Residential Choice and Dual Income Couples

His Career, Her Career, Their Home

A Literature Review and Study Using Census Data from 1980, 1990, and 2000

By

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Chapel Hill

2005

Approved by:

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READER (optional)                                                             ADVISOR
# Residential Choice and Dual Income Couples

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Abstract: A review of the literature indicated that there was the possibility that travel patterns among dual income married couples differed from those who were married with children. Published research also indicated that there may be a trend whereby couples may commute more in order to work two jobs, and that the presence of careers versus jobs was significant. This research indicates that there is a difference in residential choice patterns in Guilford County, North Carolina between married couples with children and those without children; there is an outward migration of couples from the areas surrounding the downtown of Greensboro, North Carolina to the exurban parts of the county; and married couples are displaying a willingness to increase their average commute in order to have two careers.

1. Statement of Problem: Two of the main influences on the urban form during the past forty years have been the introduction of the freeway system and increased presence of women in the workforce. The presence of women in the workforce, and more particularly the presence of both husband and wife in the workforce and the effects that dual career families have on urban form is the heart of this project. Closely related to this issue is how is the wealth distributed through a community. This paper will look at the distribution of dual income families, both with and without children, and the distribution of income in Guilford County to address these two issues.

The questions that I seek to answer are three-fold: 1) How much do couples share in the total commute from home to their places of work? 2) What is the effect of the presence of children on the commuting patterns of dual income families? 3) How can GIS aid in the identification, categorization, and dissemination of commuting distances of dual career commuters?

Robert Fishman, listed in his essay, “The American Metropolis at Century’s End: Past and Future Influences,” two top ten lists of influences on the American Metropolis: ‘The Top 10 influences on the American Metropolis of the past 50 years’ and ‘The 10 most likely influences

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on the American metropolis for the next 50 years. The number one influence over the past 50 years was the 1956 Interstate Highway Act. If he were asked today what has had an even larger influence on urban form he might include the introduction of the urban loop or beltway that wraps around most cities encourages outward sprawl of both jobs and housing. This topic could be a master’s project of its own, as the cities of Charlotte, Raleigh, and Greensboro have all started construction of Urban Loops. The combined outward migration and the ensuing polycentricity that has been created have had a huge impact on urban form and the dispersion of people, making the delivery of services harder and more expensive, while reducing the opportunities to actively promote other means of travel for the daily commuter beyond the single passenger occupied vehicle.

The active pursuit of inexpensive land to develop has gutted the central city and increased travel times for a large number of people. A question brought about by a group of researchers is: “do people choose to live on the fringes because the housing is cheaper and the commutes are tolerable to enable themselves to earn higher incomes by working in the city?” (Renkow, Hoover and Yoder 1996.) This outward migration of workers and jobs can be seen in the land use patterns in the Triad of North Carolina (Greensboro, Winston-Salem, and High Point) that were present during 1994 and the projected land uses for 2025. (See figure 1 in Appendix)

In stark contrast to the early finding of Joel Garreau and his book “Edge Cities” some research has shown (Sultana 2000) instances where travel time has dropped as both jobs and housing migrate to similar areas of the city. The Sultana study looked at the migration of workers and jobs to the edges of Atlanta, Georgia. A similar pattern was noted by Robert

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3 Sultana(2000.) pg. 228
Cervero in a 1997 paper regarding the commuting patterns in San Francisco, which was noted in a paper by William Clark.⁴

Author Jane Holtz Kay, in her classic book “Asphalt Nation,” states that in southern California homes with two or more cars rose from 7 to 70% of households in the past four decades.⁵ This trend is more than an isolated event. It is being reported more and more that we have more automobiles than licensed drivers in the United States. The availability of quality and quantity of roads, and the dispersal of services that have ensued as a result thereof, has made owning an automobile a necessity rather than an option.

This paper is designed to show that there has been a literature review on the subject of dual career commuters and that GIS will be able to help quantify the effects that residential choice by dual career families has had on the geographic layout of the city of Greensboro, NC. If changes are not made in the way that we look at our region, especially considering where people live and where people work, the urbanized areas of Greensboro, Winston-Salem, and High Point will lose their individual identities and become a sprawling metropolitan region (See Figure 1.) Greensboro, North Carolina was chosen because it is where the researcher lives with his wife and daughter.

2. Literature Review: There are several factors which influence people’s decisions where to live, including age⁶, gender, income⁷, education⁸, tenure of residence⁹, tenure of job¹⁰, whether they rent or own¹¹, whether or not the couples are of same sex, and whether or not children are

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⁵ Kay, Jane Holtz (1997) pg. 43
⁷ Waddell (2002)
⁸ Spain (1997)
⁹ Waddell (2003)
¹⁰ Waddell (1996)
¹¹ Waddell (1996)
present. In addition, people choose where to live based upon where they work and where they can buy the most home for the least amount of money. People will often trade accessibility for space, and space for money. People often vote with their feet, choosing to locate in communities which provide services or amenities that best suit their personal preferences.

