

PREDICTING INFORMAL CHILD CAREGIVER TURNOVER: WHAT CAN  
DEMOGRAPHICS TELL US?

by

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(Under the Direction of Thomas Coleman)

ABSTRACT

This study is designed to develop and test a potential needs assessment process that states and localities could use to make decisions regarding financial and staff budgeting related to informal caregiver turnover rates. More specifically, this needs assessment is derived from a model of factors expected to influence turnover rates of informal caregivers enrolled in the Childcare and Parent Services (CAPS) subsidy program in Georgia counties. Factors tested included amount spent on child care per person, percent of child care options that are informal care, number of child care workshops, average family size, mean education level of the county, number of higher education institutions, and high school drop out rates. Regression analysis were run using the full sample of all 159 counties in Georgia as well as on subsets of counties that were rural growth/rural decline and urban/suburban. In each of the analysis the only variable that was predictive of informal caregiver turnover rate was amount spent on low income child care per person in the county.

INDEX WORDS: Informal child care, child care policy, needs assessment, demographic analysis, child care turnover

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## **Chapter 1**

### *Introduction*

Informal caregivers are receiving growing recognition as legitimate players in the child care system, due in part to the increased demand for odd hour, flexible, and short notice care that accompanied welfare reform in 1996. Because of the importance of informal caregivers in the success of welfare, understanding them and their role in the child care delivery system is critical (Brown-Lyons, Robertson, & Layzer, 2001; NACCRRRA, 1998; Blau & Tekin, 2001; NCCP, 2000; Oliker, 2000). In particular, it is important that we understand the factors that impact informal caregivers and their turnover rates in order to help stabilize child care arrangements for children and families.

Policy makers and program administrators in state and local agencies especially have struggled with two issues in this vein: (1) how to plan and budget for geographic areas with high caregiver turnover and, (2) how to design interventions to create a more stable child care system in these areas (Mitchell, Stoney, & Dichter, 2000; Knitzer & Cauthen, 2000; GAO, 1998). State agencies can tailor services more efficiently when they are able to identify key demographic characteristics that are characteristic of high or low turnover areas. Most research on informal caregivers has focused on understanding caregiver characteristics and the care they provide, little research has been done using publicly available demographic data to understand turnover rates among these caregivers (Brown-Lyons et al, 2001). This type of data is readily available for all counties in the country and can be a great resource for state and local policy makers.

## *Purpose*

As part of the transition from Aid to Families with Dependent Children (AFDC) to Temporary Assistance to Needy Families (TANF), policy makers and program administrators within each state have had the opportunity and flexibility to set their own requirements and regulations regarding subsidies for informal caregivers. Many of them have pushed for inclusion of informal caregivers in the subsidy system in order to meet the need for odd hour and flexible child care that is often not available in more formal settings (GAO, 1998; Green & Tumlin, 1999; Ahearn, Chapman, & Nalley, 1998).

While there are many factors that impact the success of including informal caregivers in the subsidy system, ultimate success is usually reflected in low provider turnover rates and stability of care for children of parents moving off welfare (Ahearn, et al, 1998; Schaefer, 1999; Green & Tumlin, 1999). Understanding the trends and factors impacting informal caregiver turnover rates can help program administrators in state agencies maximize their resources by tailoring services to particular areas and needs (Tickamy, Henderson, White, & Tadlock, 2000). Increasing retention and decreasing turnover holds many positive implications for agencies, children, and families. These include reducing caseworker paperwork and stress, improving child outcomes, and parental employment (Schaefer, 1999; Ahearn, et al, 1998).

The purpose of this study is to conduct and describe a needs assessment that can help policy makers and program administrators within states and localities to make decisions regarding spending based on informal caregiver turnover rates. More specifically, this needs assessment is derived from a model of factors expected to influence turnover rates of informal caregivers enrolled in the Childcare and Parent Services (CAPS) subsidy program in Georgia counties. The CAPS program in Georgia is administered by the Department of Family and

Children Services and is responsible for helping families afford child and school-age care programs for children 13 years old and younger. The program provides subsidies for families meeting income restrictions (i.e. about 125% of the poverty level) who are in need of child care to work or attend school or job training.

The study is laid out in nine chapters. In this chapter the issue and a description of the project are introduced. In chapter two an overview of the importance of the issue along with definitions for key concepts used in the study are provided. In the third chapter, the literature pertaining to turnover rates among informal caregivers and key demographic variables is discussed. The theoretical underpinnings of the study are explained in the fourth chapter. In chapter five the research hypotheses are discussed in more detail. The methodology used in selecting and compiling the data for this project is outlined in chapter six. This is followed by the analyses plan in the seventh chapter. In the eighth chapter the results are presented, followed by discussion and implications in the ninth and final chapter

## Chapter 2

### *Importance of Issue and Definitions*

The ability to understand which counties and communities are going to face the greatest challenges with informal caregiver turnover is critical for a number of reasons. The primary issues are the expansion of the child care field, the debates brought about by welfare reform and the need for a wide range of care to meet all parents' needs (GAO, 1998; Ahearn et al, 1998). These issues have highlighted the need for recognition of informal caregivers as a critical player at the child care table (NACCRRA, 1998; NCCP, 2000). Understanding the factors that might predict informal caregiver turnover rates can add to our understanding of the child care field as a whole. It may also be possible that this same methodology can be repeated with family child care and formal child care centers to help provide a cost-effective needs assessment procedure for all branches of the child care field.

As noted above, stability of care is critical to both children and parents. Stable care is essential to helping parents maintain stable employment and has dramatic influences on child development (Pearce, 2000; Queralt, Witte, & Griesinger, 2000; Rohacek & Russell, 1998). For these reasons, policy makers and program administrators have a vested interest in working to address high levels of instability in child care settings and to reduce turnover rates. In addition, when providers are on a subsidy program for an extended period of time (lower turnover rates) state agencies have more opportunities to influence the quality of care being offered in the home through training and annual monitoring visits (Kontos, Howes, Shinn, & Galinsky, 1995; NACCRRA, 1998). State policy makers and program administrators can also use this opportunity to reduce the amount of stress, paperwork and turnover for subsidy caseworkers that

is caused by high caregiver turnover (NACCRRA, 1998; Rohacek & Russell, 1998). All three of these impacts are very important for state policy maker and program administrators in improving outcomes for all of community members.

### *Definitions*

Prior to presenting the hypotheses of this study, it is important to define a few key terms. For the purposes of this study, *informal child care* (also known as kith and kin care or informal caregivers) refers to friends or relatives caring for children in the child's home on a regular basis with or without a written contract and firm schedule. For a provider to qualify to receive subsidies, they must be at least 18 years of age. The terms *provider* and *caregiver* are used synonymously in this study to refer to anyone providing child care services on a regular basis to children 12 years old and younger. *Turnover* refers to caregivers who stop participating in the subsidy program, although this does not necessarily mean that they stop caring for children. A *child care subsidy* is a financial stipend provided to caregivers (both formal and informal) caring for children whose parents are moving off welfare and into the labor force. The stipend may either cover all or a portion of the cost of care. Parents are responsible for the remaining balance.

*Higher education institutions* include post-high school education institutions; including technical colleges, private colleges, and four-year institutions (colleges and universities). *Child care centers* include any regulated child care group setting where care is provided for multiple classrooms of children outside a home setting. Exempt settings, such as church-based settings (i.e. nurseries and day care centers), are not included in this category. *Family child care homes* include care provided to 6 or fewer children in the caregiver's home with a contract between caregiver and parents regarding hours of care and fees for care. In Georgia, a family child care

home must be licensed and regulated by the state Child Care Licensing Division of the Department of Human Resources. The *percent of care that is informal* was calculated for each county based on the number of child care centers, group care facilities (8-10 children), family child care homes, and informal caregivers. The percentage was calculated to provide a comparable variable across each of the settings rather than simply examining one of the raw number variables.

*Amount spent on child care* is the amount of money that is funneled through government sources for child care, this is funding through Pre-K, low income child care subsidies, transitional child care subsidies, TANF child care support, and other associated programs. This is the aggregate amount for each source within a county. In order to make this variable comparable across all counties, a ratio of amount per person was calculated by dividing the amount spent by the total population of the county. *Training opportunities* refer to any workshop or conference offered by local child care resource and referral agencies (both free and for-fee training workshops).

It is also important to establish and clarify the census definitions for particular terms and concepts. *Educational attainment* refers to the highest level of education completed. For this study the *average education level* was calculated for each county, representing the mean educational attainment for people over 18 years old in the county. High school *drop out rates* are calculated by dividing the number of dropouts reported by school systems by the total enrollment for the school year (University of Georgia, 2002; US Census Bureau, 2004). Historically, geographical areas have been defined as either *urban* or *rural*, based on census definitions related to population density of a county. However, a Georgian demographer and a sociologist have developed a unique way of conceptualizing urbanization levels in Georgia. In

particular, they developed a way of separating two unique types of rural counties. *Rural growth counties* do not fall within a metropolitan area, but they are experiencing growth due to immigration. *Rural decline counties* are experiencing either declining populations due to people moving out of the county or stagnant populations (Bachtel, 2004). These concepts are critical to understanding the purposes and hypotheses of this study.

## Chapter 3

### *Literature Review*

Prior to 1996, little research addressed informal caregivers, due in part to the difficulty of finding them and the relative anonymity of this type of care (Kontos, et al, 1995). With TANF, the field has drawn more attention and more research is being conducted on issues concerning informal caregivers (Brown-Lyons, et al, 2001). However, the breadth of this research is still limited. There is a great deal of research on turnover among family child care providers and center staff, but there is very little research in this area on informal caregivers (Kontos, et al, 1995; Galinsky, Howes, Kontos, & Shinn, 1994; Fuller, Holloway, Rambaud, & Eggers-Pierola, 1996). In this section, the characteristics of Georgia that make this state unique, the research regarding informal caregivers, particularly those on subsidy programs, and research regarding turnover rates for child care in general will all be examined.

### *Georgia*

Georgia's unique historical and demographic factors can have a dramatic impact on informal caregivers and the factors affecting turnover. This section will outline the demographic characteristics of Georgia and provide a brief overview of the political characteristics related to informal caregivers in the state. Finally, a brief overview of the child care system in the state will be discussed.

*Demographics.* Two researchers at the University of Georgia, Dr. Doug Bachtel and Dr. Larry Nackerud, developed a way of organizing and conceptualizing the demographic characteristics of Georgia counties. According to this system, Georgia counties are divided into four levels of urbanization. Urban counties are characterized by high density areas that are

usually experiencing growth due to in-migration. Suburban counties are characterized by moderate density areas, surrounding urban counties, with more than 50% of the population commuting into the neighboring urban counties. As noted earlier, rural growth counties are other counties, which do not fall within a metropolitan area, but the county is experiencing growth due to in-migration. Rural decline counties are also rural counties but they are experiencing declining populations due to people moving out of the county (See map in Figure 2; Bachtel, 2004).

