characteristic. For example, our Young variable had an odds-ratio of 1.678. The odds-ratio of 1.678 tells us that the predicted odds of out-migrating for an individual between the years of 18 to 34 are 1.678 times higher than individuals not in that age group (19-34). Young and Unemployed have the largest odds-ratios. Homeowner and Black have the smallest odds-ratios, telling us that these characteristics hinder out-migration.

Table 2.7: Odds-Ratio Results

Variable	Odds-Ratio	95% Confidence Limits	
Male	1.058	0.798	1.405
Married	0.966	0.693	1.346
Family	1.205	0.856	1.697
Education	0.92	0.722	1.173
Young	1.678	1.195	2.356
Old	0.986	0.505	1.923
Hispanic	0.188	0.102	0.346
Black	0.137	0.068	0.278
Homeowner	0.121	0.086	0.169
IncomePer	1.069	0.921	1.241
Unemployment	3.099	1.935	4.964
Employment	0.809	0.55	1.189
Retirement	1.051	0.537	2.057

The above logistic regression relied on data from the 2009 year, after the structural change in migration. Just like our summary statistics, we have completed an analysis for a year prior to the structural break. In appendix B, you will see a logistic regression using 2005 CPS

data. The results are very similar to our 2008 logistic regression. The majority of the significant variables, except for Black, retained their significance. The employment variable became significant with a negative coefficient.

Labor Force Summary Statistics

Two of the more powerful coefficients in our logistic regressions were the Employment (2005 logistic regression) and the Unemployment variables (2005 and 2008 logistic regression). The Unemployment variable had the second highest odds-ratio (behind the Young variable), with a coefficient of 1.406. This can be interpreted as unemployed individuals are 40% more likely to move than individuals not looking for work. In the 2005 logistic regression, the Employment variable had an odds-ratio lower than 1, with a coefficient of .553. This is interpreted as employment decreasing your chances of out-migrating by 45.7%.

The tables below are summary statistics for both of these variables. The summary statistics below presents us with a picture of 3 unemployment rates: Florida, Texas, and the U.S. Average; as well as; the percent of out-migrants who were unemployed. What it shows is additional proof of why Florida is suffering from a population decline.

Table 2.8: Unemployment

Unemployment Rate	
2008-2009	
Florida	11.20%
Texas	8.10%
U.S	9.30%
Mover	28.90%
2004-2005	
Florida	4%
Texas	5.30%
U.S	4.90%
Mover	18.44%

As you can see from the table, a large portion of out-migrants are unemployed. Between the two years, this number has gotten considerably higher, from 18% to about 29% of all out-migrants. At the same time, the unemployment rate in Florida went from below the national average to exceeding it in 2009. In 2005, our net inflow peaked; and at the same time, we saw an unemployment rate below the national average. Now, unable to find jobs in Florida, individuals have relocated from out of the state to areas where the unemployment rate is less severe. Texas is one such state. As we have talked about in our aggregate flow analysis, Texas has seen constant, strong net migration since 2006; no doubt due to a lower unemployment rate.

Replication of Findings

The previous summary statistics and logistic regression was replicated using the American Community Survey (ACS). As discussed earlier in the data section, the ACS is a population survey done annually that replicated the Census long form. The logistic regression from 2008 ACS can be found below in Table 56. The summary statistics and the odds-ratio table can be found in the appendix section of this report.

Table 2.9: ACS 2008 Logistic Regression

Variable	Coefficient	S.E.	Chi-Square	Pr > ChiSq
Intercept	-2.3894	0.1658	207.7637	<.0001
Male	0.0831	0.0308	7.3035	0.0069
Education	0.165	0.0257	41.1717	<.0001
Young	0.5567	0.0369	227.922	<.0001
Old	-0.4499	0.0745	36.4947	<.0001
Hispanic	-0.6208	0.0856	52.6247	<.0001
Retired	-0.1864	0.0755	6.0858	0.0136
Family	0.0996	0.0365	7.4426	0.0064
Black	-0.7372	0.0887	69.0526	<.0001
Married	-0.1007	0.0359	7.8941	0.005
Homeowner	-1.4752	0.0355	1722.608	<.0001
IncomePer	0.0473	0.0148	10.2284	0.0014
Employed	-0.3539	0.0396	79.7185	<.0001
Unemployed	0.3388	0.0647	27.4507	<.0001

The regression results are similar to our 2009 logistic regression. The 4 key variables found earlier are again significant, with strong coefficients as well. The remaining explanatory variables became significant in this regression. The reason why is due to the number of observations in our ACS dataset. The number of observations totaled over 189,000, compared to only 7, 500 observations in our CPS dataset. Both our ACS summary statistics and our ACS odds-ratio table closely replicate our CPS results and can be found in appendix B.

Demographic Changes Over Time

From our earlier analysis of the summary statistics and the logistic regression, we found that the demographics of out-migration haven't changed too much. The one problem with the earlier analysis was the lack of statistical support for a time-series change. The following analysis solves this problem by creating a pooled database and the creation of interaction terms.

A more detailed explanation can be found in section 2.3 .The results of the interacted terms can be found below.

Table 2.10: Out-Migration Interaction Results

Variable	Coefficient	S.E.	Chi-Square	Pr > Chi-Sq
Interaction Male	0.00896	0.0993	0.0081	0.9281
Interaction Family	0.2885	0.1065	7.3449	0.0067
Interaction Education	-0.05	0.0796	0.3957	0.5293
Interaction Young	0.1207	0.1222	0.9762	0.3231
Interaction Old	-0.00763	0.2536	0.0009	0.976
Interaction Hispanic	-0.0356	0.1499	0.0563	0.8124
Interaction Black	-0.7861	0.1618	23.6075	<.0001
Interaction Homeowner	-0.2804	0.1158	5.8613	0.0155
Interaction IncomePer	-0.0801	0.0446	3.23	0.0723
Interaction Unemployment	0.2943	0.2171	1.8382	0.1752
Interaction Employment	0.0742	0.132	0.3154	0.5744
Interaction Retirement	0.2009	0.2496	0.6483	0.4207

Only 3 of the interacted variables were statistically significant at the 5% level. These variables were Homeowner, Black, and Family. The lack of significance for the other variables tells us that the likelihood of out-migrating hasn't changed over time for them. The variables that were significant have seen a change in their probability of leaving Florida since 2006.

The coefficient on the Homeowner variable was negative indicating that the homeowners were even less likely to move-out after 2006. This conclusion isn't too surprising due to the deterioration of the housing market after 2006. The deterioration has led to a market where the inventory of houses exceeds the demand. Many homeowner may be either unable to sell or not willing to sell in such an environment; limiting their ability to out-migrate.

The coefficient on the Black variable was also negative. The reason for this change isn't as clear as the homeowner variable. The relevant literature on black migration points to

education as the deciding factor. Non-educated blacks out-migrate less than other ethnicities. When they do relocate it is to areas with a large African-American population. Educated blacks tend to migrate based less on ethnic population; but rather, on economic opportunities (Frey, 2005). During the past several years, due to the recession, these economic opportunities have fallen nationwide. Therefore; we see the interaction variable as picking-up this fall in out-migration of educated blacks.

The interaction term on the family variable was positive. This indicates that the probability of out-migrating has increased for families since 2006. Historically, families are one of the least likely cohorts to relocate. This cohort does not move due to the higher costs associated with migration and family considerations. However, the deciding factor is employment. Around two-thirds of all migration in this cohort is due to job-related reasons (Bartel, 1979). Since 2006, Florida's unemployment rate has increased dramatically; causing many to lose their job and seek employment elsewhere. This is the likely reason why families have left Florida and why our interaction term was positive and significant.

Multicollinearity Issues

A common problem among statistical procedures is the statistical phenomena of multicollinearity. Multicollinearity is where two or more explanatory variables are highly correlated to each other. If high correlation is present then a potential bias could occur where the coefficient estimates on our logistic regressions are not valid. In our regressions, it is conceivable to see a relationship between the Educational Attainment and Income per Household variables. The Income variable may also be correlated with racial status (Black, Hispanic) or the age (Young, Old) variables.

A statistical procedure to measure the extent of multicollinearity is the variance inflation factor (VIF) test. The VIF test provides a measure of how much of the variance of a regression is determined by collinearity between the dependent variables. The test itself is completed by running numerous OLS regressions with each explanatory variable becoming the dependent variable for at least one regression. Our VIF results can be found below in Table 11. As a rule of thumb, if the variable's VIF is greater than 10 then the variable should be excluded due to multicollinearity issues. Thankfully, all of our variables' VIF numbers were below 5.

Table 2.11: Variance Inflation Factor Test

Variable	Tolerance	Variance Inflation Factor
Intercept	-	-
Male	0.98747	1.01269
Education	0.62874	1.59049
Young	0.82704	1.20914
Old	0.32291	3.09685
Hispanic	0.21496	4.65193
Retired	0.34537	2.89545
Family	0.6546	1.52764
Black	0.27008	3.70257
Married	0.7624	1.31164
Homeowner	0.7935	1.26024
IncomePer	0.74594	1.34059
Employed	0.59069	1.69293
Unemployed	0.91592	1.0918

In-Migration Analysis

Florida's net population loss wasn't entirely due to out-migration. As our state-to-state analysis showed, the population loss was also due to a substantial decrease in inflow to Florida. In this section, we will examine in-migration statistics for Florida. The analysis will be similar to the previous section. We will begin with summary statistics and finish with logistic regressions.

In the Tables below, a comparison of summary statistics for in-migrants is done. The comparison is between 2005, when in-migration peaked in Florida, and 2008, where in-migration was on a downward trajectory. In a prior section, we concluded that the statistical break occurred in 2006, so a comparison of these two years is valid.

Table 2.12: In-Migration Comparison: 2005 and 2008

Florida	2004-2005	2007-2008
	100.00%	100.00%
Marital Status		
Married	43.93%	40.56%
SEX		
Male	50.16%	50.15%
Female	49.84%	49.85%
AGE		
1 to 18	19.47%	21.10%
19 to 34	29.17%	29.18%
35 to 60	33.75%	31.47%
60 to 85	17.61%	18.25%
Race		
White	68.04%	66.64%
Hispanic	18.74%	17.37%
Black	9.36%	11.31%
Other	3.85%	4.67%

The only thing remarkable about this table is the similarity between the two years. The only variable where the difference between the two years exceeds 2% is marital status. Even that difference is weak, with a difference of about 3.37%. Whether this difference is significant will be tested later. Table 13 below is a comparison of our remaining descriptive characteristics.

Table 2.13: In-Migration Comparison: 2005 and 2008

Florida	2004-2005	2007-2008
	100.00%	100.00%
Educational Attainment		
Less than High School	41.07%	29.04%
High School Graduate	38.39%	40.08%
College Graduate	20.54%	30.87%
Household Status		
Poverty Status	0.86%	0.96%
Retired	14.49%	14.25%
Income Percentile		
Bottom 25th Percentile	23.74%	25.31%
The 2nd 25th Percentile	22.61%	24.25%
The 3rd 25th Percentile	19.86%	20.52%
The Top 25th Percentile	33.79%	29.92%

The similarity between the two years continues. The percentage of in-migrants who are retired has not changed between the two years, with the difference less than 0.5%. No change in this variable is good for Florida as retirees represent the wealthiest of in-migrants. The one clear difference in the Table is also positive. Looking at educational enrollment, we see that the percentage of in-migrants who were college graduates increased, while the "less than high school" percentage fell. This difference is surprising and a statistical test will be performed later to test the validity of this result.

A logistic regression was also performed on this data. We relied on the pooled years (2002 to 2009) of the Census's CPS. Like our previous logistic regressions, our explanatory variables are the same. The dependent variable has changed, as we will be testing the probability of in-migrating (as opposed to out-migrating) into Florida. The results can be found below in Table 13.

Table 2.14: In-Migration Logistic Regression

Variable	Coeficient	S.E.	Chi-Square	Pr > Chi-Sq
Intercept	-6.128	0.0961	4062.4808	<.0001
Male	0.1479	0.067	4.8711	0.0273
Family	-0.3581	0.0747	23.0058	<.0001
Education	0.2855	0.0542	27.7391	<.0001
Young	0.4531	0.078	33.7485	<.0001
Old	-0.114	0.1757	0.4208	0.5165
Hispanic	0.5792	0.0826	49.1314	<.0001
Black	0.4605	0.0927	24.6531	<.0001
Homeowner	-1.2318	0.0786	245.8814	<.0001
IncomePer	0.0254	0.0333	0.5798	0.4464
Unemployment	0.0671	0.1544	0.1887	0.664
Employment	-0.4536	0.0852	28.3135	<.0001
Retirement	-0.438	0.181	5.8546	0.0155

The results presented above are very similar to the out-migration logistic regression. This tells us that Florida's migration patterns aren't very different from the rest of United States. The very mobile groups (i.e. Young, Educated) were very likely to in-migrate; just as they were very likely to move from Florida. Individuals less likely to move out of Florida (i.e. Homeowners) were also less likely to in-migrate.

Hispanics and Blacks in-migration coefficients were positive and significant. The odds-ratio table below tells that Hispanics were 78% more likely than non-Hispanics to enter the state, and Blacks were 58% more likely than non-Blacks to move to Florida. A revisit of Table 2.6 tells that their out-migration probability is negative. By considering both of these results, we can infer that Florida is an attractive state for minorities.