Figure 2, in the appendix, shows that there is no longer a simple unidirectional movement of commuters within county boundaries. Guilford County, alone, has commuters migrating daily to five other counties, and those five counties have commuters traveling to Guilford County in return. (See Appendix – Table 1.) Urban form has changed from the traditional monocentric model to a polycentric model. As Larry Bourne stated in his book “The Internal Structure of the City (1982)” “People and goods do not move equally in all directions…..Everything is related to everything else. Interrelationships are undoubtedly the essence of the city and of urban structure.”

Our cities have become spider webs of dendritic connections. Cities hardly resemble the strong urban cores that were developed at the end of the 19th Century and the beginning of the 20th Century.

My interest in this area of study stems from my 14 years of experience as a Realtor®. In the business there is the axiom for selling homes, one which I never liked, “Location, Location, Location.” Location may be more relevant pertaining to the choice of the site of a family’s home than even the author of the axiom could imagine. While schools and condition of a home, room count, and price have a large bearing on a person’s decision, or a couple’s decision, to buy a home, location may be of at least double importance. The research conducted for this project indicates that couples are looking for a housing Location relatively close to his job and a Location relatively close to her job. My experience as a Realtor® indicates that the third Location

which buyers use in making their decisions to purchase a home includes a Location relatively close to their children’s schools. Home buyers often look to balance the commutes that the individual spouses drive to their respective jobs. Put another way, couples will often “split the difference” between their jobs so that neither person spends more time commuting than the other. An example is the couple that chose to live in Greensboro while one spouse commutes to Burlington and the other commutes to Asheboro.

The commuting patterns observed in 2000, as reported in the Journey to Work statistics from the 2000 US Census, indicate a large amount of cross-county commuting (Figure 2.15 and Table 1) as is evidenced in one study, and as I can attest to from personal experience as a Realtor® in Milwaukee, Wisconsin, couples will choose to live in one county and work in another.16

Home buyers also choose where to live based upon where they can get the most home for their money. Are people purchasing homes where they want to live or where they are being built? This pursuit for the best value in housing often changes when children enter the picture. Commuting distance or housing stock is often secondary in importance to the school district in which the couple resides. This is a chicken and egg question that deserves further research, and is outside the scope of this Masters Project.

Some research indicates that there is a change in distance traveled after a move.17 If a family has moved, it normally moves to reduce the total commute distance of the couple, with

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14 Waddell (1996)
15 Figures 1 and 2 an title page image provided by Piedmont Authority for Regional Transportation
16 Renkow, Hoover, and Yoder (1996), pg. 2
17 Clark, William A.V., Youquin Huang, and Suzanne Withers (2003),
the husband’s commute being longer than the wife’s.\textsuperscript{18} The same study indicates that distance traveled does not appear to be causative to making the move to reduce the distance traveled.

Differences in traveling distances/times by spouses can be explained through the process of trip-chaining \cite{Bianco1998, Sarmento1996}. Trip chaining is where one spouse makes numerous stops during the course of a day to accomplish the objectives for the household.

There have been studies that attempt to break down the demographics of the buying population into a varying number of sub-consumer groups. One study went so far as to break down into 5 different categories: dual income traditionalists, dual-career urbanites (no children planned), gay dual careerists, the single parent household, and the household where someone other than the parent is raising a child (sibling or grandparent).\textsuperscript{19} In another study, Kevin Krizek and Paul Waddell \cite{Krizek2002} broke Household Socio-demographic information into nine classes: Retirees; single, busy urbanists; Elderly homebodies; Urbanists with higher incomes; Transit users; Suburban errand runners; Family and activity oriented participants; Suburban workaholics; and Exurban, family commuters.\textsuperscript{20}

There are three types of dual career couples that need to be considered while searching for patterns in commuting, in order to simplify the categorization of the results: 1) Dual Career No Kids 2) Dual Career with Children, 3) Dual Career Post Children. The first category has been called DINKs in the popular press. The second category includes any family with one or more children under the age of 18 who lives at home. The third category is important to identify separately from the first, from a planning perspective, in that the third group will require less financial output in the form of school creation. This study is unable to separate out the dual

\textsuperscript{18} Clark (2003.) page 205
\textsuperscript{19} Volk, Laurie and Todd Zimmerman (2002.) “American households on (and off) the Urban-to-Rural Transect,” Journal of Urban Design, Volume 7, number 3, pg. 345
\textsuperscript{20} Krizek and Waddell(2002) pg 8
career no kids and the dual career post-kids groups. A follow-up survey of dual careerists to determine if they have had kids or if they plan on having children would have to be done to examine this issue.