One unique characteristic of Georgia is the large proportion of rural counties spread throughout the state. There are only a few densely populated metropolitan areas in the state (approximately 15-20 counties in the 7 Metropolitan Statistical Areas in the state) with much of the rest of the 159 counties being rural. However, these few densely populated areas are home to 72% of the population, while only 28% reside in the rural areas across Georgia (US Census Bureau, 2004). As Beach (1997) points out, often families in rural areas are more dependent on informal care arrangements than those in more urban areas due to issues surrounding transportation, types of positions available, and lack of alternative care options.

Another demographic characteristic of Georgia is its shift in ethnic and racial populations. While historically Georgia has been composed of African-American and White populations, there is a growing Hispanic population across the state. Statewide, approximately 29% of the population is African American, 65% is White, and 6% is Hispanic (US Census Bureau, 2004). The Hispanic population has increased by 300% since 1990 (US Census Bureau, 2004). This is particularly true in rural counties in southern Georgia and in several northern Georgia counties. There are also counties across Georgia that have a preponderance of one group or another, such as Hancock county (78% African American) and Whitfield (22%

Hispanic). Generally the Hispanic population has grown the most significantly in counties which have an agricultural or industrial basis (such as Dalton, Georgia) or are experiencing a large amount of growth (such as Gwinnett county) and have employment opportunities in landscaping and construction fields.

Some areas in Georgia (e.g. rural decline areas) also have a large percent of the population who are low-income. In Georgia overall, 13% of the population is below the poverty line (compared to 12% nationally), and 10% of families are below the poverty line (compared to 9% nationally) (U.S. Census, 2004). Often race and income coincide with one another, creating a situation with many low-income minority families for whom informal care arrangements are much easier to arrange and rely on than formal care settings. For example, African-American and Hispanic families are more likely to have family or fictive kin living nearby that they can rely on for child care assistance, and this is particularly true among low-income families who do not have the mobility options of other income groups (Brayfield, Diech, & Hofferth, 1993; Fuller, et al, 1996). In addition, Hispanic and African American families are historically more likely to rely on informal caregivers and relative caregivers than other families (Fuller, et al, 1996; NCCP, 2000).

*Political environment.* Georgia has struggled with the process of transitioning to TANF. The federal legislation allowed policy makers and program administrators at the state level to refine and tailor their TANF programs for their specific needs and goals. Georgia was one of the states that chose to place tighter restrictions on lifetime limits than those suggested in the federal guidelines. While federal guidelines included a five-year lifetime limit, the lifetime limit of welfare recipients in Georgia is four years.

Georgia also recognizes informal caregivers in the child care subsidy program. In Georgia, informal caregivers are classified as a friend, relative, or neighbor caring for 2 or fewer unrelated children or up to 6 related children (children who are related to the caregiver; not just related to each other) for a parent who is working or attending school. The subsidy allotment for informal caregivers is lower than that for any other caregiver (family child care, group home, child care center) in Georgia. Parents enrolled in the Georgia CAPS program can select any caregiver of their choosing. The CAPS subsidy is provided directly to the caregiver, with any family co-payment being the responsibility of the family. Subsidy and co-payment amounts are determined by a formula set by the Department of Family and Children Services (DFCS) which includes the location, type of care, and family income. DFCS also sets the amount each type of care can receive. There is a sliding scale for child care centers and family child care homes in which settings that meet higher quality standards and training requirements are eligible for higher subsidies. The subsidy is simply payment for care provided; it is not a subsidy which must be used for a particular purpose (Dopkins, Wilkes, & Abbott-Shim, 2004).

Georgia also implemented regulations for caregivers who are enrolled in the subsidy program. These regulations include attending 8 hours of training each year and maintaining a working fire extinguisher and smoke detector in the home where care is provided. These regulations are enforced by child care licensing surveyors who visit each provider within 6 weeks of enrollment in the program and then make annual visits to a randomly selected 10% sample of providers who have been in the program for at least a year (GA DHR, 2000).

*Child care system.* There are approximately 1,800 informal caregivers enrolled in the Childcare and Parent Services program. This represents about 18 % of the child care options in Georgia, and accounts for approximately 16 % of the children in subsidized care in the state

(Dopkins, et al, 2004). Nationally, 41% of children in care are cared for by a relative (parent, aunt, uncle, grandmother, or sibling) and 12% of preschoolers are in a combination of settings that include at least some relative (*informal*) care (Smith, 2002).

Federal regulations required not only that policies change but also that the agencies be reorganized and that staff completely change their attitudes and beliefs about the role of informal child caregivers in the child care system (GA DHR, 2002; Fuller, Chang, Suzuki, & Kagan, 2001; Gormley, 1999). Unlike some states' policy makers and program administrators who provided subsidies to informal caregivers, but had no regulations in place, Georgia's policy makers and program administrators sets requirements for these providers, such as those mentioned above (GA DHR, 2002). The Office of Regulatory Services, Child Care Licensing division, monitors caregivers to ensure adherence to the regulations.

In the last ten years, Child Care Licensing and DFCS have become more involved with informal caregivers. In particular, these two groups have the most direct impact and involvement with informal caregivers through the welfare reform child care subsidy program (GA DHR, 2002). DFCS handles the registration of the caregivers into the welfare system, establishes the subsidy amount for the caregivers, and helps to establish the regulations and requirements that caregivers must meet to stay involved in the welfare subsidy system. Child Care Licensing is responsible for monitoring the caregivers once they have enrolled in the subsidy program. Monitoring occurs in the form of an initial visit within 6 weeks of the provider enrolling in the program and then a random sample of caregivers who have been enrolled in the program for at least a year. Monitoring visits occur in the caregiver's home and are primarily health and safety related.

Child Care Licensing is also responsible for monitoring and regulating all family child care homes and child care centers. The added caseload of monitoring and regulating informal caregivers stretches the Licensing surveyors very thin (GA DHR, 2002). Finally, Georgia is one of the few states where policy makers and program administrators are working to make a place at the table for informal caregivers. In addition to the inclusion of informal caregivers in the CAPS subsidy program, staff in Child Care Resource and Referral offices offer 8 hours of free training for informal caregivers, and other training groups are beginning to do the same.

### *Informal child care*

As discussed previously, research addressing informal caregivers, their characteristics needs, training preferences, family interactions, and other issues is just beginning to hit its stride. The last five years have seen a boom of research in this area (Brown-Lyons, et al, 2001). In this section, an overview of the research on informal caregivers will be provided.

*Child care statistics.* Nationally, in 1997, 63% of children under age five were in child care on a regular basis. Those whose mothers were employed were in care for an average of 35 hours per week (Smith, 2002). Almost one-half (41%) of these children were cared for by a relative (parent, aunt, uncle, grandmother, or sibling); with another 12% of preschoolers receiving care in a combination of relative (*informal*) and center care (Smith, 2002).

Parents with multiple children, infants and toddlers or school age children, and those with specialized needs are more likely to use informal care. Many studies have indicated that it is easier to arrange informal care for these particular situations than to research and struggle to find formal care that meets these needs of these parents (Blau & Robins, 1998; Bromer & Henly, 2002; Mezey, Schumacher, Greenberg, Lombardi & Hutchins, 2002). Moreover, low-income

mothers are more likely to rely on care by relatives than on centers (Smith, 2002; Blau & Robins, 1998).

While the number of parents using relatives as a care option nationwide has increased only slightly in the last decade, it has remained consistently above the use of center care for children under 5 (Smith, 2002). Most families who use informal care rely on relative caregivers rather than friends or neighbors (Wheelock & Jones, 2002). The difference in the rate of increase has occurred for many reasons, including the growth in availability and accessibility of formal care arrangements and the restrictions of child care subsidies in some states for use only in formal care settings (Tickamyer et al, 2000; Brewster & Padavic, 2002, Queralt et al, 2000; Adams, Snyder & Sandfort, 2002; NAEYC, 1997). In addition, rising labor force participation has increased the demand for child care among African American families, while also reducing the availability of informal caregivers in communities at large (Brewster & Padavic, 2002).

*Characteristics of informal caregivers.* There has been a great deal of research focused on establishing an understanding of the characteristics of informal caregivers, why they choose to provide services, the types of parents who most frequently use this type of care, reasons for using informal caregivers and how to develop training materials for these caregivers. The one consistent aspect across all studies is an understanding and recognition of the diversity of this population and the people who rely on informal caregivers. For example, informal care is often perceived as beneficial for grandparents as for children and families because grandparents are often perceived as more reliable and caregiving can keep grandparents young and more physically fit (Wheelock & Jones, 2002).

There are a number of reasons why parents use informal care from relatives. Many employed parents (or those in school or job training programs) must rely on a combination of

care arrangements simply to meet all of their child care needs during the course of a typical day. For example, formal child care settings often limit their hours of operation. This means that children from working-class families often must spend at least part of their day (e.g., early morning or late afternoon) in informal child care. This is particularly true when parents use highly structured services like Pre-K or HeadStart programs that follow strict schedules (Brown-Lyons, et al, 2002). Flexible payment and hours to accommodate changing schedules and work demands are two of the most often cited reasons for relying on informal care (Brown, et al, 2002; Fuller, et al, 1994; Galinsky et al, 1994). Indeed, while many parents (65%) who use informal care feel they do not have another choice, only a small percent (27%) would change their arrangements if they could (Galinsky, et al, 1994; Gormley, 1995). These statistics also reflect a number of other factors that parents consider when choosing informal care as their preferred care arrangement. For example, informal care is heavily used during weekends, nights, school holidays, and for emergencies where traditional formal care is not readily available (Wheelock & Jones, 2002).

In keeping with Maslow's hierarchy of needs, parents are only concerned with other criteria once they feel they can trust a caregiver to keep their children physically safe (Mensing, French, Fuller, & Kagan, 2000; Fuller et al, 1996). Once this criterion is met, other considerations can include decisions about resource exchanges (e.g., family members may trade resources like grocery shopping, sharing babysitting, and living expenses), and family characteristics such as proximity, cultural background, work hours, child's age, parents' work schedule, and availability of other care alternatives (Brandon, 2000; Collins & Carlson, 1998; Herscovitch, 1996). In many minority communities cultural continuity, trust, language and cultural expectations are especially important considerations (Fuller et al, 1996; Fuller et al,

2001; Brown-Lyons et al, 2001). African American and Hispanic mothers in particular are more likely to use informal care based on their comfort with and trust of the caregiver, the flexibility associated with an informal care arrangement, and a desire for cultural continuity (Fuller et al, 1994; Fuller et al, 2001; Smith, 2002).

Informal caregivers may also provide additional financial, emotional, and informational support to the families of the children in their care. Moreover, informal care extends beyond the paid hours of care to accommodate the untraditional work schedules of parents (Bromer & Henly, 2002). While parents who base child care selection on quality issues are the least likely to select informal care, those who are able to arrange their preferred type of care (even if it is informal) are more likely to have high quality care (Bromer & Henly, 2002; Brown-Lyons et al, 2001). This indicates that while overall parents who are forced to rely on informal care may not be satisfied with the quality, parents who prefer an informal care setting and are able to arrange it may be choosing a higher quality setting than the available formal arrangements. Parents also often have to put practical issues before quality issues and may be limited by the types of care available (Peyton, Jacobs, O'Brien, & Roy, 2001).