The negative coefficient on Retirement and the insignificant result on the Old variable were surprising. Before we ran the logistic regression, we theorized that both of these variables would have positive coefficients. This is a reasonable assumption based on Florida's past history

of heavy inflow from this cohort group. The logistic regression is telling us that this traditional behavior might have changed recently.

Table 2.15: In-Migration Odds-Ratio Table

Variable	Estimate	95% Confidence Range	
Male	1.159	1.017	1.322
Family	0.699	0.604	0.809
Education	1.33	1.196	1.479
Young	1.573	1.35	1.833
Old	0.892	0.632	1.259
Hispanic	1.785	1.518	2.098
Black	1.585	1.321	1.901
Homeowner	0.292	0.25	0.34
IncomePer	1.026	0.961	1.095
Unemployment	1.069	0.79	1.447
Employment	0.635	0.538	0.751
Retirement	0.645	0.453	0.92

As discussed earlier, interaction variables allow us to test whether the probability to move has changed over a set time period. The steps for an in-migration interaction test is identical from the test performed earlier. The only difference is that the dependent variable has changed, from out- to in-migration. Also, the number of relevant observations has gone up. All survey participants, except for Florida residents, can be included in our test. The results of our interaction test can be found below.

Table 2.16: In-Migration Interaction Variables

Variable	Coeficient	S.E.	Chi-Square	Pr > Chi-Sq
Interact Male	0.0127	0.0997	0.0162	0.8988
Interact Family	-0.3129	0.1051	8.8709	0.0029
Interact Education	-0.00106	0.0802	0.0002	0.9895
Interact Young	0.1822	0.1166	2.4413	0.1182
Interact Old	0.0659	0.2544	0.067	0.7957
Interact Hispanic	-0.303	0.1211	6.2565	0.0124
Interact Black	-0.739	0.1555	22.5831	<.0001
Interact Homeowner	-0.0698	0.1202	0.3369	0.5616
Interact Incomeper	-0.0335	0.0457	0.537	0.4637
Interact Unemployment	-0.0681	0.2246	0.0919	0.7618
Interact Employment	-0.3813	0.129	8.7328	0.0031
Interact Retirement	-0.5171	0.2768	3.4896	0.0618

From the results above, only 4 of our interacted variables were significant. The relevant variables were Family, Hispanic, Black, and Employment. The 2 variables that present the greatest concern are Family and Employment. Both of these variable's coefficients were negative. This tells us that since 2006, persons with these characteristics were less likely to move into Florida than in the previous years (2002- 2005). The reason for this decline is likely due to economic reasons. Families are less likely to relocate where job prospects are low. Additionally, job transfers across states and job opportunities in Florida have declined in the past several years for those employed or are seeking employment.

Retirement

One of the most troubling findings from our in-migration data is that the likelihood of retirees moving into Florida has decreased over the past few years. This is troubling data as the elderly is one of Florida's most important demographics. They began moving into the state in the 1970s and have continued to do so since. Unfortunately, according to the Center for Retirement Research, the elderly have been migrating into Florida less often. In the 1980s, about 26% of all elderly migrants moved into Florida. Now this percentage has dropped to less than 12%. Competing states like Texas and North Carolina have seen increases in the number of retired entering into their state. Texas is now the 2nd largest state for attracting elderly migrants.

We believe the key reason why the elderly have been avoiding Florida is due to the recent increase in the cost of living in Florida. Starting in the early 2000s, Florida housing costs began to exceed the national average. This culminated in a housing bubble that peaked in 2006. At that time, home prices were 84% higher than they were 6 years ago. The housing bubble wasn't seen in competing states like the Carolinas or Texas. We believe that many elderly individuals were either priced-out of the Florida market or went somewhere else.

Section 3: Economic Indicators of Migration

3.1 Data

The economic indicators selected were based-on a review of the key economic factors that drive both out- and in-migration. We focused on the supply-side and the demand-side theories of migration talked about previously in the economics section. To replicate both models, the data obtained related to unemployment, wage levels, cost of living and gross domestic product.

The unemployment rate was retrieved from the Bureau of Labor Statistics (BLS) The data set included monthly unemployment rates from 2000 through 2010. The data was eventually converted into a quarterly unemployment figure in order to properly complete our forecasts.

Nominal wage level data was also retrieved from the Bureau of Labor Statistics. The data was only available annually at both the state and national level. The data was then formatted into annual percentage change terms.

The data on housing prices (a cost of living measure) was gathered from the Federal Housing Finance Agency (FHFA). This dataset is a housing price index based on the resale value of single-family homes financed through Fannie Mae or Freddie Mac. The data obtained was quarterly and goes back to 2000.

Finally, data on the gross domestic product (GDP) of the United States was found from the Bureau of Economic Analysis website. Gross State Product (GSP) data was gathered from two sources. Texas GSP was obtained from TexasAhead, a state-run agency controlled by the state's comptroller of public accounts. Florida GSP was provided by Enterprise Florida, who

received it from IHS Global Insight. All GSP and GDP datasets were quarterly figures from 2000 to 2010.

3.2 Empirical Strategy

It was necessary for us to forecast the unemployment rates for Florida, Texas, and the United States. These variables were still showing an aberration from their historical trend. We wanted to get a clear picture of whether or not in the next couple of years they will return to historical levels or continue to be an aberration. Of course, the majority of our variables have already returned to a more normal level, and a forecast was not necessary. The model that was used to do this was an autoregressive model; the details of this process are outlined in Appendix C.

Within an autoregressive model there are a certain number of past time periods, or lags, that are used to predict the future. The number of time periods for any given model can be selected by using a number of statistical measures. Also, in-sample checks were done to statistically validate the forecasts. Each of these variables were forecasted-out 4 to 6 quarters.

3.3 Findings

The main purpose of this project was to discover whether or not Florida's 2009 population loss was an aberration or a trend. From our findings in the state-to-state migration flows section, we have discovered that outflow from Florida has increased while inflow to the state has decreased. In our demographic analysis section, we were able identify what groups of people were more likley to both in-migrate to Florida and relocate from the state.

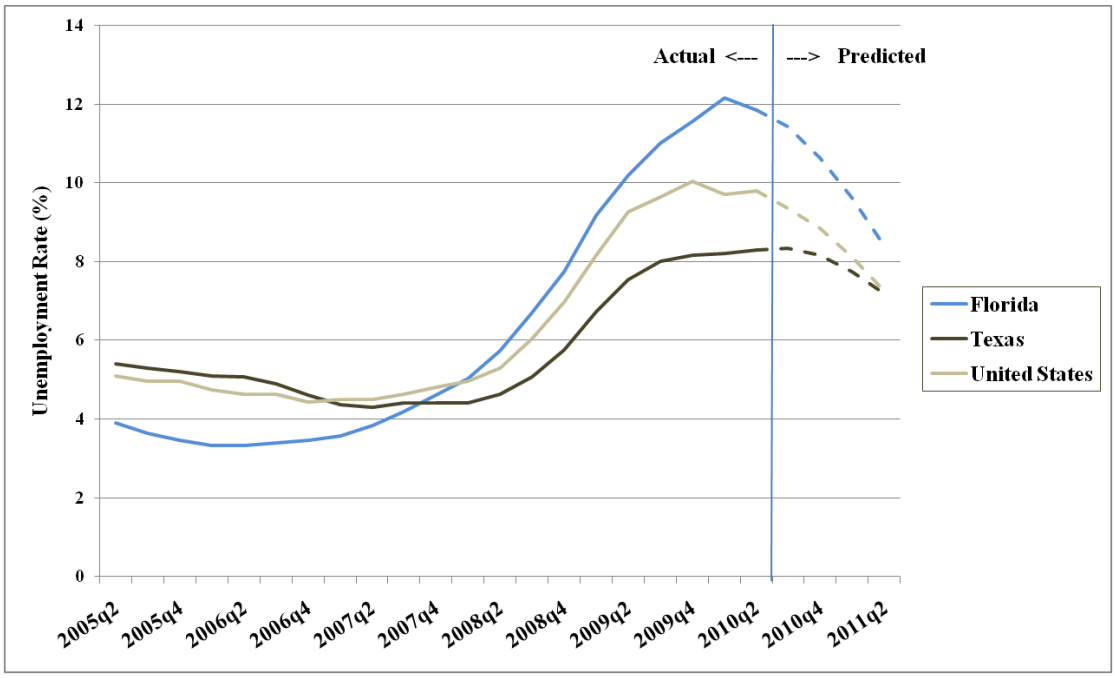
Based on the results of these two sections and our investigation of the demand-side and supply-side models (see our economics section), we were able to determine four key factors of migration. These factors were examined to see if any change corresponded with our current migration pattern. They were compared with national and other state data to create a benchmark of a normal and healthy level. Finally, we forecasted these variables out to see when they would return to a historic level. If we see a recovery of all four indicators then it is likely that this population loss was an anomaly. If no recovery is found; then it is likely that this population loss is the beginning of a new trend.

The four key indicators were the unemployment rate, housing prices, wage levels, and gross domestic/state product. The analysis was done for Florida, Texas and the United States. By looking at a national indicator, we were able to see how Florida's indicators compared to the rest of the country. Texas was analyzed, because this state actually experienced positive migratory growth over the past several years, and is our set benchmark to which levels our indicators hope to return.

Unemployment

People are very likely to migrate based on their employment status. When facing unemployment, people are much more likely to relocate to an area where there are better employment conditions (a lower unemployment rate). This was confirmed in by our logistic regression results. The unemployed moved out of Florida searching for employment, and very few migrated-in in search of work. Graph 3.1 below shows historical unemployment rates as well as forecasted values through the middle of 2011.

Graph 3.A: Unemployment Rates



** The statistical validation of this forecast is given in Appendix C.*

An important fact to notice is that strong net migration occurred in the periods when Florida's unemployment rate was below the national average. In the past couple of years, the higher-than-average unemployment rate corresponded with lower net migration levels. It appears that for Florida to once again realize a positive population growth, the state needs to return to an unemployment rate that is nearer, or even below, the rest of the country. We can also see that while Florida was experiencing above average unemployment, Texas was enjoying relatively low unemployment. This can help explain why Texas was able to attract large amounts of inflow in the past couple of years.

Going back to our demographic analysis section, we saw the unemployed moving out of Florida, with very few migrating-in looking for work. It is assumed that once Florida's unemployment levels falls to a more normal level, the state will begin to be more attractive to

individuals searching for employment. Our forecast of the unemployment rate is a very positive sign for Florida's future population growth. It shows that in the next four quarters the unemployment rate will begin to converge back toward the national level. Also, the gap between Florida and Texas will significantly be reduced. Even though the forecasted values do not reach normal levels of unemployment, which is around 4% to 5%, it is an excellent sign that a recovery in employment has started to occur in Florida.

One cohort that is affected by unemployment is the 18 to 34 year-old age group. People are likely to move around in their early twenties in the United States, because their opportunity cost of moving is the lowest during this time period. For the most part, at such a young age, people do not yet have a family. When searching for a career it is a typical for a young person to migrate from one state to another (Pandit, 1997). While both the in- and out-migrating probabilities for the young are high it is assumed that the closer Florida's unemployment rate becomes relative to the country, the better the chances are that the state will experience more population inflow from this age cohort.

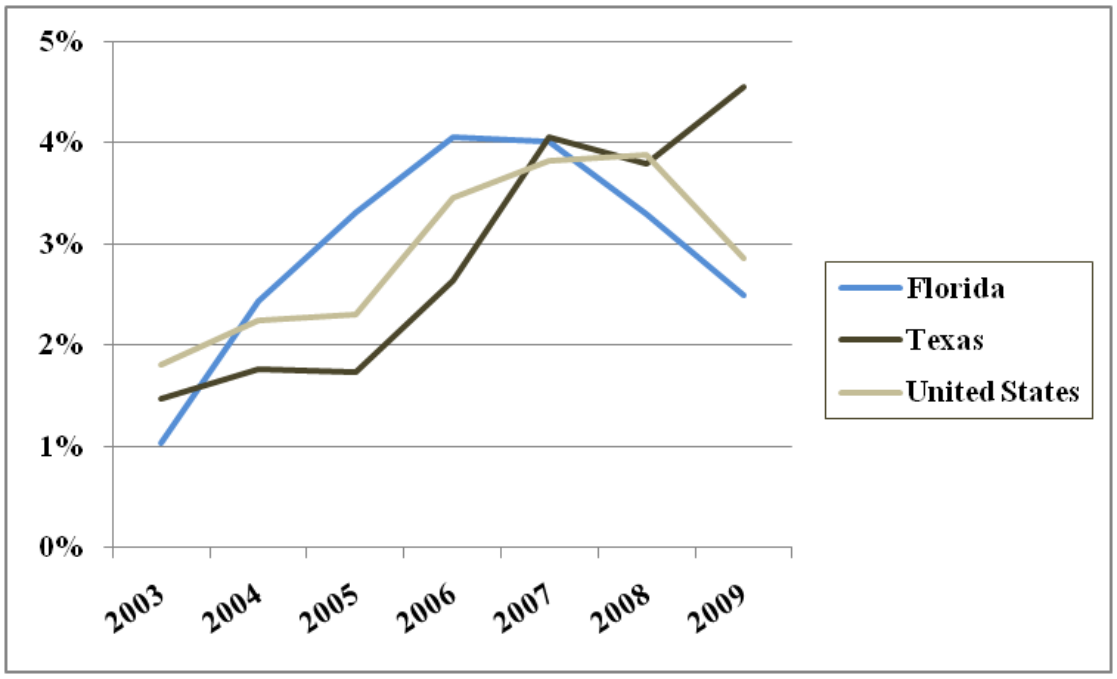
Families are also likely to be responsive to unemployment conditions. In the past few years, we have seen an increase in the likelihood of families migrating-out of Florida. We assume that this increase is most likely due to Florida's poor job market. Families may have suffered from a loss of a job and moved to areas with better employment prospects. As the job market recovers, we believe that this increase in outflow will go away.