As stated at the outset of this section, age is also a factor to be considered in the study. In their study Volk and Zimmerman (2002) that younger households move more frequently than older households.\(^\text{21}\) Similarly, Spain (1997) in her study referenced the age of baby boomer women as well as education level, income, and ethnicity, as well as the possession of a driver’s license as factors that impact mobility and residential choice.\(^\text{22}\) The presence of a driver’s license was not measured in this study.

Gender is also important. Research has shown that after a move has occurred women will tend to have a shorter commute than men\(^\text{23}\). This could be because the women are both breadwinners and chauffeurs.

Income, intuitively, should have some bearing on the mobility of couples just from the standpoint of paying for gasoline, insurance, and general maintenance on the car, not to mention the original investment of purchasing the car\(^\text{24}\). Income levels will have a larger influence on mobility issues as the price of gasoline continues to climb. Compounding this issue is that cities, in general, and Greensboro specifically, appear to be segregated by class where they used to be segregated by color. It will be interesting to read future research studying the effects that higher prices have on our commuting patterns, as well as the effects that they have on the choice of our automobiles. Will we see renewed interest in fuel efficiency? Will we see renewed interest in mass transit? Will we see the gas lines that were common in the late 1970’s?

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\(^{21}\) Volk and Zimmerman (2002) pg. 350
\(^{22}\) Spain, Daphne (1997) pg. 6
\(^{23}\) Clark, Huang and Withers (2003) pg 199
\(^{24}\) Ritter, John. “We’ve had to tighten up a lot of things, say commuters” USA Today, 3/30/2005
Other trends that have been noted are that renters tend to commute shorter distances than home owners. Waddell showed in his study that single worker renters travel less distance than single worker owners, and that dual worker household owners travel further to work than dual income household renters. Of special importance is to note that Waddell’s work reinforces previously related research that in dual worker households the females, whether renter households or owner households, have shorter commutes to work than the males.

I can attest to this from my experience as a Realtor. Renters, while obligated to yearly leases often move whenever they find a better location, and a better location is usually one which is closer to work. Homeowners, conversely, are restricted in their ability to move, more often than not, based on how quickly they can sell their homes and how fast they can find a home to purchase. Homeowners are also limited in their moves by the opportunity to ‘take a loss’ on their home if the current sales price is less than their purchase price, with or without the commission of a real estate agent included in the costs of selling. In some areas where schools have strict attendance areas, unlike Guilford County, people feel restricted to buying a home within same school district as the school where their child or children are attending.

Sexual orientation is also having an impact on urban form and residential choice. Trends indicate that gay couples have a larger amount of disposable income and a preference to live within urban metropolitan areas. This variable was eliminated in this study by only determining the census tracts where married couples live.

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25 Waddell (1996) pg 14
26 Volk, Laurie and Todd Zimmerman (2002.) “American households on (and off) the Urban-to-Rural Transect,” Journal of Urban Design, Volume 7, number 3, pg. 345
“Accessibility has long been identified as the central influence in urban theory of residential location.”\textsuperscript{27} Accessibility can be measured in the distance or time traveled to reach work, accessibility to transit\textsuperscript{28} As an aside, there are specific areas in Guilford County where the use of public transportation is noticeable across the three standard lengths of trips noted in this research, census tracts 15 and 19, both of which are in close proximity to downtown and located on the southeast side of town. These areas show low concentration of Married Couples and low concentrations of Married Couples with kids. These same areas also show nearly the lowest levels of median or average income for married couples.

The review of literature has revealed the fact that analysis of the impact of families on urban form is ongoing and incomplete. GIS has either not been used in the research methods of most studies, or the studies that use GIS use it to measure the effects of the presence transportation infrastructure has on \textit{commuting} rather than to the demographic profile of the \textit{commuters}.\textsuperscript{29} The studies that have been done that use GIS have primarily pertained to the location of roadways in relationship to residences and places of business. The irony is that GIS is often noted as a good tool to use when study time and space changes in land use studies and yet, most of the studies have been static snapshots on one place at one time.