The preference by some families for familiarity and cultural compatibility can also be tied to the age of children in care. For example, many parents prefer informal care arrangements for infants, expressing a belief that informal caregivers are more likely to have an emotional investment in children that in turn makes them a better caregiver for this age group (Kuhlthau & Mason, 1996). In contrast, parents of infants may not see these characteristics as available in more formal settings, which are instead seen as more educationally focused. In fact, the negative publicity that child care centers have received from the media over the years, and the fact that parents often do not know the staff in centers or have time to spend time at centers before

selecting a particular center placement, have created a situation in which some parents report less trust in center-based care (Herscovitch, 1996; Fuller et al, 1996).

Finances are yet another consideration that tops the list of reasons parents use informal care. It is not just the cost of care that is considered but also the flexibility in how and when the caregiver is paid that can impact a family's decision to select an informal over a formal child care arrangement (NACCRRA, 1998; Kisker & Ross, 1997; Galinsky et al, 1994; Hofferth, 1999; Henly & Lyons, 2000; Kuhlthau & Mason, 1996). Again, flexibility seems to be the central issue. Parents often do not pay informal caregivers with cash, even though the hours of care provided are often as long or longer than other types of care. Little is known about whether families prefer financial reimbursement to other non-monetary items (like grocery shopping or transportation services) and about the distribution of payment types across geographic reasons. Instead, informal caregivers may agree to receive alternative payment for their child care services such as running errands, trading babysitting tasks, having someone help with tasks around the home, and other trade-offs. This arrangement is often more beneficial for both the parent and the caregiver (Mensing, et al, 2000), and it helps to disperse child care expenses throughout the family system or neighborhood system (Brandon, 2000).

Finally, the flexibility of an informal child care arrangement is also an issue in terms of scheduling and location. Simply put, it is sometimes much easier for parents to find informal care that is convenient and adaptable to their work schedules. This is especially important for families, like those receiving TANF, whose employment requires nonstandard work hours or short notice scheduling (Unknown, 1998; Henly & Lyons, 2000; Brown-Lyons, et al, 2001; Fuller, et al, 2001; Smith, 2002). Because of the flexible and personal nature of the informal arrangement, the caregiver is often able to keep children later than planned if parents encounter

traffic, work, or weather difficulties (Beach, 1997). The flexibility of the informal setting also provides parents holding unstable jobs (positions that start and stop quickly or that require work during odd hours) with at least some assurance that they will not have to move their children out of care each time a job change occurs (NCCP, 2000).

*Families and service issues.* Child care is not only a necessity for mothers entering the workforce; it is also an important factor in the development of young children. It is well established that high quality care has the greatest impact on children from low-income settings, ensuring that they get the educational and social enrichment necessary to promote healthy social, educational, physical and mental development (Scarr, Phillips, McCartney, & Abbot-Shim, 1993). Also, informal caregivers are critical to insuring that parents obtain and maintain employment. In fact, as already noted, informal care arrangements provide the necessary flexibility and accessibility that many low-income parents need, including care at odd hours, swing-shift care, or extended-hour care. In addition, as noted earlier, many low-income parents do not have the time to research and find more formal care settings (Carroll, 2001; Boushey & Gundersen, 2001; Ahearn et al, 1998; England & Folbre, 1999).

One of the reasons that there is so much concern about acknowledging and supporting informal caregivers is related to the misconception that informal child care is of lower quality than other types of care, despite conflicting studies on this issue (Collins & Carlson, 1998; NCCP, 1999; NICHD, 2000; Fuller et al 2001; Kontos et al, 1995). Some studies indicate that quality in both family child care and centers is often inadequate but that the care in unregulated settings is generally even poorer (Kontos et al, 1995; Fuller et al, 2001; Zigler, 1995). On the other hand, there are other studies that point out that the quality of care varies more within each type of care than between different types of care. In fact, in the NICHD (2000, 1996) studies of

care for infants, toddlers and preschoolers, relative care was found to be more positive in some aspects (such as ratios and adult child interaction) than center care. This indicates that, overall, informal care is of no lower quality than other types of care (Fuller et al, 1996; Collins & Carlson, 1998, NICHD, 2000; NICHD 1996). One subsequent policy implication is that quality needs to be defined in terms of the impact the caregiving environment has on children rather than on characteristics specific only to formal child care settings, which may or may not be appropriate to informal caregivers and the children in their care (Miller, 1997).

Currently, this is not the case. Instead, child care quality is typically defined in terms of classroom settings and educational opportunities. These types of definitions and measurements are geared more toward formal care settings than to the characteristics that many parents seek from informal caregivers. In particular, some practitioners and policy makers argue that the current measures of quality do not include recognition of the trust, sensitivity, and cultural concerns that are often important to parents selecting informal care arrangements (NCCP, 2000, NAEYC, 1999). These are areas that need to be addressed when discussing the quality of care in informal settings, especially given research indicating that these are the reasons that many parents seek out informal care (Brown-Lyons et al, 2001; Fuller et al, 1996; NCCP, 2000).

Fortunately, over the last several years, there has been a shift in the nature of government perceptions concerning informal care from one of ambivalence to one of growing acceptance and interest. This is occurring as communities and government agencies search for ways to help support these caregivers, build a more cohesive and expansive child care system, and improve the quality of care in all settings. One example of this includes increased training opportunities (number and variety both) targeted for informal caregivers (NACCRRA, 1998; NCCP, 2000).

*Training support.* State agency administrators struggle with how to design and develop programs that will best support the training needs of informal caregivers. While it is true that unregulated caregivers typically have less education, training, and economic resources than other providers (Henly & Lyons, 2000; Fuller et al, 2001; Brown-Lyons et al, 2001), studies also indicate that many informal caregivers, regardless of their reason for caregiving, are interested in learning new information to help them provide the best care possible (Todd & Robinson, 1999; NCCP, 2000). How state agency administrators and policy makers react to informal caregivers and provide training to them can have many regulatory implications for the state agency.

The limited research to date provides different perspectives on what informal caregivers need and want from training (NACCRRA, 1998). The research available indicates that caregivers want a variety of training topics offered through a variety of methods. For example, informal caregivers are interested in receiving training on activities with children, guidance and discipline practices, as well as the more typical health and safety topics (Todd & Robinson, 1999). Providers are also interested in traditional workshop formats (two hour training programs) as well as home study options and conference opportunities (Todd & Robinson, 1999).

Training for informal caregivers must also be based on a more familial model rather than the traditional classroom model that is often used for child care center training. The familial model is more appropriate given the intimate nature of the relationship between caregiver, parents and children as well as the long-lasting nature of many of these relationships (Bromer & Henly, 2002; NCCP, 2000; NACCRRA, 1998).

*Regulation.* In the mid-1990s less than half of the states had policies that required informal caregivers be regulated (Mulligan & Hoffman, 1998; Hall, Kagan, & Zigler, 1996).

There has been some change in this as the role of caregivers has received more attention and states' policy makers and administrators have needed to increase the supply of child care.

Today, most states' agencies staff are maintaining or tightening regulations for all caregivers, in some cases implementing new regulations for informal caregivers (Adams et al, 2002; GAO, 1998). Nevertheless, regulations for informal caregivers still are generally less strict than for other types of providers. Indeed, some states' legislation still does not require informal providers to meet any requirements, while other states' legislation sets requirements as high as those for family child care homes (Brown-Lyons et al, 2001). It is also important to note that many informal caregivers choose to remain 'undocumented' and not receive any subsidies rather than submit to regulations (Adams et al, 2002; Brown-Lyons et al, 2001, Todd & Robinson, 1999). This is an issue that policy makers are only beginning to address, if at all (Wheelock & Jones, 2002).

Most states' legislation that places regulations on informal caregivers addresses primarily health and safety issues. There are some states however (e.g. Georgia), which have agencies that also require informal caregivers to complete annual training aimed at improving caregiver professional knowledge and skills. In these cases, regulations are typically established specifically to help assure that the providers who are receiving subsidies from the state agency administrators are providing safe care that is beneficial to children's development (Adams et al, 2002; GAO, 1998; Brown-Lyons et al, 2001).

Finally, it should be noted that the raising of standards for informal caregivers can potentially result in negative unintended consequences that work against meeting the child care needs of families receiving TANF. Specifically, some argue that overly stringent regulations limit parents' options and informal providers' ability to tailor their programs to meet the needs of

families in their respective communities (Mulligan & Hoffman, 1998; Gormley, 1999; Hofferth, 1999). This situation can in turn lead to higher child care costs, and it can force informal providers to stay underground and forgo state subsidies. In either case, the end result is a limitation on the states' policy makers and program administrators' abilities to impact the quality and safety of the care being offered in the home (Gormley, 1999; Hofferth, 1999).

*Resources.* Changes in the regulation of informal caregivers have created yet another challenge for state policy makers and program administrators that must provide increased resources to track and oversee training and operational standards. This includes hiring enough qualified staff to make regular inspections and enforce state regulations (Gormley, 1999). In fact, the regulation of informal caregivers can double the caseload for the regulating agency (Mulligan & Hoffman, 1998; Gormley, 1999), and may even lower funding in others areas. For example, state agency program administrators may take money away from direct services to families on TANF (e.g., lower cash payments, reduced funding for job training and education) and/or promote lower quality by not providing sufficient support resources (e.g., not enough training or variety of training; less funding to resource and referral agencies) to improve the quality of care (Hofferth, 1999).

These issues have led to concerns and discussions about how to stretch state funds to meet the demand and needs involved with supporting informal caregivers. Creativity has been crucial in structuring child care assistance systems to maximize funding, including integrating funding streams and administrations into a seamless system to reduce the fragmentation and different regulations that create gaps in services (Long, Kirby, Kurka, & Waters, 1998). On the other hand, this ideal of addressing quality, availability, and affordability of choice of child care services often falls short of its goal, since state agencies typically provide lower reimbursement

rates to informal caregivers than to their colleagues in formal child care (Collins & Carlson, 1998; NCCP, 1999; Brandon, Maher, Joesch, & Doyle, 2002). A final resource challenge faced by state policy makers and program administrators is the simple lack of research from which to make informed decisions about the types of criteria that should be used for allocating funds to informal caregivers (Hall et al, 1996).

Funds need to be available to conduct surveys and other research projects (e.g. focus groups, interviews, program evaluations, etc.) to determine how to support caregivers, provide training, and increase participation and retention in the programs (Mezey et al, 2002). Despite the above challenges, many state policy makers and program administrators have found the resources they devote to regulatory efforts to be worthwhile, especially in terms of increasing quality of care. Simply put, caregivers who comply with state regulations have been found to offer higher quality care (Clarke-Stewart, Vandell, Burchinal, O'Brien, & McCartney, 2002). Likewise, because minimum standards are important for ensuring that low-income children are in safe care, many state agencies that provide subsidies to informal caregivers require them to at least meet minimum health and safety standards (Brown-Lyons et al, 2001).