Wage Levels

A contributing factor to the migratory habits of families and the 18 to 34 year-old age group is the wage level. The study of wages and how they affect migration trends can be linked

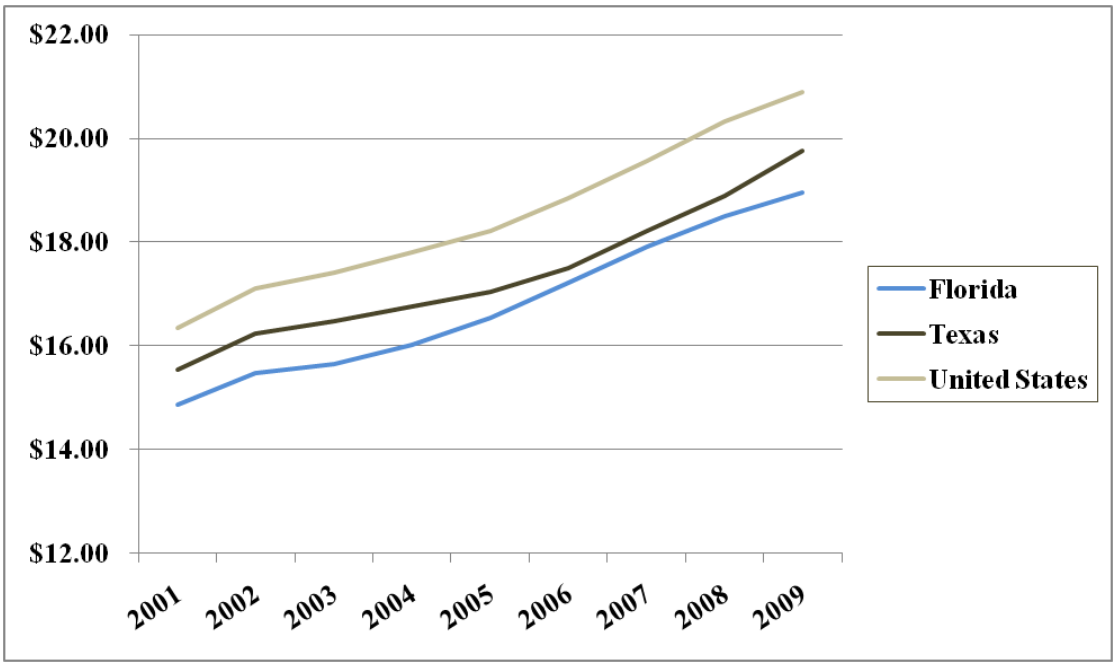
to a demand-side factor approach. People will be more likely to move to a place with higher wages and less likely to move away from a place with higher wages. This, along with their chances of finding employment, is the most relevant factor in their decision to migrate(Knapp & Graves, 1989). In the family cohort, at least one member of the family is employed and receives wages. In our 18 to 34 year-old cohort, these individuals are entering the workforce for the first time and will relocate to maximize their wage level. Graph 3.3 below shows the historical percentage change of wage levels in Florida, Texas and the United States.

Graph 3.B: Historical Percentage Change in Wages



While Florida's wage level has not fallen in the past couple years, its growth has been below both the national and Texas average. In 2009, Florida wages increased by less than 3%; compared to 4.5% increase in Texas. Slowly, Florida's wage level is becoming less attractive and competitive to states like Texas. This has likely lead to a decrease in inflow to Florida and an increase in outflow from the state.

Graph 3.C: Historical Wage Levels



One encouraging fact comes from the historical levels of wages that Florida has experienced (Please see Graph 3.C). The historical pattern of wages from Florida closely replicates the national average. It is likely that this will occur again in the near future allowing Florida to experience similar growth rates with the rest of the nation. Even Texas' historic wage level replicates the national average, telling us that Texas is enjoying only a temporary deviation from the national average

Gross Domestic and Gross State Product

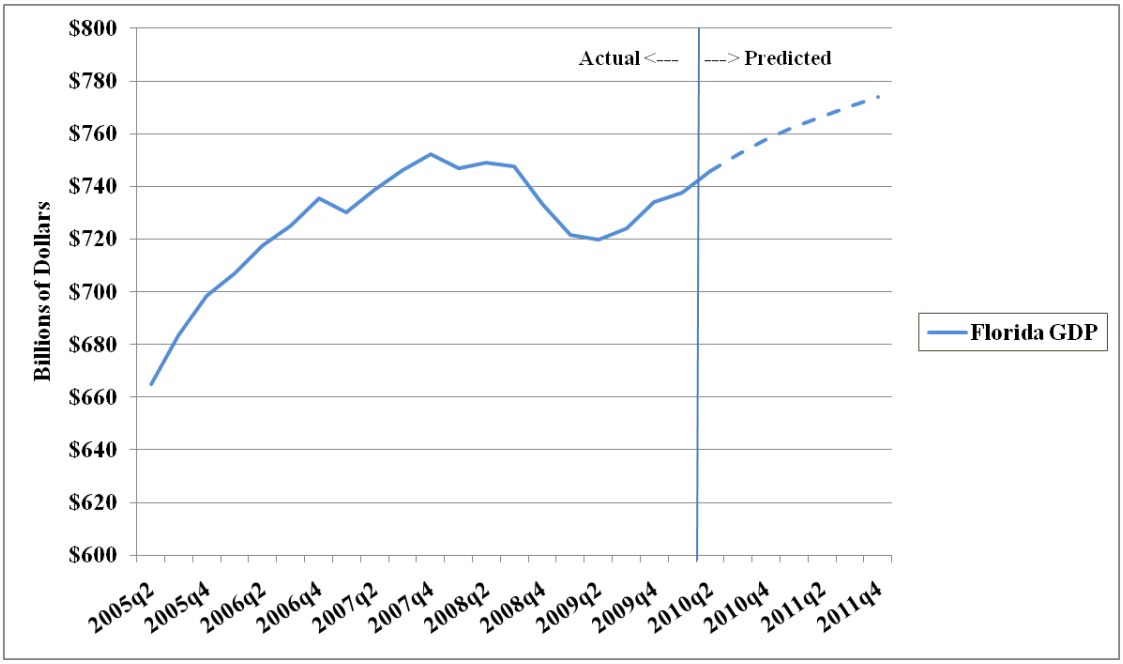
Finally, we come to our broadest measure of the economic health of Florida: GSP. During the past few years, Florida has experienced dismal economic growth. This can be mainly attributed to the housing market crash in 2007. In the table below, the average GDP and GSP growth rates for Florida, Texas and the US are shown for the years 2007 to 2009.

Table 3.1: Average GDP and GSP Growth from 2007 – 2009

State	Average Growth
Texas	5.47%
US	2.12%
Florida	0.19%

The average GSP growth rate for Florida was less than 1%. When compared with Texas and the United States, it's apparent that the Florida economy was especially affected by the last recession. What we see when we look at Florida's recent GSP pattern is very encouraging. In the past four quarters the state has enjoyed moderate levels of growth. In Graph 3.D, the historical levels of Florida's GSP are shown.

Graph 3.D: Florida GDP



As you can see from the graph Florida's Gross State Product has already made a turnaround. We see that the general economic condition of Florida have been improving over the past few quarters. Prior research has shown a positive correlation between business cycles and migration (Pandit, 1997). If the economy is experiencing a period of expansion then mobility is expected to increase. When the economy is shrinking, however, this becomes sluggish. Based on recent levels of GSP and GDP we expect to see an increase in mobility within the U.S. as a whole, which should bring more inflow to Florida as well.

Housing Prices

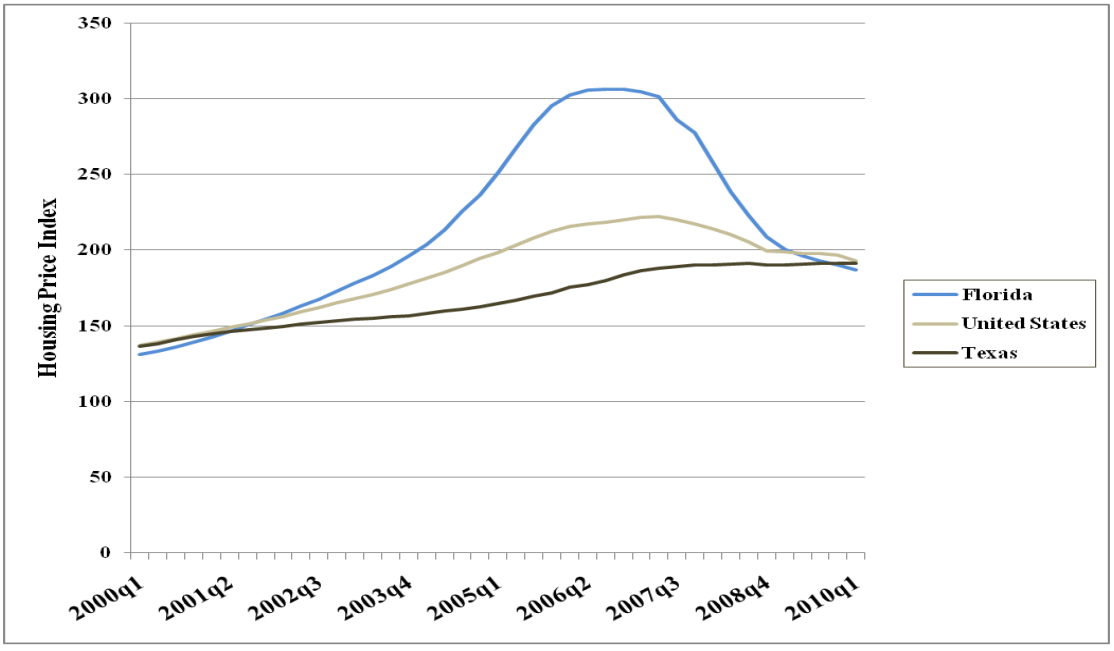
Florida's net migration began to change one year prior to the recession. At that time, Florida's economy was one of the hottest in the nation, with a strong GSP, a healthy wage-rate, and unemployment rates below the national average. A brief look at our supply-side and demand-side models tells that three of the four key variables were positive for migration. The cost of living was the only variable that was not.

Around 2002, Florida housing prices began to exceed the national average. This culminated in a housing bubble that peaked in 2006. At that time, the cost of purchasing or renting a home dramatically went up. Since housing costs represent about 30% of a household's income, this bubble represented a huge cost increase for both renters and new home buyers. The supply-side approach to migration posits that labor flocks to an area with high wages, relative to the cost of living. In 2006, the cost of living in Florida, due to home prices, most likely began to deter potential new residents from moving into Florida. Meanwhile other states, like Texas, where a housing bubble did not occur, were very likely to absorb these migrants. Texas offered comparable or higher wage rates, but without the increased cost of housing. Graph 3.E below

shows just how much more expensive Florida home prices became relative to the nation and Texas during 2006.

In 2007, the housing bubble imploded, and housing costs in Florida began to fall dramatically. Currently, Florida housing prices are comparable to both the U.S. national average and Texas. This tells us that the higher costs of living that began to deter inflow starting in 2006 have all but disappeared. Unfortunately, at the same time, the once strong factors (Employment, GSP and Wage Level) became weak and replaced housing prices as the major obstacle to attracting inflow to Florida.

Graph 3.E: FHFA Housing Price Index



Section 4: School Enrollment

School enrollment was an attempt to replicate our prior results. We wanted to support both our state-to-state flows section as well as our demographic analysis section. Unfortunately, as a proxy for both, school enrollment could not be usefully utilized. In addition, it failed to provide us with an alternative explanation into the 2009 population loss. We believe it was a poor proxy for migration, because of the noise created by changes in fertility and mortality rates in Florida. These two measures appear to affect school enrollment more than migration levels.

4.1 Data

Data was found on Florida's public school enrollment from the National Center for Education Statistics (NCES)[33]. The NCES website offers a section in which you can build your own datasets. They offer data at state levels as well as at the individual school level with multiple options in-between. Depending on the level of aggregation that you choose there are also different demographic variables available. Their archives date back, in most cases, to the late 1980s although the consistency of variable definitions may have changed.

For this analysis, panel data has been collected from the 1999-2000 school year through the 2007-2008 school year. This data was collected at the school level in order to retain as much detail as possible. Each school keeps records for multiple variables, and from these a few key ones were picked out. These included the total student enrollment in the school, the demographic break down of student population, and how many of the students were eligible for Free Lunch. An interesting point about the Free Lunch variable is that it gives a very close measure of the level of students near the poverty line within the school. To be eligible for this a student's family must have an income below 130% of the poverty level for their particular family size. This

allowed us to avoid the problem of making assumptions about average family size and income when discovering the relationships between poverty and other variables in the dataset.