Two exceptions to this GIS snapshot phenomenon are a study of travel behavior at the household level (Srinivasan and Ferreira 2002) and a study of neighborhood design and travel behavior and GIS (Crane and Crepaeau 1998.) Of importance is the work that Kevin Krizek has done observing location choice and the relocation of residents with Portland, Oregon (Krizek 2003) In his study he performed a cross-sectional and longitudinal assessment of 430

\textsuperscript{27} Waddell, Paul. (1996.) “Accessibility and residential Location: The Interaction of Workplace, Residential Mobility, Tenure, and Location Choices,” Presented at the 1996 Lincoln Land Institute TRED Conference, pg. 1
\textsuperscript{28} Krizek, Kevin and Waddell, Paul(2002)
\textsuperscript{29} Joo, Joonwon (2002)
movers. He found that when movers moved they often did so to reduce the length of their trips, while increasing the frequency of their trips. He also discusses the importance on the location or workplaces and of homes in respect to travel patterns, both frequency and length of trips. He also noted that the presence of children also impacts travel patterns, which should come as no surprise.

Moncentricity of cities, as previously stated, has given way to polycentricity. The impacts of this change in urban form are just beginning to be understood. “The assumptions of moncentricity, single worker households, and exogenous workplace location … are at odds with empirical observation.”

This is particularly applicable to Greensboro where the population is spreading out in all directions, especially the Northwest. This outward migration of Greensboro’s population is having a large impact on the school and transportation systems. The Northwest Schools are seen as the most desirable in Guilford County. Overpopulation has lead to a paucity of desk space and relegated students to permanent ‘temporary’ accommodations. A number of school bonds referendums have being voted upon and enacted by the residents of Guilford County in order to correct the lack of school space. This goes back to the discussion that people will choose with their feet in order to find a location which meets a purchaser’s needs outside of the physical characteristics of a house.

“Polycentric models statistically explain today’s spatial distribution of population and employment much better than outdated monocentric models.” This is evidenced by the number of new companies that have built locations on the fringes of the city, and between cities. The location of these jobs and the number of jobs would make for an important follow-up study.

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30 Waddell (1996.) Pg. 1.
As we have seen the propagation of Edge Cities, as described by Joel Garreau in his 1991 book by the same name, both jobs and housing have moved to the edges of the urban structure. Contrary to expectations of longer commuting times, this has led to and decrease in commuting times, and distance, in some cases. A question that often appears is whether or not it is the time spent traveling or the distance traveled that is most important to the careerists? In light of the recent run-ups in price at the gasoline pumps, and the dependency of families with children on large, low gas mileage vehicles for transporting children, this question will be getting more attention.

One final note, in his study of residential relocation, Kevin Krizek (2003) noted aggregation of data by either transportation analysis zones or census tracts is a rather artificial delineation of neighborhoods which tend to use roads as the major reason to divide neighborhoods. This is of importance to this study.

The questions to be answered are: In Greensboro, do married couples live in different parts of the community that married couples with children and have married couples seen an increase in commuting time during the last three census periods. In other words, are couples moving to the fringes of the community and is it making their commuting times longer?

3. Description of the method: There are two components to this research: 1) A literature Review 2) Data dissemination of United State Census using GIS to visually represent the location of dual career couples and families within the Greensboro MSA.

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32 Cervero and Wu (1997) and Sultana (1990)
33 Clark (2003), pg. 205.
The Greensboro/Guilford County Area was chosen for two reasons 1) I live in Greensboro, North Carolina with my wife and daughter 2) Any larger area of research would add to the complexity of the study.

After the literature review is complete, the application of GIS to the City of Greensboro, and Guilford County in which it is located, with regard to the location of married couples with no children, married couples with children, was undertaken. Data sets were collected from the 2000 US Census data and used to display where the population of Greensboro is located based on age, sex, marital status, income, as well as dual career or not. Similar data was obtained from the 1980 and 1990 census data. An analysis was done to see if couples and couples with children are migrating outward from the center of Greensboro and if the lengths of their commutes have been affected during the period of the three census collections.

4. Discussion: At the inception of this study the questions that I asked seemed to be straightforward and simple: Where do dual career families live in Greensboro? Do they share equally in the commute to work? It appears now that there are multiple influences upon residential choice and the spatial orientation of the city. Are couples living in one county and working in another? Are they dual careerists or dual income families? The paucity of research discovered that pertains to GIS, Dual Career Families, and Residential Choice may have something to do with the coming of age of the three topics individually.

The collection of the data was complicated in that the way which the data was collected for each of the census periods was different from the other two census periods. Commuting times for 1980 were divided into the three categories that were used in this paper: 0-19 minutes, 20-44 and over 45 minutes. The data for 1990 was broken down to 5 minute intervals between zero minutes and 44 minutes with commutes of between 45 and 59 minutes, 60 and 89 minutes, and
over 90 minutes being added to the measures. The data was further divided in 2000 to include modes of transportation to the mix, including walking or transit. The 1980 format was used for ease of comparison between the three periods and because the commuting times over 45 minutes have not had a major impact on the county to date, as will be evidenced in the mapping of commute times over 45 minutes for 1980, 1990, and 2000.