*Impact of subsidies.* Although subsidies have been found to increase parental employment by 15%, there is very little that is known about the full impact on families and caregivers (Bainbridge, Meyers, & Waldfogel, 2003), due in part to the lack of appropriate data (Boushey & Gundersen, 2001; Duncan & Brooks-Gunn, 2000; Pearce, 2000; Meyers et al, 2001). The data is inappropriate for many reasons, including limited research and methodological limitations and/or differences between studies (such as low sample size, response bias, and poor wording) (Duncan & Brooks-Gunn, 2000; Pearce, 2000; Schumacher & Greenberg, 1999).

Results from existing studies suggest that subsidies can impact a child's development when the child is placed in high quality settings (Scarr et al, 1993; NCCP, 1999; Brandon et al, 2002). Furthermore, when children do not have an enriching home environment (reading, developmentally appropriate toys, etc), those deficits can be counter-balanced by an enriching school environment such as those found in high quality settings (Scarr et al, 1993; Brandon et al, 2002). This is one reason why high quality care is particularly important for children from low-income homes (Scarr et al, 1993).

Subsidies can also have a direct impact on the family by providing more financial resources when the caregiver is a relative. Often, extended families will share resources (groceries, money, materials) resulting in the child's immediate family benefiting from the subsidies (Tickamyer et al, 2000; England & Folbre, 1999; Queralt et al, 2000; Boushey & Gundersen, 2001; Adams et al, 2002). Subsidies can also help caregivers improve the quality of care within their homes by providing financial resources to help them buy the materials to use with the children in care, such as books, toys, and safety equipment. Some studies have indicated that when families receive subsidies, children experience higher quality and more stable care settings (Brooks, Risler, Hamilton, & Nackerud, 2002).

Finally, there is a discrepancy in the way in which state program administrators provide financial support and subsidies to providers working in different child care settings. State program administrators routinely provide subsidies to formal care settings that offer care to specific age ranges (school-age and infant providers) during non-traditional hours. Additionally, they provide scholarships to providers in formal care settings to advance their professional training and education (Brandon et al, 2002; Jacobsen, 1997; Waller, 1997; GAO, 1998). In contrast, only a few states' program administrators and policy makers subsidize the same

services for informal caregivers. Georgia is beginning to experiment with trying to provide some of these programs for informal caregivers. One example is providing the required 8 hours of training for free through state Child Care Resource and Referral Agencies (Dopkins, et al, 2004).

### *Turnover*

Turnover is higher in child care settings than in any other educational setting (Whitebook & Sakai, 2003). Turnover can refer to either job turnover, in which an individual stays in the field but changes what they are doing, or occupational turnover, in which they leave the field completely. This distinction is critical for informal caregivers, who often move off of welfare roles (turnover) but who continue caregiving on some level for the families they serve (Whitebook & Sakai, 2003; Whitebook et al, 2003).

Unfortunately, very little research has specifically addressed turnover among informal caregivers. This could be due to the difficulties of tracking these caregivers as they move on and off the subsidy rolls (Whitebook et al, 2003). Caregivers may move on and off the rolls for a variety of reasons, including the child in care entering school, Head Start or Pre-K; change in the parents' employment; or the caregiver finds other employment outside of the home. Informal caregivers often continue providing care even after they move off the subsidy roll, particularly since their caregiving status may change as the parents move into and out of the labor force. There is a small body of research around informal caregiver turnover; however, much more research is needed to fully understand the nuances of this issue.

The need for more research regarding turnover is clear. A high turnover rate in child care is one of the greatest threats to quality child care in both child care centers and family child care homes (Todd & Deery-Schmitt, 2002; Larkin, 1999; Manlove & Guzell, 1997). Turnover creates difficulties for parents, children, caregivers, and agency staff. For parents there are the

difficulties of finding a new caregiver on short notice or missing work to deal with the lack of child care. Children must adapt to the new caregiver, new setting, and schedule; this is particularly difficult for young children who are just beginning to form attachments. For caregivers there is the stress of changing careers or settings and saying goodbye to families they have served. High turnover creates more paperwork and frustration for all of the agency workers who work with informal caregivers, particularly licensing surveyors and DFCS caseworkers (Whitebook & Sakai, 2003).

Turnover has been found to be related to job stress, education, training and turnover is the highest during the first two years of care (Todd & Deery-Schmitt, 2002). Some studies have indicated that turnover may be less related to job satisfaction and wages than previously thought. Instead, it seems that it may be the availability of the right types of jobs that affect child care turnover (Manlove & Guzell, 1997). Often caregivers who are better educated are more likely to leave caregiving for a more traditional job outside of the home, particularly when there are alternative care options available for the children (Bromer & Henly, 2002; Brown-Lyons et al, 2001). This is particularly true in urban and suburban areas where there are typically more jobs available and there are many more available care options. Other research indicates that under some circumstances, caregivers who have lower education levels are more likely to experience high turnover because of their frustration and isolation, and their lack of dedication to the field (Beach, 1997; Galinsky et al, 1994). This can be particularly true in rural areas, where appropriate training is not readily available and there are often not many other caregivers for support (Beach, 1997).

In addition, family issues are often given as a reason for staying in or leaving the caregiving profession (Manlove & Guzell, 1997). For example, informal caregivers often

struggle with the many different roles they must juggle, including spouse, parent, caregiver, grandparent, and employee at another job. These additional roles and demands can add a great deal of stress and strain on caregivers that can increase turnover. The stress of additional roles can also be exacerbated by a lack of resources to support caregivers in fulfilling their roles. Also, when grandparents are caring for grandchildren, there are struggles between the parents and grandparents about the best way to handle issues that arise with the children. Grandparents also have multiple needs and limited resources, which contribute to these struggles and the increased chance for turnover (Burnett, 1999). Finally, caregivers are less likely to stop providing care when they are related to the children in care. When parents are stably employed and changes in care do occur, the change is typically initiated by the caregiver (Whitebook et al, 2003).

Understanding the causes and antecedents of turnover is the first step to reducing turnover rates (Mor Barak, Nissly, & Levin, 2001). Support from family and friends is a major buffer against turnover due to on-the-job stress. In addition, investment in job and job related education and training can increase knowledge and self-efficacy, thereby helping to reduce turnover rates. To continue caregiving, people must feel a level of commitment to the position and a sense of satisfaction from the work (Mor Barak, et al, 2001). Finally, low-income children are particularly susceptible to the quality and stability of care they are in (Whitebook & Sakai, 2003).

Following this discussion of informal caregivers, the government and support system, and factors influencing turnover, it is important to understand the theoretical underpinnings of this project. It is this theoretical background that guides the selection of research variables, the development of the hypothesis and model, and the analysis plan.

## Chapter 4

### *Theoretical underpinnings*

In this section the theories that guided the development of this study will be discussed, including the decisions about what to study and what variables to include. The two primary theories that have influenced the development of this study are Bronfenbrenner's ecological framework (Bronfenbrenner, 1999) and exchange theory (Nye, 1979). A brief description and history of each will be provided below, along with a description of their importance to this study.

#### *Ecological framework*

This study is based primarily on issues raised due to the current political and social conditions, particularly welfare reform and our society's reliance on child care for families. It is thus critical not only to examine issues at an individual level, but also to examine phenomena on a more macro level and include variables that pertain to societal impacts on the individual.

Bronfenbrenner's framework points to the importance of examining ecological factors influencing individuals and systems, including family, and community characteristics, as well as other systems such as the workplace (Bronfenbrenner, 1999). According to Bronfenbrenner's ecological model, there are many systems that interact to affect the individual. It is critical to understand these systems in order to understand individual development and decision-making. Examining just one system does not provide enough information to understand behavior fully.

At the center of this model is the individual. In this study, the individual is the informal caregiver. The most closely related people, directly impacting the individual, comprise the micro-system. Within each situation, there are many microsystems impacting the individual and

interacting with each other. For an informal caregiver, a spouse, the child in care, parents of the child in care, and other individuals they interact with every day are included in the microsystem.

Individuals within the micro-system are also affected by other people, those in their workplace for example, and those people or situations comprise the meso-system level. Each of the different levels and systems impacts the other systems, and the relationships are bi-directional. This means that in addition to outer systems influencing the micro-system and individual, the individual also impacts each of the other systems. This concept is central in Bronfenbrenner's model; it is the key to understanding the relationship between systems and the factors that affect individuals and relationships. Caregivers are also impacted indirectly by people who interact with those in their microsystem. For example, if the parent of the child in care has a boss who just lengthened the parent's work hours, that has an indirect impact on the caregiver. Another example would be if a caregiver's spouse lost their job or had a change in jobs, requiring the caregiver to take a job outside of the home to provide health benefits to the family.

The next level is the exo-system, this level includes groups in political power and other situations of power who can affect the individual through policies or rules. An example may be a change in political power during an election, which results in higher subsidies for informal caregivers or a change in the requirements for subsidy receipt. Who is in power, or elected, is largely determined by social opinions (macro-system) and the things going on socially at this particular time in history (chronosystem) (Bronfenbrenner, 1999).

One of the key assumptions of Bronfenbrenner's framework is that there is movement and bi-directional relationships among the different systems (Bronfenbrenner, 1999). This holds many implications for this type of study, in which it is very likely that the situation at the macro-

system level (number of child care centers, labor force participation, available jobs, etc) will affect the number of informal caregivers as well as the turnover of caregivers. The availability of jobs affects the ability of parents to obtain and maintain employment. The same situation is in place for the educational environment in communities. The work schedule of the parent is going to impact the ability of the caregiver to attend training and/or higher education if desired, and that training attendance may likely impact the caregiver's willingness and ability to continue caregiving. These are just a few of the reasons that this particular framework is critical in understanding informal caregiver turnover.

Variables were selected for inclusion in the study in an effort to characterize each of the different system levels represented in Bronfenbrenner's theory and to correspond to the impact each level has on caregivers. Due to the reliance on census data and other county level demographic data, it is not possible to have individual level data. Data on the number of higher education institutions and training opportunities provide information on the resources at the county level.

Individuals do not operate in isolation. By considering the different factors that can influence decisions to continue caregiving, it is possible to determine methods to reduce turnover rates. The examination and understanding of a variety of factors can allow government and social agencies develop a broader array of programs rather than just focusing on interventions at the individual level. By examining a fuller array of factors and issues at each of the different systemic levels, it is possible to have a much greater impact on caregiver turnover, and improve stability for caregivers, parents, and children. When interventions work at multiple levels then they are much more effective in reducing the turnover rates among caregivers (Bronfenbrenner, 1999; Blau & Robins, 1998; Brandon, 2000).