To better analyze this data it was decided that the schools should be aggregated into their respective zip-codes. This made the data set much more manageable by making it into just less than 600 observations per year from 4000 observations; as well as, aggregating some schools that were too small individually for an individual analysis.

Once the school data had been converted to zip-code level data two controls were placed on the dataset. The first was that if there was not complete data for the zip-code then it was dropped. This was to ensure continuity in the data as well as sound results. The second was a minimum requirement of 1000 students per zip-code. The motivation behind this was that percentage changes in total enrollment were going to be dependent variables in regressions. Obviously this control would account for the higher volatility that these schools have in terms of percentage changes in enrollment.

After these manipulations the dataset consisted of detailed information on 552 zip-codes in Florida. Finally, county-level unemployment rates were matched with their respective zip codes. This data was obtained from the Bureau of Labor Statistics [34-42]. They offer national and zip-code level unemployment data for the U.S. County-level unemployment was decided upon because it is not uncommon at all for people to work outside the zip code where their children go to school. It is very likely, though, that they would work within the same county as their child's school. To summarize, our panel data set will contain information on total enrollment figures, a free lunch measure, and race/ethnicity records by zip code. County-level unemployment rates for the years starting in 2000 and ending in 2008 were used as well.

Another data set utilized was obtained from the Office of Economic and Demographic Research. This consisted of the total number of students that left the state in both the 2008 to 2009 school year and the 2009 to 2010 school year by county. It additionally had other types of information, but there were not any other relevant categories to migration out of Florida.

4.2 Empirical Strategy

Initially a precise analysis was be done by running correlations of each variable in the panel data set with the disaggregated enrollment growth rates. Our hope was to find significant and large correlations within the dataset.

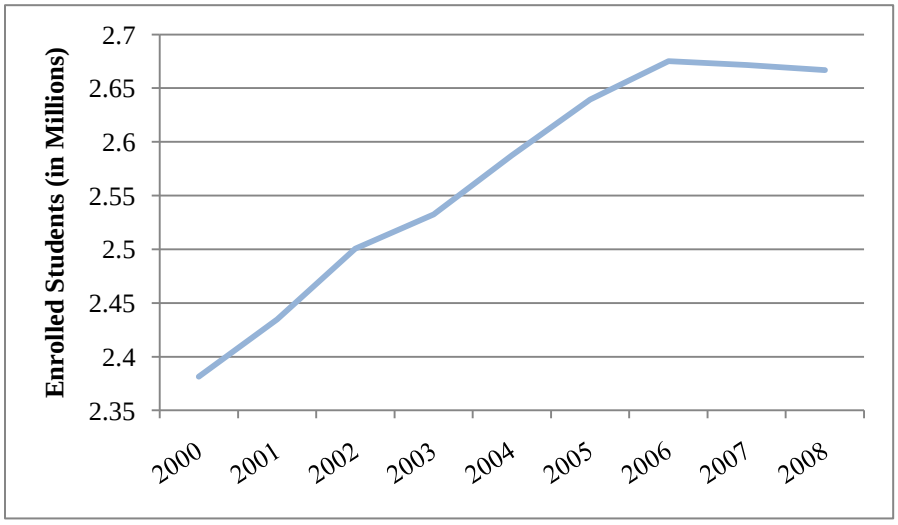
Our next step was using a regression model (OLS) to predict how levels of school enrollment within a zip-code are expected to change given the zip-codes demographic composition. Because of the relatively low amount of variables that this data set has, a regression model was created consisting of all the variables that were available. The thought behind this was that each of these variables could have some role in explaining variability in school enrollment changes. If this model were successful we could draw conclusions as to what enrollment expectations may be for zip-codes with certain socioeconomic characteristics. This in turn could give us a conclusion as to the expectations we have for the future Florida family.

From the data obtained on students that left the state maps were made of the percentages of students that left the state. This gave a nice representation of the changes in percentage change in students that left the state between the two most recent school years.

4.3 Findings

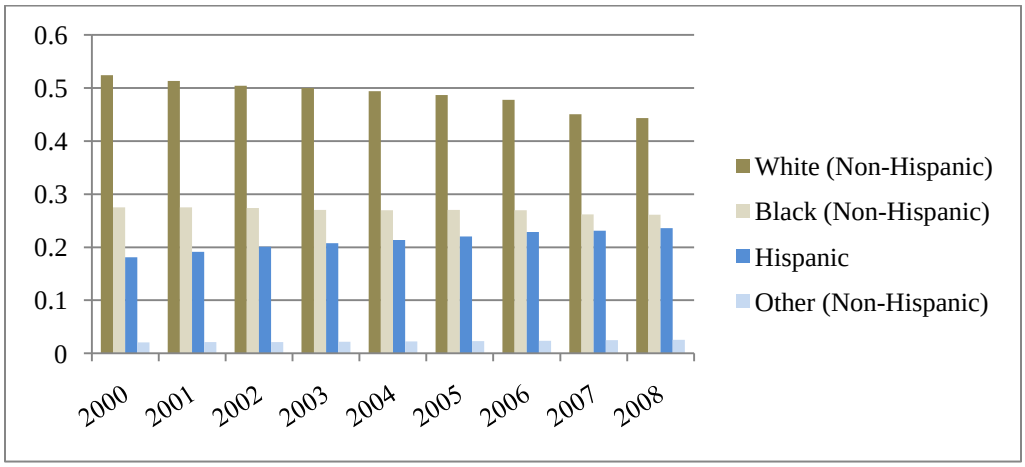
In the early 2000s Florida school enrollment levels were increasing by around 50,000 students per year. This trend continued throughout the first half of the decade; however, as we see from Graph D below, from 2006 to 2008 public school enrollment fell. This decrease cannot entirely be explained by migration patterns but it was thought that it may shed some light on the issue.

Graph 4.A: Historic Florida Public School Enrollment



The graph below represents the proportions of different race and ethnicities of students enrolled in the public school system. This is assumed to be an approximate measure of how the makeup of the Florida family has been changing over time as well.

Graph 4.B: Ethnicity Enrollment in Florida Public Schools



The data suggests that Florida has been experiencing a decrease in the amount of White students in the state, which has coincided with an increase in Hispanic students. The proportion of Black students and all other students, which consist of Native Americans, Asians, Indians, and Pacific Islanders, have stayed constant.

After getting a general idea about the demographic make-up, correlations were calculated on the school enrollment changes in 2008. In doing this analysis, we wanted to see what variables were significant and strongly correlated with the change in school enrollment. Three variables were significant at the 95% level: Free Lunch, Black and White. The results can be found below in Table 4.1. The variables have from -3.8% to 3.3% of variance in common with enrollment change.

Table 4.1: Correlations between Enrollment Changes and Demographics

Enrollment Change in 2008 Correlated with Specific Variables		
Variable	**Coefficient**	**Coefficient Squared**
Percent of Students Eligible for Free Lunch	-0.175	-0.030
Black	-0.195	-0.038
White	0.182	0.033

Next a regression was performed. We were looking for the level of explanatory power our independent variables had on the growth rate of school enrollment. The regression relied on county-level data. The results can be found below in Table 4.2.

Table 4.2: Regression of Student Growth Rate on Socioeconomic Variables for 2005

Variable	Coefficient	S.E.	P>|t|
Intercept	-0.0318075	0.1773308	0.858
Unemployment Rate	-0.0026099	0.0142097	0.854
% of Students on Free Lunch	-0.0748345	0.0599175	0.212
% of Native Americans	-0.7408427	2.278186	0.745
% of Asian Students	0.2539434	0.5392949	0.638
% of Black Students	0.1003296	0.1675248	0.549
% of Hispanic Students	0.1063666	0.166515	0.523
% of White Students	0.0729788	0.1643162	0.657

Unfortunately, none of our dependent variables were significant. After some investigation, it was found that school enrollment changes are more dependent on changing fertility rates, than on migration levels (Schmertmann, 1994). This can explain why both our correlation and regression results were either weak or insignificant.

Our last part of this section examined the data set given to us by Florida's Economic and Demographic Research Center. The dataset contained the number of students leaving Florida's public school system to migrate to another state. In the figures below, the percentage of students leaving each county for another state is illustrated. This gives us an approximation of which counties saw the largest out-migration over the past two years.

Figure 4.C

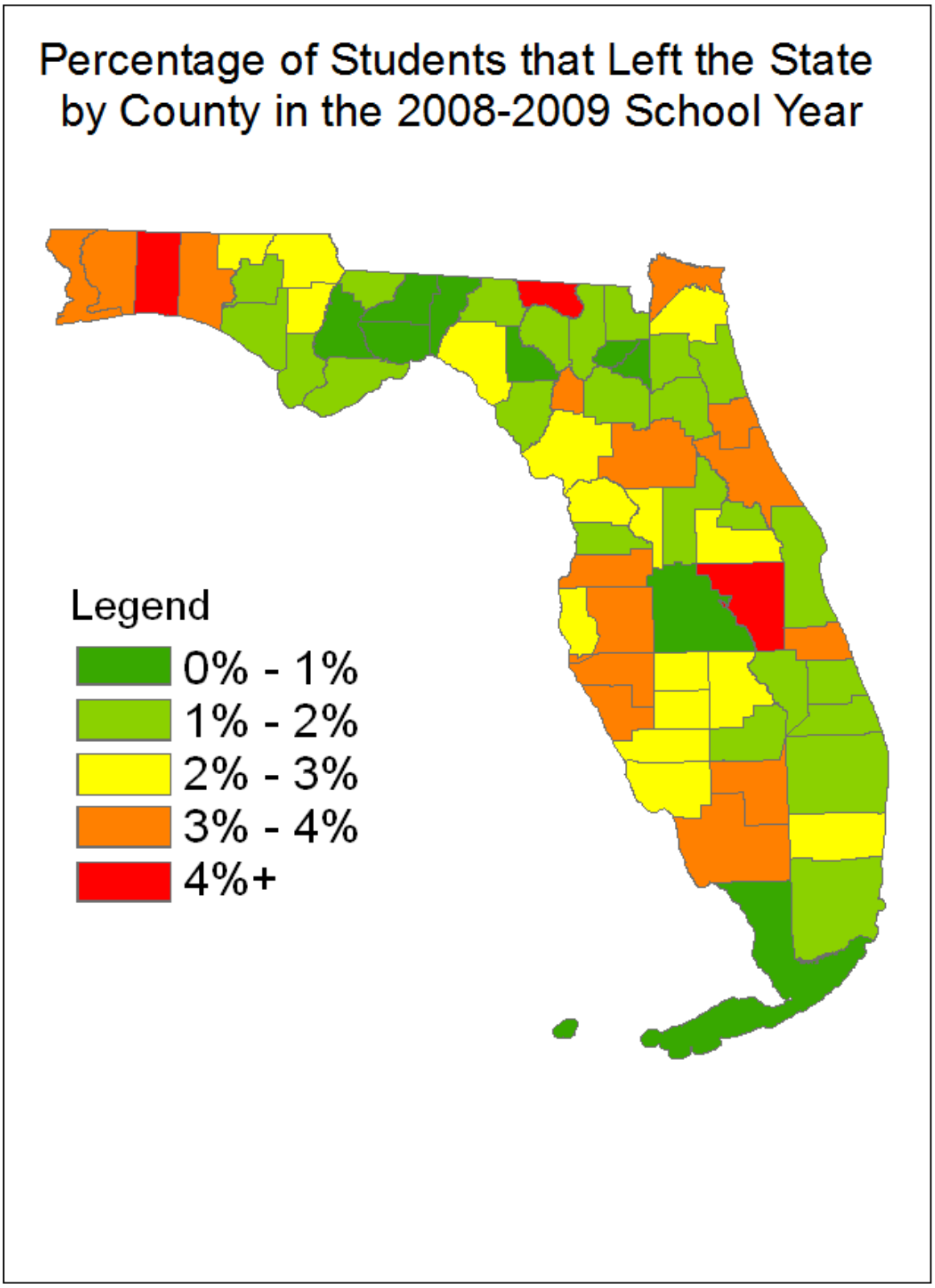
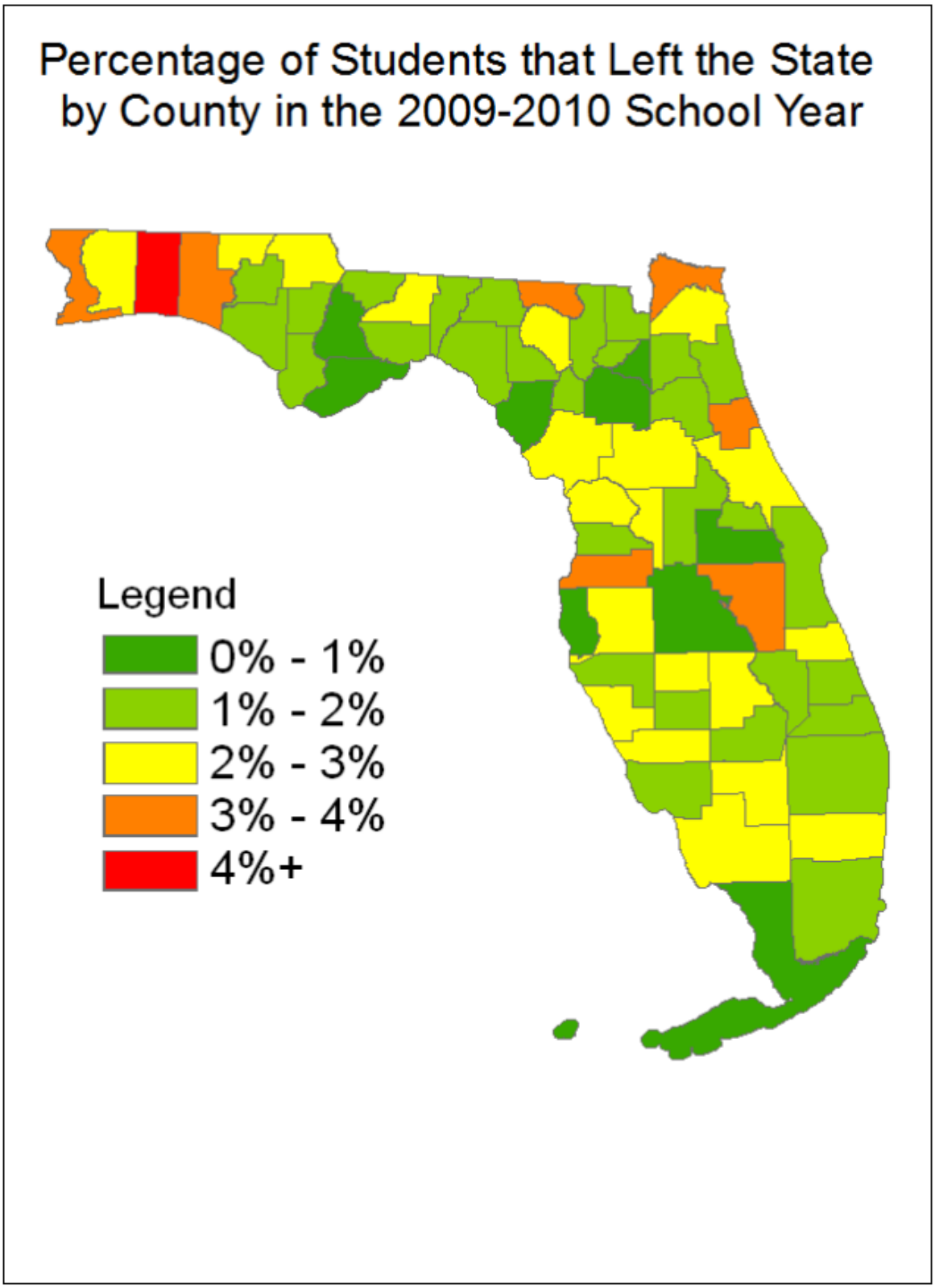