The data regarding household income was challenging to use to make direct comparison as a result of the break down in 2000 to include data for husband and wife working, when compared to the data for 1990 and 1980 describing total income-married couple.

5. Findings – The trends noted here will probably suffice. The residents of Greensboro and Guilford County may want to take a closer look at the map to find specific neighborhoods within the community. The census tracts will most likely change with the passage of time. The neighborhoods will remain. “In physical or mechanical systems, the boundaries of (areas) are usually discrete and obvious, but in complex social-spatial systems, such as cities, they seldom are….the way we define (cities) depends upon how we initially define the criteria for membership in, and the organizing principles of, that system.”

(Note: Census tracts 28, 72, and 78 are tracts of interest for the following results. Maps of the three census tracts are in the Appendix. Tract 28 has the major local road, Bryan Boulevard running through the middle of it. Tract 78 has Byran Boulevard running through it and has Us Highway 40 at its southern boundary. Tract 72 has Elm Street, a major north-south road running through it, as well as Cone Boulevard, another major local road, which connects with Us Highway 29.)

Married Couples: The 1980 Census information showed that Married Couples with no children (map 2) were concentrated in census tracts 27, 28, 78, and 80 in Northwest Guilford

34 Bourne(1982) pg. 34
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County, and tracts 92 in Southwest Guilford and tract 68 in Northeast Guilford. The same census showed stronger concentration of couples with children (Map 1) in the same districts and noticeably higher level of concentrations of couples with children in tracts 96 and 28.

The 1990 census tracts showed the same general trends with concentration of married couples with no children (map 4) increasing in census tracts 28, 78, 96, and 68, and a new concentration in census tract 72, located in the area including Lake Jeanette, due north of downtown. Map 3 shows the same pattern for married couples with children. Both maps show an emerging exurban ring of concentration along the northern census tracts of the county (Tracts 65, 70, 74, and 75.)

Subsequently, the 200 census data shows that concentrations of married couples with kids, and without kids, (Maps 5 and 6) continue to increase in tracts 28, 68, 72, 78, 92 and 96. There is an increase in married couples in census tract 93, located between 92 and 96, and in areas 70, 74, and 76, all in the northwest corner of Guilford County.

Maps 22 and 23 indicate that these census tracts also show the same pattern, in 2000, for concentration of population and concentration of children, irrespective of the married couple factor.

**Average Household Income and Average Family Income**: The 1980 census for average household income and average family income, maps 7 and 8, indicate that there were pockets of moderate affluence for households, and that for family average income for those pockets increased in size, particularly in the northwest section of the county, where higher concentrations of married couples and married couples with children had already been noted in the previous section. A new area of interest is found in tract 5, where the highest average
household and family incomes are found. High levels of family income are found in tracts 76, and 78, with noticeably higher income levels in tracts 27 and 28.

The dispersion of wealth appears to follow the same trends as the dispersion of couples noted in the first section of results. (At this point it should be noted that the income values used are based in the 1980, 1990, and 2000, respectively, and have not been adjusted to current dollars.) It should be noted that the 1990 (maps 9 and 10) data indicates that there are areas which are still under 25,000 in annual income, and that the majority of the tracts are seeing average couple incomes in excess of 40,000. Increases in income are noted in tracts 27, 28, 40, 72, 88, 92, 96, and to an extent tract 58. There is also an increase in income level in tract 77, located in northwestern Guilford County. The average married couple income is higher in 5, 25, 40, and 72 where children are present, than where they are not present. These 4 tracts are all north of downtown Greensboro.

The dispersion of income (maps 11 and 12) appears to change somewhat during the 2000 census. Tract 78, the tract with the highest concentration of people and the highest concentration of children sees a modest increase in its standing, as well as the tracts contiguous to it, tracts 76 and 77. Of special note is tract 77. Tract 77 was an area which experienced a noticeable increase in median income for couples without children during the 1990 census. A similar increase in median income is noted in 2000 for couples with children. It may be inferred that the dual income families without children had children during the interim.

Also important to note is that there is a divide forming, a valley of sorts, in income in tracts 13, 2, 1, 41, 23, 24, and 59 forming a wedge of lower income, in order from the center of the census area to the edge. This area is roughly bounded by Church Street on the northerly vector, and highway 29 on the northeasterly diagonal vector.
The limitation here is that the 1990 and 2000 data was segregated by husband and wife working, while the data for 1980 were for household or families and did not indicate marital status. The 2000 data only gave percentages for families with husbands and wives working. And not actual numbers of husbands and wives working.