### *Exchange theory/game theory*

Exchange theory is a useful theory for understanding how caregivers' make decisions regarding continuing care and subsidy program participation. While Bronfenbrenner's ecological model (1999) provides guidelines for variables to include in the study, exchange theory can help refine the list of variables to include in the study and interpret why particular variables may impact turnover rates. The primary purpose of this theory is to explain how individuals make choices and decide what behaviors to engage in. The exchanges that make up human behavior can occur between individuals, or between an individual and a group (such as family members or co-workers). The basic premise is applicable across cultures, and while specific rewards and costs may vary slightly by culture, the premise and assumptions are the same (Klein & White, 1996; Sabatelli, & Shehan, 1993; Winton, 1995).

One of the basic assumptions of exchange theory is that individuals make choices and decisions about behavior based on a rational selection of alternatives. Human beings seek to maximize their benefits (profits) and minimize their costs. All behaviors involve some costs, so every choice and behavior is based on the outcome that individuals perceive as the most profitable to them regardless of the cost. When costs are equal, behavior decisions are based on the rewards; when the rewards are equal, the choice is based on costs (Klein & White, 1996; Sabatelli, & Shehan, 1993; Winton, 1995).

The concept of rewards and costs provides a way of examining and explaining the interactions between individuals. Prediction and understanding are possible by understanding individuals' motivation. Exchange theory allows for the predictions to be made about the relationships that individuals will form. According to exchange theory, problems arise in relationships when individuals do not see things the same way. When this occurs individuals

have different perceptions of how much each is giving and receiving within the relationship (Nye, 1979). This theory encourages researchers to focus on the role of expectations and perceptions of individuals. It is these expectations that influence what the choices are that individuals will make and why they make them (Nye, 1979). Knowing what informal caregivers expect from relationships and from different situations will allow researchers to predict what decisions individuals will make regarding caregiving.

Rewards and costs are central concepts in exchange theory. They can be material, emotional, or psychological outcomes that are seen as valuable. While there is a general agreement about whether something is a reward or cost at the societal level, the hierarchy of values varies by individual (Klein & White, 1996; Sabatelli, & Shehan, 1993; Winton, 1995). This is why some caregivers may choose to forgo another job which pays more, but may cause family difficulty in finding another caregiver or result in discord in the family. In addition to the tangible rewards of income, rewards in child care are often intangible such as the relationships with children and families (Gable & Hunting, 2001). The value that a caregiver places on each of these types of rewards will largely determine how long they will stay in the field.

Costs in child care are often tangible and intangible including the expenses associated with maintaining a safe setting and the sense of isolation for home caregivers (Gable & Hunting, 2001). Older caregivers may also have difficulty physically in dealing with the demands of caregiving, which is another cost that must be weighed against the reward of supporting family members or the additional income. Investment in child care occurs in the form of training, education, and professional development experiences (Gable & Hunting, 2001). Providers also must balance the decision to continue caregiving with the other employment alternatives that are available to determine the best option for their situation (Gable & Hunting, 2001). This requires

an examination of the value placed on each of the perceived rewards and costs associated with caregiving for the individual. If additional income or health benefits are critical for the family, then leaving caregiving to take employment outside of the home may be perceived as more important; however, if the family relationships are more critical and supporting other working members of the family is seen as a greater priority, then the caregiver will maintain the caregiving relationship.

In this particular project, caregivers are likely to weigh the benefits and costs before deciding whether or not to remain in the subsidy program. If caregivers perceive that the most profitable situation is remaining in the child care subsidy program then turnover may be lower. This may be the case if the family is benefiting more from this additional income than from other employment alternatives in the community. The caregiver may also receive non-material benefits through the interactions with children and family members. If there are not many jobs available in the community or not many other child care settings to choose from, then caregivers may decide to remain on the program. Conversely, it may be perceived as too costly emotionally and financially to remain on the program if there is not training available or if there are other employment opportunities available that provide more desirable alternatives.

One of the aspects that makes exchange theory useful for this particular project is its focus on dynamics and factors that impact the stability of relationships (Sabatelli & Shehan, 1993), such as the relationship between families of children in care and the caregiver. Another factor that makes it particularly useful for this study is that it is applicable across cultures, with only specific rewards and costs varying slightly by culture (Klein & White, 1996). This is important for this project due to the prevalence of informal care among African American and

Hispanic families, which have unique cultural norms and mores that impact informal caregivers' decisions about continuing care.

In conclusion, Bronfenbrenner's ecological model provides a framework for each of the systems that are critical to include in the analysis of informal caregiving turnover, such as the employment situation in the community (both for the caregiver and for the parents of the children), educational situation in the community, and the families of the children in care. Exchange theory provides a way to interpret and predict informal caregiver turnover based on their interpretation of the benefits and rewards of caregiving. By using both of these approaches we can begin to understand how other systems, such as the educational and employment situations, can impact how informal caregivers perceive their rewards and costs when decision making.

## Chapter 5

### *Hypotheses*

This research project tested two primary hypotheses. In this chapter a brief justification for each component of the two hypotheses will be presented. These hypotheses are based on previous research and data analysis.

*Hypothesis 1: In rural decline and rural growth counties, turnover rates of informal caregivers will be higher when education levels in the county are lower; high school drop out rates in the county are higher; there are fewer higher education institutions in the county; there are fewer training opportunities in the county; the average family size is larger; there is less money spent on child care per person; and informal caregivers represent a smaller percentage of the care options*

*Education levels.* Previous literature related to rural caregivers has indicated that caregivers with lower education levels are less likely to remain informal caregivers on programs requiring training because they do not want to attend formal education settings (Beach, 1997). This is due in part to their perception of child care as a family responsibility rather than a career (Beach, 1997; Manlove & Guzell, 1997). Caregivers with lower education levels may also be less comfortable with the amount of paperwork required to receive the child care supplement (Collins & Carlson, 1998; Galinsky, et al, 1994; Robinson & Todd, 1999).

*High school drop out rates.* When high school drop out rates are higher, welfare rates are more likely to be higher, resulting in greater demand for child care, including that provided by informal caregivers (Whitebook, et al 2003). High school drop out rates are also related to a lower-educated workforce who may experience more unstable work environments (Meyers,

1997). When this occurs caregivers may experience a great deal of turnover as they are forced to move on and off the roles as the parents of children move in and out of workplaces (Oliker, 2000; NCCP, 2000; Mensing, et al, 2000).

*Higher education institutions.* Not surprisingly, training for informal caregivers is often held at higher education institutions (NACCRRRA, 1998). For this reason, it was hypothesized that turnover would be higher in areas with fewer higher education institutions. In these areas, caregivers are less likely to have a variety of training options, are more likely to have to travel further for training, and are less likely to have opportunities for continuing education opportunities (Robinson & Todd, 1999; Miller, 1997). All of these factors play into the relationship between fewer education institutions and higher turnover rates.

*Fewer training opportunities.* When there are fewer training opportunities, it is harder for caregivers to get the training they need to maintain their position on the subsidy program (Robinson & Todd, 1999). Caregivers who do not attend the required eight hours of training are typically dismissed from the subsidy program. These situations result in higher turnover rates for the informal caregivers in these counties.

*Average family size.* When the average family size is larger there are typically extended family living together in the same household. Often in these homes, relatives perceive child care as a family responsibility rather than a career or something that they would receive outside income for (Fuller, et al, 1996; Fuller, et al, 2001). In these cases, even when family members participate in the subsidy program, they are not as tied to their role on the subsidy program as they are to the involvement with the children. Participation in the program is also often affected because multiple family members share caregiving responsibility (Fuller, et al, 1996; Beach, 1997).

*Money spent on child care per person.* In areas where more money is spent on child care, it is more likely that there are more child care training workshops offered, there are fewer children per care setting, reimbursement rates are often better, and caseworkers can be more involved with the caregivers they work with (NACCRRA, 1998; NCCP, 2000) . All of these factors can impact caregiver turnover by making it easier for them to meet their requirements for program participation, such as the 8 hour training or scholarships for fire extinguishers and smoke detectors (NACCRRA, 1998; Mor Barak, et al, 2001).

*Informal caregiver representation.* When there are a wide variety of child care settings, parents are often less likely to rely on informal care arrangements (Galinsky, et al, 1994; Brewster & Padavic, 2002). When informal caregivers perceive that they are a minority and they do not have a network of peers in similar settings, they feel more isolated and are less likely to maintain the caregiving situation (Mor Barak, 2001; NCCP, 2000; Brown-Lyons, et al, 2001). Also, often in counties where informal caregivers are a smaller percentage of the care options, training is more likely to be focused on the more formal care settings (Robinson & Todd, 1999; NACCRRA, 1998).

*Hypothesis 2: In urban and suburban counties, turnover rates of informal caregivers will be higher when education levels in the county are higher; high school drop out rates in the county are higher; there are fewer higher education institutions in the county; there are fewer training opportunities in the county; the average family size is larger; there is less money spent on child care; informal caregivers represent a smaller percentage of the care options.*

The second hypothesis was very similar to the first with one major difference. In urban and suburban counties, it was hypothesized that turnover rates would be higher when education

levels were higher. This was because previous research has indicated that more well educated caregivers are more likely to seek employment outside of child care when it is readily available (Galinsky, et al, 1994; Todd & Deery-Schmitt, 2002; Gable & Hunting, 2001). Urban and suburban areas are more likely to have other employment opportunities that are available within a commuting distance and they are more likely to have a wider range of transportation options available to access the other career opportunities. When these opportunities are available, informal caregivers may feel less tied to the field of child care and may be more likely to move on to a more profitable opportunity when it is available. In short, more well educated caregivers are going to have a wider range of career and job opportunities available to them (Brewster & Padavic, 2002; Bromer & Henly, 2002).

## **Chapter 6**

### *Methodology*

The primary research question guiding this project was whether counties with low turnover rates among informal caregivers were systematically different on key indicators than counties with higher turnover rates. This project was also designed to determine if any of those key indicators were better predictors of turnover rates than others. Finally, the effectiveness of a demographic assessment for informal caregiver turnover was evaluated.

### *Sample*

There are 159 counties in Georgia. Of those counties, 138 currently have informal caregivers enrolled in the Childcare and Parent Services subsidy program. Each of these 138 counties was included in this study. This was possible due to the availability of the census data, which was available for all of the possible counties. See the map in Figure 2 for a graphical representation of the counties and their locations throughout the state. For a breakdown of the number of informal providers and agency workers in each county, and the urbanization category for each county, see Figure 3.

### *Data*

All of the data for this study were from public records. Very little, if any, research has been conducted using census data to make predictions and plan for future developments with informal child caregivers. This is a largely untapped source of information that can aid policy development and decision-making. By using publicly available data, such as census data which is available in a wide variety of formats (census tracts, counties, states, regions, etc), policy makers and program administrators could create and conduct needs assessments on a regular

basis for very little additional funding and without relying on outside sources. This could be crucial during tight budgetary times.

The decennial census is conducted every ten years, with the last census conducted in 2000. In addition to the census data, information was gathered from the Georgia Division of Family and Children Services records, Child Care Resource and Referral training calendar, and Georgia Department of Education data sources.