Percentage of Students that Left the State by County in the 2008-2009 School Year
Legend
0% - 1%
1% - 2%
2% - 3%
3% - 4%
4%+

Figure 4.D


Percentage of Students that Left the State by County in the 2009-2010 School Year
Legend
0% - 1%
1% - 2%
2% - 3%
3% - 4%
4%+

Conclusion

The origins of the population decline began in the early 2000s with the beginning of the housing bubble in Florida. At the beginning, the excess growth of this sector contributed to higher wages and lower unemployment in Florida. This brought record in-migration levels into Florida, peaking in 2005 with over 550,000 entering Florida. Unfortunately, this bubble market was not sustainable and ultimately led to the population decline in 2009.

A migration slowdown began in 2006. At this time, the bubble brought housing prices to a level where costs of renting or buying a home far exceeded the national average. Potential migrants faced higher costs moving into Florida. This was a significant change as only years before many were attracted to the state due to its lower cost of living. The result was both a decline in inflow and an increase in outflow from the state. The recipient states for these migrants were low-cost states that managed to avoid the run-up in housing prices, like Texas, the Carolinas and Georgia.

The housing bubble further aggravated migration levels when it imploded in 2007. The result was a recession that affected Florida greatly. As one of greatest beneficiaries of the housing bubble, Florida became one of its worst victims when it collapsed. Migration trends are pro-cyclical. During expansionary phases, migration rises; during contractionary phases, migration decreases. Florida's contraction was worst than other states. All key economic indicators (Unemployment, GSP, and Wage Levels) were worse in Florida than in other states. This led to a decline in inflow to Florida that far exceeded the average decline among other states.

This decline in inflow to Florida occurred mostly in the states that have traditionally fed migrants into Florida. New York, Pennsylvania and Massachusetts all experienced double-digit declines in out-migration into Florida. At the same time, these states were increasing their outflow into Texas, the Carolinas and Georgia; states that suffered less from the recession.

Florida's outflow increased from 347,000 in 2005 to 438,000 in 2008. The cohorts who left were the ones most susceptible to economic conditions. These included the 18 to 34 year-old age group and families. They left Florida to look for employment opportunities not available to them in Florida. The cohorts who did not leave Florida were homeowners and the elderly. Homeowners faced higher migration costs and a poor housing market, anchoring them in Florida. The elderly were less susceptible to the recessionary environment than the younger cohorts.

Florida's in-migration during this time period decreased from 556,000 to 413,000. The demographics of these in-migrants changed only slightly over this period. Florida began attracting less families and job-seekers.

In sum, the first wave of poor migration was a result of inflated home prices and cost of living in Florida. This made other states, such as Texas and the Carolinas, relatively more attractive destinations, especially for retirees and families. The current migration woes resulted from unfavorable economic conditions both in Florida, from large levels of unemployment, and in the U.S. as a whole, during recessions residents are less mobile overall.

The key economic indicators that contributed to the population loss have begun to recover. Housing prices, which initiated the decline, have returned to the national average. Florida's unemployment rate is still above the national average, but we are forecasting it to

converge with it over the next several years. Florida GSP is expected to recover as well. As Florida's economy recovers so should migration.

Whether it recovers to the record migration levels seen in the 2000s is doubtful. The inflow in that period was fueled by a bubble economy that won't reappear in the near future. Additionally, new states have begun competing for migrants. As mentioned before, Texas, the Carolinas and other Southeastern states have started attracting a larger share of the migrants from the Northeast. There is no indication that this will change. We expect Florida to return to healthy migration levels within the next several years. The level of net migration will be similar to our experience in the late 1990's. Annual net-migration should once again be around 120,000.

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Data Appendix

Appendix A

Table A.1: Historic Gross Inflow to Florida by Regions and Divisions

Gross Inflow	1985 - 1990 Yearly Avg.	1995 - 2000 Yearly Avg.	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
North East Region	**161,004**	**136,695**	**144,380**	**155,702**	**152,890**	**186,123**	**205,844**	**185,064**	**148,168**	**128,454**
Mid Atlantic	122,348	103,904	104,775	112,218	110,173	133,124	149,421	135,083	107,961	92,989
New England	38,656	32,791	39,605	43,484	42,717	52,999	56,423	49,981	40,207	35,465
South Region	**128,379**	**115,208**	**171,051**	**173,160**	**169,419**	**179,077**	**180,807**	**177,826**	**156,330**	**153,311**
South Atlantic	63,874	67,452	99,171	101,840	99,541	106,802	109,569	102,993	94,610	92,699
East South Central	27,320	23,591	36,475	35,725	34,271	35,815	34,854	35,117	30,700	30,998
West South Central	37,185	24,165	35,405	35,595	35,607	36,460	36,384	39,716	31,020	29,614
Midwest Region	**97,978**	**79,645**	**97,392**	**102,190**	**99,081**	**105,305**	**106,806**	**101,803**	**89,830**	**83,777**
East N. Central	82,248	64,715	78,022	81,029	79,063	83,884	85,753	82,310	72,676	67,147
West N. Central	15,729	14,929	19,370	21,161	20,018	21,421	21,053	19,493	17,154	16,630
West Region	**38,762**	**40,607**	**52,559**	**56,245**	**57,153**	**59,730**	**62,730**	**56,419**	**49,551**	**47,815**
Mountain	13,448	13,739	20,510	21,659	22,365	22,793	23,391	21,326	18,903	19,306
Pacific	25,314	26,868	32,049	34,586	34,788	36,937	39,339	35,093	30,648	28,509
Total	**426,123**	**372,154**	**465,382**	**487,297**	**478,543**	**530,235**	**556,187**	**521,112**	**443,879**	**413,357**

Table A.2: Historic Gross Outflow from Florida by Regions and Divisions

Gross Outflow	1985 - 1990 Yearly Avg.	1995 - 2000 Yearly Avg.	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
North East Region	**38,900**	**44,595**	**69,360**	**70,100**	**69,324**	**63,408**	**66,414**	**70,995**	**73,772**	**83,340**
Mid Atlantic	26,619	29,847	45,844	47,943	47,764	44,178	46,121	49,250	51,893	59,109
New England	12,281	14,747	23,516	22,157	21,560	19,230	20,293	21,745	21,879	24,231
South Region	**102,853**	**128,457**	**157,521**	**157,048**	**156,879**	**155,809**	**172,846**	**211,565**	**235,809**	**229,772**
South Atlantic	63,537	77,957	95,141	92,341	92,516	92,024	100,615	123,761	138,785	132,789
East South Central	32,406	32,952	43,938	45,563	43,559	42,269	44,870	47,883	48,578	50,839
West South Central	7,620	9,377	12,164	12,438	12,871	12,548	13,285	15,110	15,010	16,322
Midwest Region	**40,026**	**42,330**	**56,102**	**58,001**	**56,430**	**54,817**	**58,155**	**62,993**	**63,588**	**67,161**
East N. Central	32,406	32,952	43,938	45,563	43,559	42,269	44,870	47,883	48,578	50,839
West N. Central	7,620	9,377	12,164	12,438	12,871	12,548	13,285	15,110	15,010	16,322
West Region	**30,007**	**35,369**	**48,735**	**46,943**	**46,093**	**47,380**	**49,915**	**56,645**	**54,515**	**57,812**
Mountain	10,122	16,055	20,099	20,161	19,164	20,268	22,192	26,322	25,111	25,486
Pacific	19,885	19,314	28,636	26,782	26,929	27,112	27,723	30,323	29,404	32,326
Total	**211,786**	**250,750**	**331,718**	**332,092**	**328,726**	**321,414**	**347,330**	**402,198**	**427,684**	**438,085**

Table A.3: Historic Net Inflow to Florida by Regions and Divisions

Net In-Migration	1985 - 1990 Yearly Avg.	1995 - 2000 Yearly Avg.	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
North East Region	**122,103**	**92,100**	**75,020**	**85,602**	**83,566**	**122,715**	**139,430**	**114,069**	**74,396**	**45,114**
Mid Atlantic	95,729	74,057	58,931	64,275	62,409	88,946	103,300	85,833	56,068	33,880
New England	26,374	18,044	16,089	21,327	21,157	33,769	36,130	28,236	18,328	11,234
South Region	**25,526**	**(13,249)**	**13,530**	**16,112**	**12,540**	**23,268**	**7,961**	**(33,739)**	**(79,479)**	**(76,461)**
South Atlantic	337	(10,505)	4,030	9,499	7,025	14,778	8,954	(20,768)	(44,175)	(40,090)
East South Central	(5,086)	(9,361)	(7,463)	(9,838)	(9,288)	(6,454)	(10,016)	(12,766)	(17,878)	(19,841)
West South Centra	29,565	14,788	23,241	23,157	22,736	23,912	23,099	24,606	16,010	13,292
Midwest Region	**57,951**	**37,315**	**41,290**	**44,189**	**42,651**	**50,488**	**48,651**	**38,810**	**26,242**	**16,616**
East N. Central	49,842	31,763	34,084	35,466	35,504	41,615	40,883	34,427	24,098	16,308
West N. Central	8,109	5,552	7,206	8,723	7,147	8,873	7,768	4,383	2,144	308
West Region	**8,755**	**5,238**	**3,824**	**9,302**	**11,060**	**12,350**	**12,815**	**(226)**	**(4,964)**	**(9,997)**
Mountain	3,326	(2,316)	411	1,498	3,201	2,525	1,199	(4,996)	(6,208)	(6,180)
Pacific	5,430	7,553	3,413	7,804	7,859	9,825	11,616	4,770	1,244	(3,817)
Total	**214,336**	**121,405**	**133,664**	**155,205**	**149,817**	**208,821**	**208,857**	**118,914**	**16,195**	**(24,728)**