**Travel Time:** There are two main trends to note with respect to travel time. During the 1980 (maps 13 through 15) and 1990 (maps 16 through 18) census the distribution of those who commuted over 45 minutes was low and equal across the county, and remained unchanged during the 1990 census. Census Tracts 72 and 78, where we have seen an increase in concentration of dual income couples and dual income families are the first two tracts to show an increase in commuting times.

The 1990 census data show an increase in commuting times, nearly uniformly, across the county, in both the 0 to 19 minute commute times, and the 20-44 minute commute times. Commute times for census tracts 28 and 78 show the highest concentrations for zero to 19 and 20 to 44. Travel times are increasing in the exurban tracts of 65, 70, 74, and 75 previously mentioned for increases in concentrations of married couples, with and without kids.

The 2000 census data (maps 19 through 21) show a concentration of more people willing to travel zero to twenty minutes and 20 to 44 minutes in tracts 78, 28, 76, 72, 72, 68, 92, 93, and 95. The concentrations of people traveling 20 to 44 minutes noticeable increases at the fringes, forming almost a bull’s-eye target for an archer. With number of people traveling the farthest on the out fringes and decreasing as the tracts move closer to downtown.

It appears that both income levels and commuting times are increasing in many of the same Census tracts, especially 28, 68, 78, 92, and 96. Census tracts 28 and 78 need further
analysis to determine which directions the couples are traveling, how long they have lived in their present location, and whether they rent or own.

What are the answers to the two questions asked at the end of the literature review section? Do dual career families with children live in different areas that dual career couples? Dual career families live in the same areas as dual career couples, while dual career couples do not necessarily live in the same areas as dual career families. In one instance, dual career couples appear to have had children and become dual career families, although the data for 2000 does not indicate their income levels, it does indicate where they lived during 2000, and that the highest concentrations of working husband and wives are in tracts 28, 72, 78, 92, and 95, and in the exurban area of tract 75.

Have married couples seen an increase or a decrease in commuting times? The mapping of census tracts indicates that more people are traveling more to commute to and from work. Married couples and married couples with children are moving further out into the county. It also appears that an exurban fringe of couples is emerging.

Do they share equally in the commute to work? This question would require further study in the aforementioned census tracts. Based upon the statistics from the PART analysis of inter-county commuting, it may be that the study area was artificially constrained to the Guilford County Census tracts. The people commuting to Guilford County may be dual careerists. This can only be answered through further studies involving a survey.

I also believe that the changing nature of the census tracts used in this study, while normalized to the 2000 census tracts, aggregates data from the 1980 and 1990 censuses and does not reflect the exact status of the census tracts at the time the census data was collected. The forced aggregation of data may be something that requires further study.
There are multiple factors that influence location choice of dual income couples and dual income families. They appear to be gravitating to the further reaches of Guilford County, and they appear to be willing to commute further to live where they choose. There are more people willing to commute to Guilford County from the contiguous counties than from Guilford County outward. The fact that more people are traveling less than 20 minutes, and between 20 and 44 minutes, in tract 78 may indicate that employers and employees are relocating to the same area. Analysis of employment data would need to be assessed to confirm or disprove this possibility.

6. **Implications:** Research for this paper has shown some interesting influences that need to be addressed. One area of study that could be of interest would be to study married couples in the same field, in particular married professors in the same area of study. Two studies have shown that universities are less likely to hire couples in the same field, and that those that do hire both spouses often have more bargaining power than the professors. What impact does one spouse’s career have on the ability for the other spouse to relocate for a better job? This question will gain more relevance as the workforce diversifies and new companies enter the region. Two new companies that will have a huge impact on urban form and urban infrastructure are Dell Computers and FedEx. As people learn new skills there will be more opportunities to work for competing companies within the same industry, possibly impeding the movement of worker within the market or to other markets.

Another area to study in closer detail would be the effects on trip chaining that a new residence has on the choice of residences for dual career couples and total vehicle miles traveled. The studies previously mentioned indicate that women have shorter commutes to work and that they chain more trips when they do the driving. This finding could lead to a call for more mixed

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use development, locating housing close to schools, work, and commercial uses, the main sources of trip chains.