All of the other variables used in this study were publicly available data, in part due to the Georgia Open Records Act (Georgia, 2000). Data on the number of educational institutions was gathered from the Georgia County Guide and entered into SPSS. The turnover rate for informal caregivers in each of the counties was calculated based on public data available from Child Care Licensing Division. The Department of Human Resources also provides an online searchable database from which the total amount spent on children in child care (Pre-K, subsidies, training, etc.) within each county was downloaded. This provided another source of information about the perceived support for informal child care within each county.

Information from the Child Care Resource and Referral offices was also readily available online and the training calendar was searched and downloaded from their website (<http://tc.caresolutions.com>). While this calendar did not include every training option, it provided an easily accessible way of determining approximately how much formal training support was provided to caregivers in each county. When caregivers have to travel long distances to attend training or access other support services, it makes it more difficult for them to meet all the requirements for staying on the subsidy program. A perceived lack of support may also increase turnover rates due to the feelings of isolation.

Federally collected data (i.e. education level, drop out rate, family size) was downloaded from the U.S. Census website (www.census.gov). The downloaded data was merged together with the other county variables (e.g. higher education institutions, amount spent on child care, turnover rates, and training workshops). Control variables such as racial proportions and poverty levels were also downloaded from the census website.

### *Variables*

All of the variables involved aggregate data presented at the county level, as the county was the unit of analysis for this study. There were several key variables of interest in this study. The dependent variable was caregiver turnover. Turnover data came from Child Care Licensing. It was created by dividing the number of caregivers leaving the program by the number of total caregivers over a six-month period.

Independent variables included average education level, number of higher education institutions, high school drop out rate, number of child care workshops, amount spent on child care (per person), and average family size. Mean education level was calculated based on U.S. Census statistics on the educational attainment of individuals over 18. In each case, each education level was given an ascending number and the population achieving that education level was multiplied by the appropriate number. These new numbers were summed and divided by the total population to determine the average education level. The number of workshops, amount spent on child care per person, and family size represented the “*support*” construct. The number of higher educational institutions, mean level of education, and drop out rate formed the “*education*” construct.

### *Procedure*

The first step was to enter each of the variables into an SPSS file so that descriptive statistics, correlations, and regression analyses could be computed. Each of the variables was downloaded from the appropriate website, either the Census website ([www.census.gov](http://www.census.gov)), the Georgia Child Care Resource and Referral Training Calendar (<http://tc.caresolutions.com>) or the Georgia Stats website ([www.georgiastats.uga.edu](http://www.georgiastats.uga.edu); the on-line Georgia County Guide). Average education level and turnover rate were calculated in Excel and then merged with the existing data in SPSS. Variables that were not available online were hand entered from Child Care Licensing Reports or the paper Georgia County Guide directly into SPSS. Once the data was compiled in the SPSS file, the necessary analyses were conducted.

All of the data used were aggregate data that was publicly available and had no identifying information for individuals. For this reason, the study qualified as 'Administrative Review' for The University of Georgia Human Subjects and was exempt from full committee review but was still approved by the Human Subjects office. A human subjects application was completed and submitted to the Human Subjects Program Coordinator (UGA Human Subjects, 2004). An email was returned to the primary investigator that the project was exempt from review due to the nature of the data.

## **Chapter 7**

### *Analysis Plan*

Basic descriptive statistics were first run using SPSS to describe the four county categories (urban, suburban, rural growth, and rural decline) and each of the counties in the study. Means, standard deviations, and ranges were run for the education level, number of higher education institutions, child care workshops, high school drop out rate, and amount spent on child care. Most of these variables were ratio variables, however, urbanization was categorical. Correlations were run next to test for collinearity between any of the variables of interest in the study. ANOVAs were used to determine if there were systematic differences among the four Georgia categories (urban/suburban, rural growth/rural decline) on any of the variables. As a follow-up analysis to determine what may be occurring in the different county categories, ANOVAs were also run to compare each of the separate four Georgia categories (urban, suburban, rural growth, and rural decline). Means and ANOVAs were examined to assure that the data were normally distributed and met the criteria for use with multiple regression (linear and normally distributed). Almost all of the variables met these assumptions. All of the variables were linear but four of them were not normally distributed. The number of child care workshops, number of higher education institutions, and turnover rates were all positively skewed. To compensate for this, the variables were transformed to force them into a normal distribution, using SPSS.

In order to fully test the two hypotheses, multiple regression analysis was run. This was also used to determine which variables were the best predictors of informal caregiver turnover. Multiple regression was used to test the relationship between turnover rate and the following

independent variables: average education level, high school drop out rates, number of higher educational institutions, number of training opportunities, amount spent on child care, and percent of caregivers that are informal. The regression equation was the following:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + e$$

Y represented the dependent variable, informal caregiver turnover. The intercept was represented by 'a.' The regression coefficients were represented by 'b' and were associated with their respective independent variables. These indicated the direction and magnitude of the relationship between the independent and dependent variables. Error variance was represented by 'e.' The F value for the entire equation indicates whether the regression was statistically significant.

In the next chapter, the detailed results from these analyses will be discussed. While the data was not as robust as one would like, the analyses did produce several interesting and informative results.

## Chapter 8

### *Results*

The objectives of this study were (a) to determine which, if any, malleable factors are correlated to informal caregiver turnover; (b) determine which variables predict informal caregiver turnover and; (c) to determine if the relationship between the predictor variables and turnover vary by level of urbanization (urban/suburban, rural growth/rural decline). The findings are reported in three parts. First the descriptive data will be presented for both the independent and dependent variables. Results for each of the urbanization categories will also be discussed. Next the basic statistical tests will be reported. These include correlation analyses to test for any possible problems with multi-collinearity among the variables. ANOVAs were also calculated to determine if there were any systematic differences by level of urbanization. Finally, the regression analyses that examine the antecedents of the turnover will be examined. The statistical significance of hypothesized relationships was tested at the .05 and .01 levels in all of the analyses. All data are reported using the county as the unit of analysis. Figure 2 depicts the location of each of the counties in Georgia and their urbanization category.

### *Descriptive statistics*

For each of the independent variables and the dependent variable, means and standard deviations were calculated. For the categorical variable of urbanization, frequencies were calculated. These results are shown in Tables 1 and 2. These results were consistent with expectations for counties in the state of Georgia based on previous research using Census data and Georgia County Guide Data (Bachtel, 1999; Robinson & Todd, 1999).

*Turnover.* Turnover was calculated by dividing the number of closed cases by the number of total open cases for a six month period of time for each of the counties in the study. It was possible to calculate turnover rates for 138 counties. For those counties, the average turnover rate was 10.78 with a standard deviation of 17.34. The range was from 0 to 100.

In urban/suburban counties, the average turnover rate was slightly higher than for the total county group. The average turnover rate in these counties was 11.9 with a standard deviation of 18 (range = 0 to 100). As expected, rural growth/decline counties showed a lower average turnover rate and standard deviation ( $X=9.9$ , range = 0 to 100, standard deviation = 16.8) than either the urban/suburban group or the total population.

*Dependent variables.* The counties were relatively evenly distributed through the Four Georgia categories. There were 14 urban counties (9%), 55 suburban counties (35%), 56 rural growth counties (35%), and 34 rural decline counties (21%). Consistent with the high level of diversity in counties in Georgia, counties demonstrated a wide range of percent population African American ( $X=27.7\%$ , range = 0 to 78%). On average, 17% of the populations in the counties were below poverty (range = 3 to 31%). Families in the Georgia counties were approximately the same size as the national average ( $X=3.1$ , range = 2.6 to 3.6).

*Total population.* There was a diversity of child care options across the state, with a mix of child care centers ( $X=11$ , range= 0 to 256), family child care homes ( $X=41$ , range = 0 to 996), group homes ( $X=1.5$ , range = 0 to 36), and informal caregivers ( $X=12$ , range = 0 to 121). On average, almost a quarter (24%) of the care options in the county were informal care. Counties spent a wide range of funds on child care support, ranging from \$1 per person to \$66 per person, with an average of \$19 per person (standard deviation \$12.3). There was a wide range of

training options for caregivers throughout the county as well. The average number of training sessions was 8, with a range of 0 to 306 training options per county (standard deviation =29.8).

There was a great amount of variability in the education levels of citizens in the counties. The scale for education level was scaled to increase with education (1=less than high school through 7 = graduate school and above). Results indicated the average education level was 3.3 (more than high school, but less than college), with a relatively limited range of 2.7 to 4.5 (standard deviation = 0.4). The average drop out rate across the counties was 6.9, with a range of 0 to 44.2 (standard deviation = 4.4). There was almost one institute of higher education for each county ( $X=0.7$ , range = 0 to 21, standard deviation = 2.1), although some counties had many more institutions than others. See Tables 1 and 2 for a full display of all of the descriptive statistics for the variables of interest.

*Only counties with informal caregivers.* There were not many differences in the descriptive statistics of the counties with informal caregivers and the total population. Among the counties with informal caregivers, 10 were urban counties (7%), 50 were suburban (36%) and rural growth (36%) and 28 were rural decline (20%). In counties with informal caregivers, these caregivers represented about a quarter of the care options (24%). There were slightly more workshops, 8.5 on average (standard deviation 31.8), than in the total population. There was almost no difference in average family size, average education level, high school drop out rate, and number of higher education institutions between counties with informal caregivers and the total population. See Tables 1 and 2 for a full comparison between the two groups. Because there were not many differences in the descriptive statistics of counties with informal caregivers and all counties, only counties with informal caregivers were used to examine the characteristics for each urbanization category.

*Urban/Suburban.* Sixty (43%) counties were in the urban/suburban category. There was very little variation in family size in these counties, with an average family size of 3.1 and a range of 2.9 to 3.3 members per family. The average education level for those over 18 years old was 3.5, which was some college (range = 2.9 to 4.4, standard deviation 0.4). This was not that different than the education level for all counties. Likewise, the dropout rate was not that different from the dropout rate across all counties ( $X=6.3$ , range = 0 to 15.3, standard deviation = 2.9).

In these counties, on average 15% of the care options were informal caregivers (range = 0 to 74, standard deviation = 16.9). The average amount spent on child care was \$18/per person, with a range of \$2/per person to \$66/per person (standard deviation = 13.2). This was slightly higher than the average for all counties. Not surprisingly, these counties had more higher education institutions than other counties. There was an average of 1.2 institutions per county (range = 0 to 21, standard deviation = 3.1). Urban/suburban counties had an average of 17 child care workshops during the last year (range = 0 to 306, standard deviation = 46.8). This was much higher than the rural growth/decline counties discussed below. See Table 3 for a full comparison of descriptive variables for the urbanization categories.

*Rural growth/decline.* Informal caregivers on average represented a larger percentage of care in rural settings than in urban/suburban settings ( $X=31.4$ ,  $X=15.1$  respectively). The average family size was slightly smaller in rural growth/decline counties and there was less variability in the family size than in the urban/suburban counties ( $X=3.0$ , range = 2.6 to 3.3, standard deviation 0.1). However, rural counties also had slightly lower average education levels ( $X=3.1$ , range = 2.7 to 3.8, standard deviation = 0.2) and higher high school drop out rates ( $X=7.4$ , range = 0 to 44, standard deviation = 5.5).