Table A.4: Alphabetical Listing of Historic Gross Inflow to Florida

From State X to FL	1985 - 1990 avg	1995 - 2000 avg	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
ALABAMA	9,873	8,369	12,576	11,916	11,242	12,083	11,547	10,923	10,497	11,079
ALASKA	1,012	845	1,354	1,299	1,407	1,345	1,555	1,462	1,401	1,509
ARIZONA	2,999	3,428	5,005	5,008	5,438	5,320	5,376	4,964	4,722	4,887
ARKANSAS	2,151	1,941	2,742	2,999	2,896	2,869	2,987	2,625	2,430	2,272
CALIFORNIA	18,988	18,853	21,229	23,565	23,617	25,415	27,379	24,303	20,120	18,213
COLORADO	4,876	4,431	6,719	7,656	7,971	7,722	7,438	6,841	5,568	5,843
CONNECTICUT	11,692	9,445	10,749	11,348	11,001	13,503	14,333	13,166	10,425	9,451
DELAWARE	1,242	1,404	1,802	1,792	1,666	1,920	2,115	2,095	1,832	1,713
DISTRICT OF COLUMBIA	1,105	1,081	836	958	949	1,044	1,027	862	907	845
Foreign			22,928	23,127	22,833	24,066	23,692	24,217	24,336	23,127
GEORGIA	18,378	19,845	33,975	34,913	33,360	34,684	34,590	32,599	30,826	31,899
HAWAII	1,937	1,964	2,078	2,172	2,291	2,383	2,614	2,472	2,531	2,294
IDAHO	513	522	773	832	830	919	954	838	777	819
ILLINOIS	20,457	17,271	19,894	20,775	20,992	22,186	21,884	19,632	16,073	14,293
INDIANA	11,675	9,387	12,237	13,156	12,361	13,078	12,760	11,957	10,305	9,572
IOWA	2,706	1,840	2,452	2,779	2,514	2,497	2,535	2,253	2,051	2,098
KANSAS	1,962	2,264	2,950	3,192	2,946	3,316	3,095	2,936	2,562	2,404
KENTUCKY	6,453	5,114	7,423	7,316	6,632	6,971	7,150	6,884	6,058	5,942
LOUISIANA	8,529	4,424	6,194	5,834	5,488	5,856	5,680	10,857	4,922	4,520
MAINE	2,915	2,846	3,528	3,576	3,326	3,845	4,099	3,794	3,195	3,243
MARYLAND	9,366	10,031	11,556	11,698	12,250	14,545	15,260	14,371	11,996	11,040
MASSACHUSETTS	16,337	13,612	16,522	18,689	18,600	23,320	24,905	21,698	17,079	14,438
MICHIGAN	19,910	14,990	16,866	17,548	17,098	18,285	19,371	19,895	19,643	18,661
MINNESOTA	3,472	3,669	4,512	5,043	4,953	5,614	5,304	4,898	4,329	3,901
MISSISSIPPI	3,747	2,698	4,792	4,571	4,446	4,625	4,692	6,335	3,844	3,648
MISSOURI	5,216	5,175	6,737	7,249	6,875	7,130	7,157	6,614	5,656	5,882
MONTANA	664	610	663	773	613	709	743	662	639	613
NEBRASKA	1,365	1,196	1,619	1,754	1,618	1,747	1,694	1,674	1,404	1,331
NEVADA	1,433	1,644	2,919	3,194	3,091	3,471	4,261	3,789	3,303	3,370
NEW HAMPSHIRE	3,543	2,936	4,030	4,633	4,638	5,798	5,769	4,924	4,102	3,632
NEW JERSEY	30,191	23,781	26,459	28,216	27,919	33,903	37,809	34,398	27,348	23,600
NEW MEXICO	1,465	1,633	2,279	2,043	2,098	2,195	2,183	1,929	1,804	1,827
NEW YORK	72,259	61,646	57,834	63,286	62,079	74,930	85,619	76,947	60,064	50,195
NORTH CAROLINA	10,035	11,513	19,529	20,138	19,868	20,967	20,673	19,293	18,265	18,130
NORTH DAKOTA	577	452	575	550	495	474	609	529	563	435
OHIO	24,024	18,167	22,985	23,112	22,246	23,722	24,772	24,323	21,079	19,264
OKLAHOMA	3,613	2,386	3,535	3,583	3,400	3,726	3,392	3,220	2,927	2,661
OREGON	913	1,406	2,041	2,055	1,907	2,267	2,071	1,883	1,782	1,680
PENNSYLVANIA	19,898	18,477	20,482	20,716	20,175	24,291	25,993	23,738	20,549	19,194
RHODE ISLAND	2,926	2,574	3,292	3,550	3,567	4,753	5,509	4,759	4,009	3,383
SOUTH CAROLINA	6,203	6,294	9,349	9,614	9,175	9,577	9,855	9,418	8,618	8,693
SOUTH DAKOTA	432	334	525	594	617	643	659	589	589	579
TENNESSEE	7,248	7,409	11,684	11,922	11,951	12,136	11,465	10,975	10,301	10,329
TEXAS	22,891	15,414	22,934	23,179	23,823	24,009	24,325	23,014	20,741	20,161
UTAH	1,006	1,126	1,625	1,605	1,739	1,841	1,885	1,712	1,673	1,531
VERMONT	1,243	1,379	1,484	1,688	1,585	1,780	1,808	1,640	1,397	1,318
VIRGINIA	13,383	15,191	19,232	20,093	19,697	21,263	23,180	21,716	19,914	18,362
WASHINGTON	2,465	3,800	5,347	5,495	5,566	5,527	5,720	4,973	4,814	4,813
WEST VIRGINIA	4,162	2,094	2,892	2,634	2,576	2,802	2,869	2,639	2,252	2,017
WISCONSIN	6,182	4,901	6,040	6,438	6,366	6,613	6,966	6,503	5,576	5,357
WYOMING	493	346	527	548	585	616	551	591	417	416
Total			488,310	510,424	501,376	554,301	579,879	545,329	468,215	436,484
Total Domestic	426,123	372,154	465,382	487,297	478,543	530,235	556,187	521,112	443,879	413,357

Table A.5: Alphabetical Listing of Historic Gross Outflow from Florida

Moved from FL to State X	1985 - 1990 avg	1995 - 2000 avg	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
ALABAMA	8,843	9,131	10,816	10,848	11,082	11,104	12,803	14,920	15,021	15,773
ALASKA	726	654	1,131	1,149	1,244	1,209	1,124	1,344	1,197	1,334
ARIZONA	2,984	4,334	5,659	5,294	5,350	5,312	6,303	7,227	6,674	6,540
ARKANSAS	1,450	1,808	2,115	2,407	2,468	2,329	2,855	3,625	3,126	3,391
CALIFORNIA	14,353	13,042	19,051	17,432	17,394	17,450	17,610	18,541	18,192	20,292
COLORADO	3,020	5,115	6,551	6,134	5,486	6,040	6,177	7,541	7,558	7,905
CONNECTICUT	3,171	3,582	6,752	5,586	5,420	4,563	4,923	5,134	5,025	5,525
DELAWARE	717	737	1,061	1,128	1,213	1,171	1,127	1,238	1,208	1,252
DISTRICT OF COLUMBIA	657	621	941	844	811	808	820	911	824	896
Foreign			15,686	15,467	16,047	15,244	15,280	14,168	14,004	14,661
GEORGIA	23,815	31,485	36,381	34,282	34,390	33,586	37,598	48,427	58,313	51,894
HAWAII	1,334	1,128	1,889	2,054	2,067	2,169	2,161	2,320	2,053	2,222
IDAHO	353	578	697	768	819	761	865	1,046	1,070	1,006
ILLINOIS	7,075	7,559	10,085	10,204	10,097	10,079	11,187	11,783	11,632	12,735
INDIANA	5,289	5,542	7,334	7,775	7,586	6,947	8,036	8,774	9,166	8,860
IOWA	903	1,163	1,419	1,480	1,494	1,483	1,734	1,848	1,802	2,153
KANSAS	1,119	1,603	1,949	1,967	2,097	1,798	1,981	2,330	2,354	2,722
KENTUCKY	4,025	4,414	5,265	5,790	5,603	5,979	6,117	7,097	7,138	7,292
LOUISIANA	2,651	3,355	4,024	4,348	4,560	4,287	4,789	4,351	6,027	6,038
MAINE	1,487	1,668	2,622	2,589	2,609	2,703	2,523	2,611	2,697	2,619
MARYLAND	5,215	4,898	7,889	7,928	7,959	7,752	7,775	7,733	7,554	8,525
MASSACHUSETTS	4,808	5,919	8,867	8,608	8,473	7,418	8,067	8,581	9,007	10,507
MICHIGAN	7,520	7,759	10,109	10,648	9,387	9,249	9,351	9,374	9,438	10,375
MINNESOTA	1,711	1,957	2,800	2,772	2,706	2,619	2,706	3,138	3,119	3,234
MISSISSIPPI	2,047	3,047	3,791	3,817	3,753	3,978	4,360	4,361	4,939	4,825
MISSOURI	3,010	3,474	4,320	4,568	4,694	4,829	5,031	5,746	5,509	5,865
MONTANA	317	468	602	769	617	636	746	818	775	834
NEBRASKA	524	728	960	952	1,107	1,028	1,008	1,133	1,231	1,291
NEVADA	1,588	2,970	3,401	3,489	3,492	3,848	4,086	4,756	4,356	4,379
NEW HAMPSHIRE	1,318	1,724	2,456	2,434	2,304	2,095	2,274	2,472	2,362	2,628
NEW JERSEY	5,998	6,979	10,753	11,049	10,912	10,062	10,509	10,835	10,709	12,364
NEW MEXICO	951	1,197	1,462	1,809	1,708	1,826	2,014	2,376	2,168	2,106
NEW YORK	12,843	14,044	23,178	24,190	24,309	21,785	23,019	24,874	27,264	32,177
NORTH CAROLINA	13,480	19,251	22,111	21,127	20,430	21,236	23,376	30,691	35,838	33,934
NORTH DAKOTA	198	212	354	286	353	358	347	395	436	468
OHIO	10,358	9,478	12,743	13,390	12,756	12,395	12,642	13,771	14,201	14,632
OKLAHOMA	1,507	2,053	2,589	2,761	2,832	2,590	3,144	3,550	3,747	3,553
OREGON	968	1,236	1,799	1,747	1,741	1,551	1,873	2,143	2,220	2,272
PENNSYLVANIA	7,778	8,825	11,913	12,704	12,543	12,331	12,593	13,541	13,920	14,568
RHODE ISLAND	888	1,108	1,844	1,924	1,694	1,536	1,571	1,753	1,812	1,873
SOUTH CAROLINA	6,911	7,699	8,809	8,870	8,931	8,994	10,379	14,152	15,699	15,096
SOUTH DAKOTA	156	241	362	413	420	433	478	520	559	589
TENNESSEE	7,616	10,584	11,504	12,329	12,630	12,476	15,510	20,654	22,992	20,808
TEXAS	11,176	16,108	22,276	22,407	21,435	21,042	22,653	29,246	34,034	35,303
UTAH	734	1,099	1,366	1,435	1,249	1,335	1,581	2,007	1,905	2,052
VERMONT	611	745	975	1,016	1,060	915	935	1,194	976	1,079
VIRGINIA	11,025	11,540	15,939	15,922	16,586	16,376	17,377	18,117	16,872	18,620
WASHINGTON	2,504	3,254	4,766	4,400	4,483	4,733	4,955	5,975	5,742	6,206
WEST VIRGINIA	1,718	1,726	2,010	2,240	2,196	2,101	2,163	2,492	2,477	2,572
WISCONSIN	2,164	2,615	3,667	3,546	3,733	3,599	3,654	4,181	4,141	4,237
WYOMING	175	294	361	463	443	510	420	551	605	664
Total			347,404	347,559	344,773	336,658	362,610	416,366	441,688	452,746
Total Domestic	211,786	250,750	331,718	332,092	328,726	321,414	347,330	402,198	427,684	438,085