Further implications could be the tracking of dual income couples to anticipate where future schools will need to be built. It may be as simple as planning grade schools five years out from when increases in dual career couples are first noticed. Currently the Guilford County schools are investing in updating the school facilities, using money from 2000 school bond whereby $200 million is to be spent on new schools. Greensboro is the largest city in the county, and has a large amount of undeveloped land which could accommodate new schools. The comprehensive plan for the city, “Connections 2025,” discusses the importance of community facilities, service, and infrastructures\textsuperscript{36}, and even references the possible sites for potential schools. The problem is that the potential school sites\textsuperscript{37} are either at the very edge of the projected growth boundary for the City of Greensboro, or they are sited outside the boundary squarely in county property. The physical location of the schools at the periphery will most likely induce more outward migration of students and their families.

What impact will the aging of the population have on residential choice? Two new terms have recently been coined: “trailers” and “half-backs.” Trailers are the grandparents who move to be closer to their children and grandchildren, while half-backs are those individual or couples that move halfway back between the northern climates from where they moved, and the Florida communities which they felt would be their final retirement communities. These two groups may require further study under the auspice of Dual Retirees, and may already be impacting the Married Couple numbers.

\textsuperscript{36} “Connections 2025” City of Greensboro North Carolina Comprehensive Plan, adopted 2003, pg. 9-1
\textsuperscript{37} “Connections 2025”, Map 9-1
One area that the city is focusing its efforts is to attract the Creative Class, people that are described in Richard Florida’s book “The Rise of the Creative Class.” Action Greensboro, a non-profit in Greensboro, has placed a large amount of credence in what Florida has written in his book, and what he told city leaders when he visited the city October 30-31, 2003. It is my opinion that they jumped on this book, in the same manner as they embraced the book “Who Moved My Cheese” by Spencer Johnson. Greensboro is not alone in its pursuit of the Creative Class. Cities around the county are attempting to attract this demographic section of the population. The city is hoping to attract these creative people in order to attract the companies who are attempting to hire the ‘creative’ employee.

Action Greensboro was created after a study was performed by McKinsey and Company during 2000. This report, known about town as “The McKinsey Report” pinpointed six areas of concern: Attracting and retaining professionals; Revitalizing the center city; enhancing and reinforcing business and recruiting new businesses and industry; Developing and marketing Greensboro’s image; Fostering small business development and entrepreneurship; and Improving public education." The people that the city is attempting to attract normally have higher levels of education and higher levels of earnings. Attracting this class could either encourage more sprawl, if Creatives follow the footsteps of their predecessors, or it could reign in sprawl if the Creatives choose to live in downtown Greensboro. There is a push for new development in Greensboro for downtown housing with the construction of Governor’s Court, SouthSide, and Smothers Lofts. Other housing opportunities are increasingly coming on line. As more activities come to downtown, in the form of residences, restaurants, and night spots, the Creatives will be

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38 Action Greensboro “Greensboro’s Creative Class – Reports and recommendations of the Talent, Technology, and Tolerance, and Territorial Resources Task Forces,” (June 2004), Pg. 6
39 Action Greensboro “Greensboro’s Creative Class – Reports and recommendations of the Talent, Technology, and Tolerance, and Territorial Resources Task Forces,” (June 2004), Pg. 5
attracted to Greensboro and its downtown, which will in turn attract the employers to Greensboro.

Communities which have very few physical barriers on growth, such as Greensboro and Guilford County, must shape themselves in other ways. The vision of Greensboro, as outlined in Connections 2025 is known for its “quality of relationships with each other, its quality of place, and the quality and vitality of its economy.”

The city is looking to recycle vacant sites and buildings, encourage a functional, well integrated transportation system, promote compact developments, provide a network of accessible parks and open spaces, and use growth management tools to promote wise, balanced, and equitable growth while protecting rural lands from premature development and inefficient sprawl.

Recycling vacant sites will help to encourage infill and possibly slow the outward migration of couples. Compact developments will allow for the old and the young to freely move about their neighborhoods, and lessen the pressures of sprawl. It is possible that these compact forms of growth will make it more affordable for young couples and families with children to live closer to downtown, and reduce the outward pressures of development that is being seen.

Well integrated transportation systems will, through the inclusion of more transit facilities, more park and rides, more bike trails, and more sidewalks, make it easier for people to get around. The increase in accessibility, as referenced at the outset of this paper, will possibly reduce commuting times, or eliminate some auto commuting while increasing pedestrian and bicycle commuting. Transit commuting and ‘other means’ have just started to be included in census data collection. The impacts have yet to be seen.

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40 Connections 2025, pg. 2-4
41 Connections 2025, pp2-5 and 2-6
42 Connections 2025, Section 8:Transportation.
The goal for accessible parks and open spaces will force the county and the city to invest in land to protect open space. On any given day, at almost any given time, a visitor to Greensboro would notice that the parks are being used by some of Greensboro’s finest four-legged residents and their caretakers. Dog walkers, bicyclists, parents with strollers, and other active individuals are drawn to the parks. There is a push across the county to make parks accessible to the general public.