Not surprisingly, rural growth/decline counties had lower numbers of higher educational institutions on average ( $X=0.4$ , range = 0 to 2, standard deviation = 0.7) and fewer child care workshops ( $X=2.1$ , range = 0 to 24, standard deviation = 3.9) than urban/suburban counties. However, in these counties a higher amount per person was spent on child care than urban/suburban counties. In these counties, the average amount spent on child care is \$20/per person, with a range of \$1/per person to \$54/per person (standard deviation = 12). This indicated that while the range was smaller than in other counties, the amounts were generally higher per person.

In the next section, the additional basic analyses that were conducted to determine if the data met the assumptions for multiple regression will be discussed. Correlations were conducted to determine if there was a relationship between any of the independent variables and turnover. ANOVAs were also run to determine if there were any systematic differences by level of urbanization.

### *Basic Statistics*

Running the basic statistics provided a method of testing to assure that the variables met the assumptions of normality and linearity. It also provided a way to test for other relationships between variables that may not be predictive in nature and may confound the other analyses. These relationships can still be critical to understanding the phenomena of turnover and planning budgeting expenses for informal caregivers.

Q-plots produced by SPSS were used to test for normality and linearity. Most of the variables of interest were normally distributed. The few exceptions included turnover, number of higher education institutions, and number of child care workshops. When variables were not normally distributed, measures were taken in the regression analyses to control for this. For the

variables that were not normally distributed, the SPSS transform command was used to force the variables into a normal distribution prior to running the regression analyses. New variables were created from the originals and the regression analyses was run using these normalized variables.

*Correlations – total counties/only counties with informal.* The correlations are shown in Tables 4, 5, and 6. Most of the highly correlated items were not key variables in the study. Not surprisingly, level of urbanization was highly correlated with several of the variables including the percent of caregivers that were informal (0.42,  $p < .01$ ), average education level (-0.54,  $p < .01$ ), average family size (-0.23,  $p < .01$ ), and number of higher education institutions (-0.31,  $p < .01$ ). Among counties with informal caregivers, these correlations were relatively similar. See Tables 4 and 5 for a comparison.

In the total county population, the number of child care workshops was also correlated with average education level (0.49,  $p < .01$ ), amount spent on child care (0.19,  $p < .05$ ) and the number of higher educational institutions (0.91,  $p < .01$ ). This was not surprising since many of the workshops were offered on local technical college campuses or in child care centers located on campuses. Among counties with informal caregivers, the only change in relationships was the correlation between the number of workshops and family size (0.18,  $p < .05$ ). For all of the counties, average education level was correlated with number of education institutions (0.44,  $p < .01$ ). High school drop out rate was negatively correlated with average family size (-0.30,  $p < .01$ ). For just counties with informal caregivers, these correlations still existed.

Turnover was negatively correlated with the amount spent on child care (-0.22,  $p < .01$ ). This was true both for the total population and for just counties with informal caregivers. The relationship between turnover and amount spent on child care was consistent with expectations. While it would be nice to find other variables that were correlated with turnover, from a policy

perspective, it was reassuring to find that the variable most closely directed at improving the child care situation was in fact having that impact.

*Urbanization groups correlations.* Correlations were run again using just counties with informal caregivers to determine if there were any group differences between the different urbanization categories of interest (urban/suburban, rural growth/decline). These analyses produced some interesting results. See Table 6 for the group differences in correlations. When the two urbanization groups were separated (urban/suburban and rural growth/decline), there were some changes in the correlations. In rural growth/decline counties, turnover was not correlated with any of the other variables, while in urban/suburban counties it was slightly correlated with the amount spent on child care (-0.32,  $p < .05$ ). This indicates that turnover declines as the amount spent on child care per person increases. It was surprising that a similar relationship was not seen in rural growth/decline counties. In rural growth/decline counties the average family size was correlated with the amount spent on child care (0.31,  $p < .05$ ).

Some of the other differences included the relationship between the percent of child care that was informal and the level of urbanization. Rural growth/decline counties showed a significant relationship of moderate strength (0.43,  $p < .01$ ), while there was not a significant relationship between these variables in urban/suburban counties. These findings indicated that rural decline counties were more likely to have informal caregivers represent a larger share of the child care market. It was likely that this was related to the relationship between percent of care and amount spent on child care per person in these rural counties (0.43,  $p < .01$ ). This was another significant relationship that does not exist in the urban/suburban counties. On the alternative side, in urban/suburban counties, there was a relationship between amount spent on child care per person and the level of urbanization (-0.52,  $p < .01$ ) indicating that urban counties spend more

on child care per person than suburban counties. This may be related to the average incomes for these counties. It is possible that because the suburban counties were often more affluent, there was no perceived need for the child care spending.

*ANOVAs.* There were no significant findings when analyses of variance (ANOVA) were run comparing the two original urbanization categories, urban/suburban and rural growth/rural decline. This was the case for each of the independent variables when run with the dependent variable, turnover.

When ANOVAs were run to compare each of the four Georgia categories separately, there were statistically significant findings. These additional analysis were run to examine why some of the correlations and regression analysis occurred. A oneway ANOVA was calculated with Bronferroni post-hoc tests to determine where significant differences occurred.

Rural decline counties had significantly higher percent of care options that are informal (mean=45.29,  $p<.01$ ) than urban ( $X=14.8$ ), suburban ( $X=15.3$ ), and rural growth ( $X=21.8$ ) counties. Urban counties spent significantly more per person on low-income child care support ( $X=\$27.98$ ,  $p<.01$ ) than suburban ( $X=\$14.79$ ) and rural growth ( $X=\$17.57$ ) counties. Suburban counties spent significantly less per person on low-income child care support ( $X=\$14.79$ ,  $p<.01$ ) than urban ( $X=\$27.98$ ) and rural decline ( $X=\$23.00$ ) counties. Suburban counties had significantly larger average families ( $X=3.0$ ,  $p<.01$ ) than rural growth ( $X=3.0$ ).

Urban counties also had significantly more higher education institutions ( $X=3.79$ ,  $p<.01$ ) than suburban ( $X=.51$ ), rural growth ( $X=.54$ ), and rural decline ( $X=.18$ ). Given this, it is not surprising that urban counties also had significantly higher average education levels ( $X=3.7$ ,  $p<.01$ ) than suburban ( $X=3.4$ ), rural growth ( $X=3.2$ ), and rural decline ( $X=3.0$ ).

### *Regression analyses*

The two primary hypotheses were tested using step-wise multiple regression in SPSS. The first hypothesis was that in rural growth and decline counties, turnover would be higher when there were higher drop out rates, fewer education institutions, less money spent on child care, fewer child care workshops, lower percentage of the care is informal, and lower education levels. The second hypothesis was that in urban and suburban counties, turnover would be higher when there were higher drop out rates, fewer education institutions, less money spent on child care, fewer child care workshops, lower percentage of the care is informal, and higher education levels. The results from these multiple regression analyses are shown in Tables 4 - 6.

*Collinearity.* Multi-collinearity is a major challenge in using macro level data. For this reason, collinearity statistics were calculated during the regression analyses. All of the tolerance levels for the independent variables were well within the acceptable range. In fact, all of the tolerance levels were almost at 1. The lowest tolerance level was for percent of care that was informal caregivers, which was .89. This was well within the acceptable range. These findings reduced any concerns regarding multi-collinearity of the data.

*Total model.* Before testing each of the individual hypotheses, the model was run for the entire sample. These results are shown in Table 7. The variables in this model only explained 5% of the variability in the turnover rate, a slightly statistically significant proportion of the variance ( $F=6.97$ ,  $p<.01$ ). The strongest predictor variable, the only variable in the model, was amount of money spent on child care (per person). This variable was related to the turnover rate at the .01 level of significance. The beta value for amount spent on child care was -.22, indicating that for each dollar decrease in the amount spent on child care per person, the turnover rate increased by .22.

*By urbanization level.* After testing the model for the entire population, each of the urbanization categories were separated to test the two primary hypotheses. Each of the categories were run separately as well as grouped together as indicated by the hypotheses. In the urban/suburban analyses, the only variable which stayed in the model was the amount of money spent on child care (per person).

For urban and suburban counties, the model explained 10% of the variability in the turnover rate ( $F=6.58$ ,  $p<.05$ ). The amount spent on child care had a beta value of  $-0.32$ , indicating that the relationship between this variable and turnover was moderate and negative in these counties as in the full sample. This indicated that for every dollar decrease in the amount spent on child care per person, the turnover rate increases by  $0.32$ . These results are shown in Table 8.

For rural growth and decline counties, the model did not explain any of the variability in the turnover rate ( $F=0.95$ ,  $p>.05$ ). This was consistent with the previous analyses which indicated that there were no independent variables which were statistically significantly correlated with turnover among informal caregivers. For a full description of the beta and t-values for this model see Table 9.

These results were very interesting for several reasons. One of the most interesting pieces was the comparison of the models for each of the urbanization levels. The results indicated that while amount spent on child care was a predictor in urban/suburban counties, there was something else going on in rural counties. Also, the rural counties apparently reduced the beta coefficients in the full sample model that was run, based on the two sub-samples which were run as follow-ups. When more micro-analyses were run, both rural growth and rural decline counties did not have a significant relationship between turnover and the amount spent

on child care. This supported the idea that there was something different in rural counties of both types, rather than being something specific to one of the two sub-categories.

#### *Additional analysis*

The original hypotheses for this study were based on the research on informal child caregivers which indicated that in more metropolitan areas there are more employment and educational opportunities within the public transportation and pedestrian access for caregivers than in more rural areas which impacts caregiver turnover. However, this breakdown of urban/suburban and rural growth/rural decline is not consistent with the research and conceptualization behind the four Georgia breakdown. Therefore, additional regression analyses were run to test the same hypotheses when the counties were broken down along lines that were based on four Georgia research. When these analyses were run, the urbanization categories were urban/rural decline and suburban/rural growth. There were no significant findings when the model for suburban/rural growth was run.

In the model for urban/rural decline, the only variable that hung in the model was average education level (18+). For urban and rural decline counties, the model explained 14% of the variability in the turnover rate ( $F=5.84$ ,  $p<.05$ ). The average education level (18+) had a beta value of -0.37, indicating that the relationship between this variable and turnover was moderate and negative in these counties as in the full sample. This indicated that for every increase in the average education level, the turnover rate decreases by 0.37. To further explore these differences, additional ANOVAs were calculated (see discussion above) to examine the differences between each of the four Georgia categories separately.

Other interesting and important findings were related to the impact of the results on the overall purpose of the project. While the model was not as robust as might have been preferred,

it still told us a lot about how tenuous the connections are between turnover and controllable variables. However, the strength and robustness of the relationship between amount spent on child care per person and the turnover rates was very reassuring. The fact that the results were consistent across each of the urbanization levels was also reassuring and provided a basis for generalizing and creating policies even at the state level to address the issue of turnover. These issues will be discussed in more depth in the following section.