Table A.6: Alphabetical Listing of Historic Net Inflow to Florida

Net InFlow to FL	1985 - 1990 avg	1995 - 2000 avg	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
ALABAMA	1,030	(762)	1,760	1,068	160	979	(1,256)	(3,997)	(4,524)	(4,694)
ALASKA	286	191	223	150	163	136	431	118	204	175
ARIZONA	15	(906)	(654)	(286)	88	8	(927)	(2,263)	(1,952)	(1,653)
ARKANSAS	701	133	627	592	428	540	132	(1,000)	(696)	(1,119)
CALIFORNIA	4,635	5,811	2,178	6,133	6,223	7,965	9,769	5,762	1,928	(2,079)
COLORADO	1,855	(684)	168	1,522	2,485	1,682	1,261	(700)	(1,990)	(2,062)
CONNECTICUT	8,522	5,863	3,997	5,762	5,581	8,940	9,410	8,032	5,400	3,926
DELAWARE	526	666	741	664	453	749	988	857	624	461
DISTRICT OF COLUMBIA	448	460	(105)	114	138	236	207	(49)	83	(51)
Foreign	-	-	7,242	7,660	6,786	8,822	8,412	10,049	10,332	8,466
GEORGIA	(5,436)	(11,640)	(2,406)	631	(1,030)	1,098	(3,008)	(15,828)	(27,487)	(19,995)
HAWAII	603	836	189	118	224	214	453	152	478	72
IDAHO	160	(56)	76	64	11	158	89	(208)	(293)	(187)
ILLINOIS	13,382	9,711	9,809	10,571	10,895	12,107	10,697	7,849	4,441	1,558
INDIANA	6,385	3,845	4,903	5,381	4,775	6,131	4,724	3,183	1,139	712
IOWA	1,803	677	1,033	1,299	1,020	1,014	801	405	249	(55)
KANSAS	844	661	1,001	1,225	849	1,518	1,114	606	208	(318)
KENTUCKY	2,428	700	2,158	1,526	1,029	992	1,033	(213)	(1,080)	(1,350)
LOUISIANA	5,878	1,069	2,170	1,486	928	1,569	891	6,506	(1,105)	(1,518)
MAINE	1,428	1,177	906	987	717	1,142	1,576	1,183	498	624
MARYLAND	4,151	5,133	3,667	3,770	4,291	6,793	7,485	6,638	4,442	2,515
MASSACHUSETTS	11,529	7,692	7,655	10,081	10,127	15,902	16,838	13,117	8,072	3,931
MICHIGAN	12,390	7,231	6,757	6,900	7,711	9,036	10,020	10,521	10,205	8,286
MINNESOTA	1,761	1,712	1,712	2,271	2,247	2,995	2,598	1,760	1,210	667
MISSISSIPPI	1,699	(349)	1,001	754	693	647	332	1,974	(1,095)	(1,177)
MISSOURI	2,206	1,701	2,417	2,681	2,181	2,301	2,126	868	147	17
MONTANA	347	142	61	4	(4)	73	(3)	(156)	(136)	(221)
NEBRASKA	841	468	659	802	511	719	686	541	173	40
NEVADA	(155)	(1,326)	(482)	(295)	(401)	(377)	175	(967)	(1,053)	(1,009)
NEW HAMPSHIRE	2,225	1,212	1,574	2,199	2,334	3,703	3,495	2,452	1,740	1,004
NEW JERSEY	24,192	16,802	15,706	17,167	17,007	23,841	27,300	23,563	16,639	11,236
NEW MEXICO	514	436	817	234	390	369	169	(447)	(364)	(279)
NEW YORK	59,416	47,602	34,656	39,096	37,770	53,145	62,600	52,073	32,800	18,018
NORTH CAROLINA	(3,445)	(7,738)	(2,582)	(989)	(562)	(269)	(2,703)	(11,398)	(17,573)	(15,804)
NORTH DAKOTA	379	241	221	264	142	116	262	134	127	(33)
OHIO	13,666	8,689	10,242	9,722	9,490	11,327	12,130	10,552	6,878	4,632
OKLAHOMA	2,106	332	946	822	568	1,136	248	(330)	(820)	(892)
OREGON	(56)	170	242	308	166	716	198	(260)	(438)	(592)
PENNSYLVANIA	12,121	9,652	8,569	8,012	7,632	11,960	13,400	10,197	6,629	4,626
RHODE ISLAND	2,038	1,466	1,448	1,626	1,873	3,217	3,938	3,006	2,197	1,510
SOUTH CAROLINA	(707)	(1,405)	540	744	244	583	(524)	(4,734)	(7,081)	(6,403)
SOUTH DAKOTA	276	92	163	181	197	210	181	69	30	(10)
TENNESSEE	(369)	(3,174)	180	(407)	(679)	(340)	(4,045)	(9,679)	(12,691)	(10,479)
TEXAS	11,715	(693)	658	772	2,388	2,967	1,672	(6,232)	(13,293)	(15,142)
UTAH	271	27	259	170	490	506	304	(295)	(232)	(521)
VERMONT	632	634	509	672	525	865	873	446	421	239
VIRGINIA	2,358	3,651	3,293	4,171	3,111	4,887	5,803	3,599	3,042	(258)
WASHINGTON	(38)	545	581	1,095	1,083	794	765	(1,002)	(928)	(1,393)
WEST VIRGINIA	2,444	368	882	394	380	701	706	147	(225)	(555)
WISCONSIN	4,018	2,287	2,373	2,892	2,633	3,014	3,312	2,322	1,435	1,120
WYOMING	318	51	166	85	142	106	131	40	(188)	(248)
Total			140,906	162,865	156,603	217,643	217,269	128,963	26,527	(16,262)
Total Domestic	**214,336**	**121,405**	**133,664**	**155,205**	**149,817**	**208,821**	**208,857**	**118,914**	**16,195**	**(24,728)**

Table A.7: Percent Change in Gross Inflow to Florida from Select States

Percent Change				
State	**2005-06**	**2006-07**	**2007-08**	**Avg.**
NEW YORK	-10.1%	-21.9%	-16.4%	-16.2%
NEW JERSEY	-9.0%	-20.5%	-13.7%	-14.4%
PENNSYLVANIA	-8.7%	-13.4%	-6.6%	-9.6%
MASSACHUSETTS	-12.9%	-21.3%	-15.5%	-16.5%
OHIO	-1.8%	-13.3%	-8.6%	-7.9%
ILLINOIS	-10.3%	-18.1%	-11.1%	-13.2%
CALIFORNIA	-11.2%	-17.2%	-9.5%	-12.6%
TEXAS	-5.4%	-9.9%	-2.8%	-6.0%
GEORGIA	-5.8%	-5.4%	3.5%	-2.6%
NORTH CAROLINA	-6.7%	-5.3%	-0.7%	-4.2%
VIRGINIA	-6.3%	-8.3%	-7.8%	-7.5%

Table A.8: Percentage Change Outflows from Florida to Select States

Percent Change				
State	**2005-06**	**2006-07**	**2007-08**	**Avg.**
ALABAMA	16.5%	0.7%	5.0%	7.4%
GEORGIA	28.8%	20.4%	-11.0%	12.7%
KENTUCKY	16.0%	0.6%	2.2%	6.3%
NORTH CAROLINA	31.3%	16.8%	-5.3%	14.3%
SOUTH CAROLINA	36.4%	10.9%	-3.8%	14.5%
TENNESSEE	33.2%	11.3%	-9.5%	11.7%
VIRGINIA	4.3%	-6.9%	10.4%	2.6%
TEXAS	29.1%	16.4%	3.7%	16.4%
NEW YORK	8.1%	9.6%	18.0%	11.9%
OHIO	8.9%	3.1%	3.0%	5.0%
PENNSYLVANIA	7.5%	2.8%	4.7%	5.0%
CALIFORNIA	5.3%	-1.9%	11.5%	5.0%

Table A.9: Gross Outflow from New Jersey

Outflow From New Jersey	**2004-05**	**2005-06**	**2006-07**	**2007-08**
Total Domestic Outflow	196,067	205,670	190,425	180,717
Outflow to Florida	37,809	34,398	27,348	23,600
% of Total Outflow to FL	**19.28%**	**16.72%**	**14.36%**	**13.06%**

Table A.10: Percent Change in Gross Outflow from New Jersey to Select States

Rank	Avg % Chg 2005-2008	
4	TEXAS	11.45%
6	NORTH CAROLINA	7.95%
10	SOUTH CAROLINA	5.53%
13	GEORGIA	3.19%
32	ALABAMA	-3.05%
45	KENTUCKY	-7.00%
46	VIRGINIA	-7.02%
47	ARIZONA	-8.04%
48	MISSISSIPPI	-9.43%
50	FLORIDA	-14.41%

Table A.11: Gross Outflow from Massachusetts

Outflow From Mass.	2004-05	2005-06	2006-07	2007-08
Total Domestic Outflow	142,506	136,756	124,828	118,624
Outflow to Florida	24,905	21,698	17,079	14,438
% of Total Outflow to FL	17.48%	15.87%	13.68%	12.17%

Table A.12: Percent Change in Gross Outflow from Massachusetts to Select States

Rank	Avg % Chg 2005-2008	
5	NORTH CAROLINA	6.48%
6	TEXAS	5.61%
13	KENTUCKY	1.54%
27	SOUTH CAROLINA	-2.14%
34	TENNESSEE	-4.54%
38	GEORGIA	-5.42%
42	VIRGINIA	-7.53%
46	ARIZONA	-9.05%
48	NEW MEXICO	-11.67%
50	FLORIDA	-16.54%

Table A.13: Gross Outflow from Pennyslvania

Outflow From Penn.	2004-05	2005-06	2006-07	2007-08
Total Domestic Outflow	186,674	192,753	186,756	189,381
Outflow to Florida	25,993	23,738	20,549	19,194
% of Total Outflow to FL	13.92%	12.32%	11.00%	10.14%

Table A.14: Percent Change in Gross Outflow from Pennyslvania to Select States

Rank	Avg % Chg 2005-2008	
5	TEXAS	6.63%
11	NORTH CAROLINA	5.48%
15	ALABAMA	4.99%
17	GEORGIA	4.58%
21	SOUTH CAROLINA	3.71%
22	CALIFORNIA	2.74%
35	ARIZONA	-0.74%
44	KENTUCKY	-2.92%
49	NEW MEXICO	-4.95%
50	FLORIDA	-9.57%

Table A.15: Gross Outflow from Illinois

Outflow From Illinois	2004-05	2005-06	2006-07	2007-08
Total Domestic Outflow	228,355	228,971	218,027	218,270
Outflow to Florida	21,884	19,632	16,073	14,293
% of Total Outflow to FL	9.58%	8.57%	7.37%	6.55%

Table A.16: Percent Change in Gross Outflow from Illinois to Select States

Rank	Avg % Chg 2005-2008	
8	TEXAS	3.76%
17	SOUTH CAROLINA	2.24%
20	ALABAMA	1.89%
25	NORTH CAROLINA	1.30%
34	NEW MEXICO	-1.77%
35	GEORGIA	-1.82%
38	KENTUCKY	-2.84%
39	TENNESSEE	-3.00%
49	ARIZONA	-7.32%
50	FLORIDA	-13.16%

Table A.17: Gross Inflow to New Mexico

Inflow to New Mexico	2004-05	2005-06	2006-07	2007-08
Total Domestic Inflow	60,202	62,082	60,963	58,253
y2y% Change	-	3.12%	-1.80%	-4.45%

Table A.18: Percent Change in Gross Inflow to New Mexico from Select States

Rank	Avg % Chg 2005-2008	
3	MICHIGAN	10.16%
14	FLORIDA	2.12%
19	NEW JERSEY	0.85%
29	TEXAS	-1.14%
33	CALIFORNIA	-1.71%
34	ILLINOIS	-1.77%
39	GEORGIA	-2.69%
45	PENNSYLVANIA	-4.95%
48	NEW YORK	-10.67%
49	MASSACHUSETTS	-11.67%

Table A.19: Gross Inflow to Georgia

Inflow to Georgia	2004-05	2005-06	2006-07	2007-08
Total Domestic Inflow	238,766	278,081	276,570	255,728
y2y% Change	-	16.47%	-0.54%	-7.54%

Table A.20: Percent Change in Gross Inflow to Georgia from Select States

Rank	Avg % Chg 2005-2008	
3	FLORIDA	12.74%
4	MICHIGAN	9.03%
10	PENNSYLVANIA	4.58%
11	NEW MEXICO	4.27%
12	VIRGINIA	4.12%
14	NEW JERSEY	3.19%
20	ARIZONA	2.05%
21	OHIO	1.87%
23	NEW YORK	1.46%
24	NORTH CAROLINA	1.43%
37	ILLINOIS	-1.82%
46	MASSACHUSETTS	-5.42%

Table A.21: Gross Inflow to South Carolina

Inflow to South Carolina	2004-05	2005-06	2006-07	2007-08
Total Domestic Inflow	116,905	130,218	133,518	135,142
y2y% Change	-	11.39%	2.53%	1.22%

Table A.22: Percent Change in Gross Inflow to South Carolina from Select States

Rank	Avg % Chg 2005-2008	
1	NEW MEXICO	21.66%
3	MICHIGAN	16.43%
4	FLORIDA	14.48%
11	ARIZONA	10.40%
18	OHIO	6.58%
21	NORTH CAROLINA	5.56%
22	NEW JERSEY	5.53%
30	PENNSYLVANIA	3.71%
37	CALIFORNIA	2.13%
38	NEW YORK	1.89%
47	MASSACHUSETTS	-2.14%
50	VERMONT	-6.52%

Table A.23: Gross Inflow to Tennessee

Inflow to Tennessee	2004-05	2005-06	2006-07	2007-08
Total Domestic Inflow	152,838	165,869	163,593	161,176
y2y% Change	-	8.53%	-1.37%	-1.48%

Table A.24: Percent Change in Gross Inflow to Tennesee from Select States

Rank	Avg % Chg 2005-2008	
3	DISTRICT OF COLUMBIA	12.65%
4	FLORIDA	11.66%
6	MICHIGAN	8.79%
8	NEW MEXICO	6.36%
12	VIRGINIA	4.21%
14	ARIZONA	2.76%
27	PENNSYLVANIA	0.69%
30	NEW YORK	0.09%
34	NEW JERSEY	-0.33%
49	MASSACHUSETTS	-4.54%
50	MAINE	-5.09%

Appendix B

Table B.1 2005 Logistic Regression

Variable	Coefficient	S.E.	Chi-Square	Pr > ChiSq
Intercept	-2.9173	0.432	45.6114	<.0001
Male	0.1509	0.1369	1.2157	0.2702
Married	0.108	0.1611	0.4497	0.5025
Family	-0.0224	0.1689	0.0176	0.8945
Education	0.1299	0.1168	1.2383	0.2658
Young	0.2082	0.1759	1.4005	0.2366
Old	-0.3077	0.3241	0.9013	0.3424
Hispanic	-0.9226	0.4196	4.8353	0.0279
Black	-0.287	0.4128	0.4832	0.487
Homeowner	-1.4399	0.1556	85.6878	<.0001
IncomePer	-0.0212	0.073	0.0841	0.7719
Unemployment	1.099	0.2822	15.1709	<.0001
Employment	-0.5925	0.1799	10.8478	0.001
Retirement	0.0145	0.317	0.0021	0.9634

Table B.2 2005 Odds-Ratio Tables

Variable	Odds-Ratio	95% Confidence Limits	
Male	1.163	0.889	1.521
Married	1.114	0.812	1.528
Family	0.978	0.702	1.362
Education	1.139	0.906	1.432
Young	1.231	0.872	1.739
Old	0.735	0.389	1.388
Hispanic	0.397	0.175	0.905
Black	0.751	0.334	1.686
Homeowner	0.237	0.175	0.321
IncomePer	0.979	0.849	1.13
Unemployment	3.001	1.726	5.218
Employment	0.553	0.389	0.787
Retirement	1.015	0.545	1.889