All of these goals can be seen as being accomplished if the planned Granite Development Corporation’s plans for the site at Battleground and Old Battleground in Greensboro come to fruition. Currently the site has a vacant nursery, some dilapidated houses, and a nearly vacant strip mall. The site is proposed to be converted into a roughly 100 acre mixed use development project which will include apartments, condominiums, retail, and over 65 acres of open space, with trails and sidewalks.

Does the length of the commute make it easier for some to relocate to the area or not? Are dual career people choosing to live in the outlying areas and commute to work ‘in-town’ or are they ‘migrating’ across county lines every day? Are they migrating to the ‘edges of the cities?’ Are they moving closer to work as residences and businesses move farther away from the center of Greensboro? Do they choose to live in one location for a longer period of time? Do they require more services in the way of pedestrian facilities, for the older population who no longer drive and the younger population who cannot drive? Do they require more community centers, libraries, or schools. Do they request or need more police and fire services? Will an increase in families place a burden on septic systems in the county which will require conversion to, and an extension of, sewer and water services from the cities? A survey which could help answer these questions may include the following questions:
• How long have you lived in your residence? Do you travel more, less the same since your move? Does your spouse travel more, less the same, since your move? How much?
• Do you rent or own?
• Where do you drive to work? Where does your spouse travel to work? Do you have children? Where do They Go to School? Are you planning children? Have the children moved out?

After the data is collected, it would be possible to repeat Krizek’s 2003 study of locational choice in Greensboro, and follow-up with respondents every year or two. It is important to note that the common thinking within the real estate community is that the average homeowner will move every seven years, so this study would need to continue for a period of no less than ten years, and most likely twenty years, in order to observe multiple moves within the county by the same couples. Another insight from my experience as a Realtor® is that some of the data points will not carry over from year to year as a result of divorces.

One final thought on the results: the outward migration in Guilford County could be as a result of the incorporation of Oak Ridge, Summerfield and Colfax, after 1990. They are able to receive the school benefits of living in Guilford County without paying Greensboro taxes. Recent changes in the distribution of County taxes, based on revenue generated by city taxes, may change migration patterns because ‘consumer-voters have full knowledge of the revenue and expenditure patterns of all local governments.’

This is truly just a first step. For the images to come to life further analysis must be done assessing the importance of the aforementioned variables on urban growth (e.g. Tenure, location of jobs, commuting times and distance, presence of children, renting or owning.) As Professor

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43 Dowding, Keith et al (1994)
Residential Choice and Dual Income Couples

Daniel Rodriguez often stated in my Urban Spatial Class “All models are wrong, and some are useful.”

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44 Daniel Rodriguez, University of North Carolina at Chapel Hill, Department of City and Regional Planning, Planning 214: Urban Spatial Structure.
### Appendix

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Figure 1: Projected Living Area and Working Area Growth in the Triad of North Carolina
Commuting Patterns in the Piedmont Triad

Source: 2000 Census.

LEGEND
1990 Daily Commuters
2000 Daily Commuters
(% Increase)
Map 3 Married Couple with Kids 1990

- 6 - 200
- 201 - 400
- 401 - 600
- 601 - 800
- 801 - 1000
- 1001 - 1200
- 1201 - 1400
- 1401 - 1600
- 1601 - 1800
- 1801 - 2000

Miles
Map 6 Married Couples No Children (2000)
Map 8 Average Family Income 1980
Residential Choice and Dual Income Couples

Map 9 Median Household Income 1990

- Under 25,000
- 25000 - 29999
- 30000 - 34999
- 35000 - 39999
- 40000 - 49999
- 50000 - 74999
- 75000 - 99999
- 100000 - 124999
- 125000 - 149999
- Over 150,000

Miles
Map 10 Median Family Income 1990

- Under 25,000
- 25000 - 29999
- 30000 - 34999
- 35000 - 39999
- 40000 - 49999
- 50000 - 74999
- 75000 - 99999
- 100000 - 124999
- 125000 - 149999
- Over 150,000
Map 12 Median Household Income (2000)
Map 13 Aggregate Commute Zero to 19 Minutes (1980)
Map 17 Aggregate Commute Times 20 to 44 minutes 1990
Map 18 Aggregate Commute Times over 44 minutes 1990
Residential Choice and Dual Income Couples

Map 23 Population with Children

- 0 3 6 9 121.5 Miles
- 169 - 500
- 501 - 1000
- 1001 - 1500
- 1501 - 2000
- 2001 - 2500
- 2501 - 3000
- 3001 - 3500
- 3501 - 4000
- 4001 - 4500
- 4501 - 5000

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