Table B.3 2008 ACS Summary Statistics

Florida	Non-Mover	Mover
TOTAL 2007-2008		
	97.61%	2.39%
Marital Status		
Married	45.20%	34.76%
SEX		
Male	48.21%	50.70%
Female	51.79%	49.30%
AGE		
1 to 18	22.34%	24.18%
19 to 34	18.60%	35.39%
35 to 60	35.51%	27.46%
60 to 85	23.55%	12.97%
Race		
White	65.96%	73.15%
Hispanic	17.47%	12.39%
Black	14.50%	11.06%
Other	2.23%	3.40%

Table B.4 2008 Summary Statistics

Florida	Non-Mover	Mover
TOTAL 2007-2008		
	97.61%	2.39%
Educational Attainment		
Less than High School	21.33%	22.01%
High School Graduate	28.44%	31.37%
College Graduate	19.10%	20.83%
Household Status		
Homeowner	71.31%	36.22%
Poverty Status	0.68%	1.24%
Retired	21.63%	11.78%
Income Percentile		
Bottom 25th Percentile	24.85%	32.88%
The 2nd 25th Percentile	19.81%	17.64%
The 3rd 25th Percentile	20.70%	20.84%
The Top 25th Percentile	34.24%	28.65%

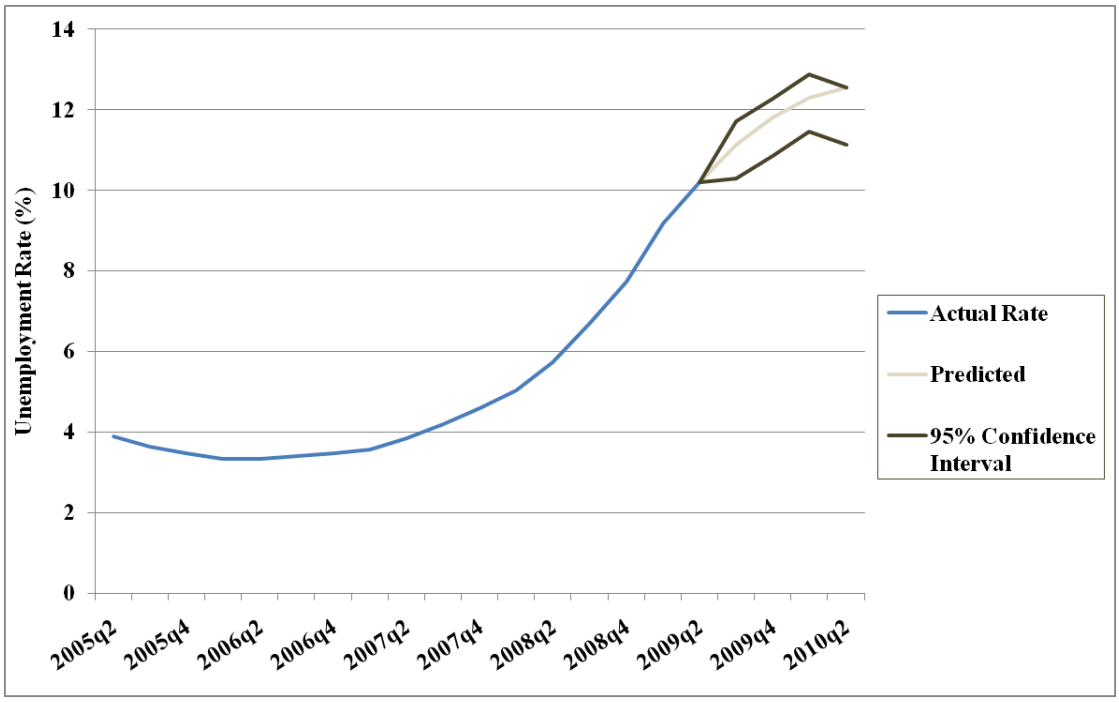
Appendix C

Section 1: Unemployment Rate Forecast

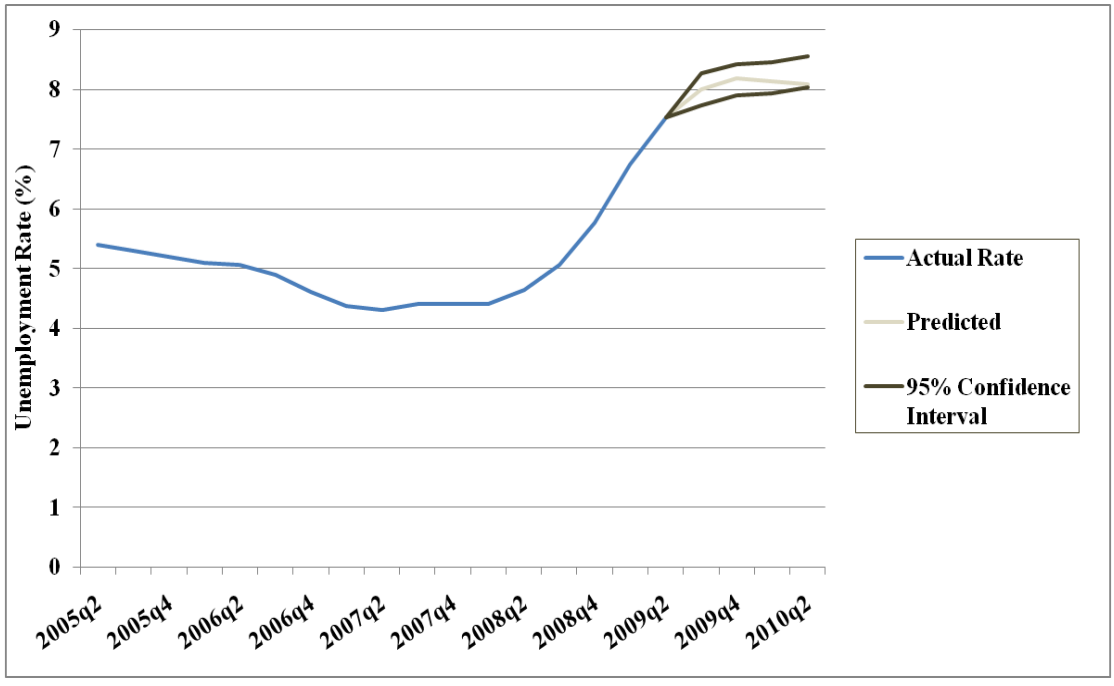
Autoregressive models were used to forecast the unemployment rates. In this process previous time periods are used to predict the future time periods. It is very important how these previous time periods are selected. The number of time periods can be selected by using a number of statistical measures. In particular for these models anywhere from three to four time periods were selected according to either the Akaike Information Criterion (AIC) or the Bayesian Information Criterion (BIC).

After the time periods were decided on, an in-sample check was done to check the statistical validity of the predictions. This check was done by applying the selected lag structure to actual historical data points. By applying the Root-Mean Squared Error measure to the errors that resulted from difference in actual and predicted values, it was found that the models could predict future time periods with 95% confidence. After finding that these models were statistically sound, it was then used to predict the unemployment rates for the respective regions over the next four quarters. Although each model was different in the usage of lag periods or the particular information criterion this general process was applied to each model. The statistical checks are graphically represented with the confidence intervals for each individual region that was forecasted. The rule of thumb here is that the lag structure is valid if the in-sample prediction is within the 95% confidence intervals.

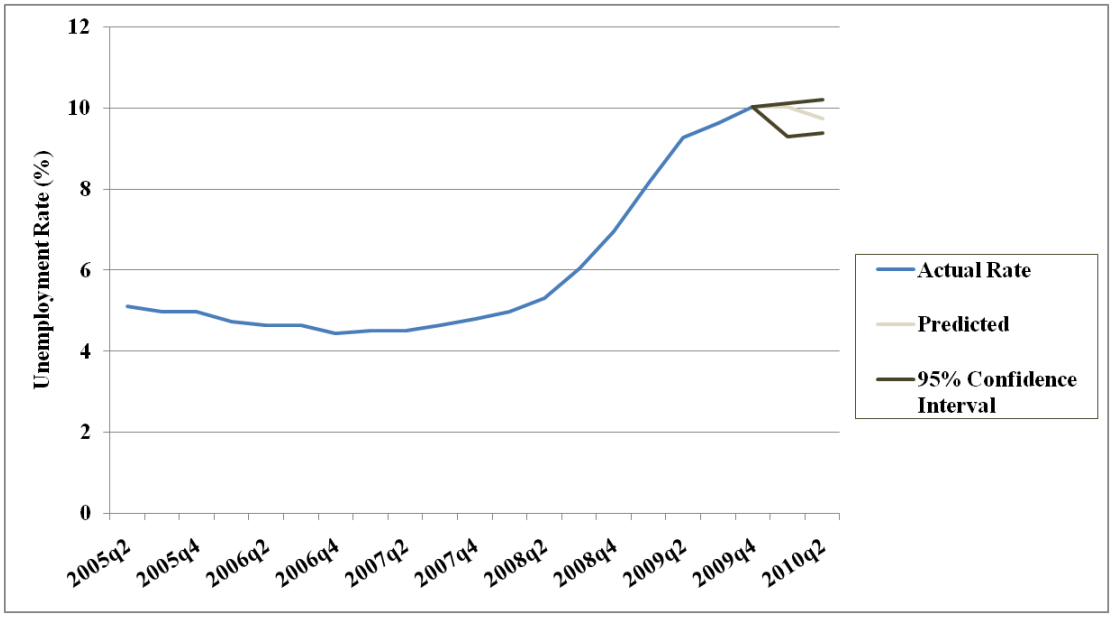
Graph C.1: Statistical Check of Florida's Unemployment Rate Forecast



Graph C.2: Statistical Check of Texas's Unemployment Rate Forecast



Graph C.3: Statistical Check of the United States' Unemployment Rate Forecast



*Given the structure of this data set and the nature of the autoregressive process only 2010-Q1 and 2010-Q2 were able to be predicted with statistical significance.

Next the models that were used for the forecasts are represented first in symbols, Table 99, and then with actual numbers, Table 100.

Table C.1 : Symbolic Representation of Autoregressive Models

$Florida: AR(3)\ \ FLU_{Future} = a + B_1 FLU_{L1} + B_2 FLU_{L2} + B_3 FLU_{L3} + \mathcal{E}$
$Texas: AR(4)\ \ FLU_{Future} = a + B_1 TXU_{L1} + B_2 TXU_{L2} + B_3 TXU_{L3} + B_4 TXU_{L4}\ \mathcal{E}$
$United\ States: AR(3)\ \ FLU_{Future} = a + B_1 USAU_{L1} + B_2 USAU_{L2} + B_3 USAU_{L3} + \mathcal{E}$

*U is used as an abbreviation for Unemployment Rate; a is a constant; B_i refers to weight previous period "i" will carry on the future; FLU_{Li} is the current account for period "i"; $\mathcal{E}$ is the error term. FL is used for Florida, TX is used for Texas and USA is used for the United States.

Table C.2 : Numbers Used in Autoregressive Models

$Florida: AR(3)\ \ FLU_{Future} = 0.37 + 1.56FLU_{L1} - 0.25FLU_{L2} - 0.38FLU_{L3} + \mathcal{E}$
$Texas: AR(4)\ TXU_{Future} = 0.37 + 2.44TXU_{L1} - 2.48TXU_{L2} + 1.43TXU_{L3} - 0.45TXU_{L4} + \mathcal{E}$
$United\ States: AR(3)\ \ USAU_{Future} = 0.49 + 1.48USAU_{L1} - 0.13USAU_{L2} - 0.43USAU_{L3} + \mathcal{E}$

* The AIC was used to decide on the time lags for Florida and the United States while the BIC was used for Texas's time lags.

Section 2: Confidence Intervals

For obvious reasons, when predicting the future the presence of error is always there and this is why a confidence interval is used. In order to say with assurance that a prediction is credible a forecaster must allow room for deviance in their predictions. In this case a measure called the Root-Mean Squared Error was used as a confidence interval. An inherent flaw in forecasting is that the further we try to predict out into future the lower degree of confidence we are able to have. In Tables C.3, C.4, and C.5 below the 95% confidence intervals are shown as constant. This means that 95% of the time these forecasts will be within the confidence interval shown. It is important to note that in reality this interval would be getting progressively larger as time periods move further into the future.

Table C.3: Florida's Unemployment Rate: 95% Confidence Intervals

Date	Upper and Lower Boundaries (in Percentages)
2010 Q3	[11.78,11.09]
2010 Q4	[10.98,10.29]
2011 Q1	[9.97,9.28]
2011 Q2	[8.74,8.05]

Table C.4: Texas' Unemployment Rate: 95% Confidence Intervals

Date	Upper and Lower Boundaries (in Percentages)
2010 Q3	[8.11, 8.57]
2010 Q4	[7.92, 8.38]
2011 Q1	[7.50, 7.97]
2011 Q2	[6.95, 7.42]

Table C.5: United States' Unemployment Rate: 95% Confidence Intervals

Date	Upper and Lower Boundaries (in Percentages)
2010 Q3	[8.88, 9.84]
2010 Q4	[8.37,9.33]
2011 Q1	[7.63,8.59]
2011 Q2	[6.79,7.75]