## **Chapter 9**

### *Discussion*

This section will provide an overview of the findings, a discussion of their relationship to previous research, future research needs, and implications for policy makers. While the results did not support the hypotheses, they do shed a great deal of light on the environment of subsidized informal caregivers, provide support for current programs and practices, and dispel the focus on demographic factors as predictors of turnover for informal caregivers.

#### *Comparisons to previous literature*

Georgia is a very diverse state. In addition to the wide range of urbanization levels, there is also a great deal of variability in all of the characteristics included in this study. Average family size, education level, and high school drop out rate were the most consistent variables across all of the counties. However, even these variables had a moderate share of variability. One of the most interesting variables was the ratio of the amount spent on child care per person in each county. In particular, the consistent relationship with lower turnover rates across all counties and in urban/suburban counties but not rural counties was very interesting. It is also intriguing that amount spent on child care per person has a positive correlational relationship with other variables of interest such as percent of care that was informal and family size.

Not surprisingly, the number of child care workshops and higher education institutions were centered in more urban and suburban counties. However, many were also located in some of the rural counties. Despite the established relationship between these variables or characteristics associated with these variables, and informal caregiver stress and burnout, these particular indicators did not predict informal caregiver turnover on child care subsidy programs.

One of the major concerns going into this project was collinearity among the independent variables, particularly due to the use of county level data. However, this turned out not to be a problem with the particular independent variables of interest in the study. The variables were all relatively independent of each other, with no systematic relationships between variables. Several of the other independent variables were inter-correlated with one another. This was somewhat expected. The problem was not particularly widespread however, as there was not one variable which was consistently correlated with all of the independent variables. Also, running the collinearity statistics with the regression analysis provided another test for this and supported the independence of the variables. One concern however may be that there is another external variable which was not included in this study, which is skewing the data.

The correlational findings between the key variables were very interesting, particularly when examining the differences between the correlations for the total population and those for the counties with informal caregivers only. Unfortunately, turnover was not correlated with any of the variables of interest other than the ratio of amount spent on child care per person. It was interesting that for counties with informal caregivers, there was a positive correlation between family size and the ratio of amount spent on child care per person. This could be indicative of extended families living together in counties that spend more money on child care per person.

Both number of workshops and family size were correlated with urbanization which may indicate that urban areas typically have larger average family size and provide more workshops. This may also explain the correlation between family size and workshops, which indicated that in areas with more workshops the average family size was larger. Average family size and number of workshops were also positively correlated with child care spending per person, which was not surprising based on previous research on child care funding which is based largely on

population, demand, and available funds (Adams, et al, 2002). One very interesting finding however, was that for all counties (and it was also true for just the counties with informal caregivers), turnover was only correlated with the amount spent on child care per person.

The correlational differences between the levels of urbanization were also important and interesting. Analyses were run only for counties with informal caregivers. These analyses indicate that there are some very important differences between counties in the different urbanization levels, particularly in the categories established for this project of urban/suburban and rural growth/rural decline. While it was not surprising, it was interesting to see the difference between the two urbanization levels with regards to the percent of care that is informal. Many research studies have indicated that informal care is a larger share of the market in more rural areas and these findings support that (Beach, 1997; Brown-Lyons, et al 2001). Another important finding was the relationship between the percent of care that is informal and the amount of money spent on child care per person in rural growth/decline counties. This same relationship was not as strong or significant in the urban/suburban counties. Again, this may be due to the increased reliance on child care subsidies, support for child care settings, lack of other child care options in these areas, and the lower population levels in these counties. It was also very important to note that none of the independent variables were significantly related to turnover in rural growth/decline counties. This finding, along with the lack of any significant regression findings, indicate that there may be something unique going on in rural counties that is extremely different from urban/suburban counties. More investigation needs to be done in this area.

The absence of significant ANOVA findings was surprising, because it was anticipated, based on previous research (Galinsky, et al 1994; Brandon, 2000; Gable & Hunting, 2001), that

turnover would be at least correlationally related to education, family size, and child care workshops. The lack of findings with these analyses could have been due to a variety of reasons. The primary reason may be due to the broadness of the variables of study, the use of macro level data, and possibly unique characteristics within Georgia. Even in the ANOVA analysis, the amount of money spent on child care per person was the one variable that was significantly related to turnover of informal caregivers on the subsidy program.

These results changed slightly when the ANOVA was run for the four Georgia categories separately rather than grouped together. The differences in percent of care options that are informal were not surprising. It was anticipated that rural decline counties would have a higher percentage of care that is informal, based on previous research (Todd & Robinson, 1999; Beach, 1997). It was also not surprising that urban counties had higher average education levels, more higher education institutions and spent more per person on low income child care. These differences warrant additional exploration to determine how they may impact child care turnover.

While the regression models only indicated that the amount spent on child care per person was a predictor of informal caregiver turnover, this still holds many important implications for policy makers. The lack of any significant findings for rural counties is also an area for concern. The study's findings do not support the desired goal of producing a needs assessment for state and local policy makers by examining a set of demographic variables. The findings also contradict the hypotheses that there are controllable variables, such as child care workshops and education institutions, that predict the turnover rates of informal caregivers.

Finally, the findings of this study contradict previous research which indicates a strong relationship between child care workshops and turnover rates. Specifically, previous research

findings have suggested that when informal caregivers attend training and when there are more training options available, caregivers are more likely to remain in the field (Gable & Hunting, 2001; Galinsky et al 1994; Todd & Robinson, 1999). This study did not find evidence to support that; however, this could be due to the use of macro level data. Repeating the study with a larger sample, and a more diverse sample of counties throughout the country, may render different results.

#### *Implications for policy makers*

This study holds several implications for policy makers. While it did not result in the needs assessment that was sought originally, there were important findings from this project. One of the most important was that the amount of money spent on child care per person in the county is the strongest predictor of turnover among informal caregivers on the subsidy program. This indicates that the funds are achieving the desired effects and that at least this measure indicates that the programs are being successful. Reducing turnover results in a more stable environment for children, which has been linked to positive developmental outcomes (Scarr, 1993). Reducing turnover among informal caregivers also has the side effect of reducing paperwork for DFCS staff who must deal with the paperwork of moving caregivers on and off the system, and reducing the stress on parents who do not have to worry about finding replacement care due to the loss of a caregiver. These findings indicate that in this area at least policymakers and agency staff are on-target.

Another implication for policy makers is the need to examine child care training workshops being offered to informal caregivers to determine that they are designed appropriately and are having the desired impact on caregivers. Given that the expected relationship between workshops and turnover was not found, it is important to examine this link in more depth to

understand what is happening. This is an area where many advocate an increased budget in order to better train caregivers. Certainly, training has the potential to have a big impact on caregivers and the quality of care offered to children. However, the lack of a demonstrated relationship between the number of workshops and turnover is a concern in this study. This study was not designed to examine whether caregivers who left the roles as informal caregivers transitioned to more professional family child care homes, but this may be a recommendation for state and local policy makers to consider when seeking to understand the relationship between workshop attendance and turnover.

#### *Recommendations for local and state policy makers*

One primary recommendation for state and local policy makers would be to continue to fund child care programs for low income families. These programs seem to have the greatest impact on turnover rates for informal caregivers. Other recommendations would include funding similar studies to determine what factors are important predictors of turnover in other types of care. This could help in formulating plans to reduce the turnover in those areas and increase the stability of care for children across the board. Another recommendation would be to examine the content of child care workshops more closely to assure that it is appropriate to informal caregivers and is designed to increase their participation and support, rather than creating another area of stress, and negative relationships with state monitors (not a significant finding of this study, but a trend in the correlations).

#### *Limitations of the study*

While this study provides many new opportunities for local needs assessments and policy decisions, there are some limitations. These limitations include the challenge of using aggregate, county level data. While collinearity did not end up being the problem it was anticipated to be,

there are still other concerns that exist with the use of this type of study. One such problem was the difficulty in finding significant relationships at the county level. However, until undertaking this project, it was not possible to say with conviction how much of a concern or problem this would be. Also, the possible rewards for policy makers and agency staff would be substantial if a new needs assessment method using county level data was found which would allow state and local leaders to predict and determine needs prior to funding. Another reward would be to find a way to reduce turnover and thereby increase the stability of care for children and families.

One important limitation of the study is the sample size. The relatively small sample size, and the small sample sizes for the group analyses, lowered the power of the analyses. In order to be able to find the estimated small effect size (.10 or less), a sample of at least 300 would have been necessary to have a power level of .80 which would have provided a better chance of finding any effect size. Because the sample size is so low, there is a greater chance of mistakenly not finding a statistically significant difference that does exist. This study should be replicated with a much larger sample size to remedy this limitation.

Another consideration is the appropriateness of each of the measures which was used in this study. Rather than high school drop out rate, a more accurate measure may be to use the high school completion rate. Also, rather than using the amount spent on low-income child care per person for the total population, it may be more meaningful to use the amount spent on low-income child care per child under 12. It is also worth considering whether adding a measure of economic health, such as unemployment rate, would be worthwhile.

There are also some concerns due to the age of the census data. While much of the other data (such as the caregiver turnover rates and school drop out rates) are available on an annual or monthly basis, census data are only collected once every 10 years and the current data are

approximately 4 years old at the analysis period. However, using this data also provides many opportunities to make use of a wide variety of information. Also, for this particular project, census data was only used for one of the key variables, that of mean education level for people 18 and over. All of the other variables were collected and compiled during 2003-2004. The ready accessibility of the data is one of the reasons that this initial attempt was so important for state and local policy makers.

Other limitations and challenges inherent in this type of needs assessment include the scope of the variables which contain county level data but no individual or family level data, and the lack of detailed information about individual decisions regarding whether or not to remain in the program. Therefore, the available data does not provide us with individual reasons for turnover among informal child caregivers. This limitation could be addressed in future studies by surveying individual caregivers using already established instruments designed to assess job stress and turnover predictors. Qualitative research, particularly in-depth interviews with caregivers, could also be used in future studies to address this issue and to gain more insight into the particular factors affecting informal caregivers as opposed to those in child care centers or family child care providers.

#### *Recommendations for future studies*

The options discussed above are particularly important when considering what future directions research should take. Given the increasing number of children in out of home care, it is very important to address the issue of turnover in all care settings. Research has indicated in many studies how important stable care settings are both to child outcomes (Scarr, 1993; Rohacek & Russell, 1998; Brooks, et al 2002) and to parental employment (Adams et al 2002; Bainbridge et al 2003; Blau & Tekin, 2001). In an effort to improve these outcomes, finding

ways for state and local policy makers and agency staff to examine situations in their areas and plan accordingly will help to reduce turnover and increase positive outcomes. For this reason, more studies in this area are very important.

One relatively low-cost and low-time recommendation is to repeat this study with a larger sample size and possibly a longer time to calculate turnover rates (possibly over a year rather than six months). In addition to this, repeating this same design with other child care settings may also shine light on those situations for policymakers and agency staff. It may be that other care settings have different predictors than informal care. Along these same lines, a study using these techniques to determine predictors for all of the different types of care and comparing those predictors would allow local decision makers to determine what the best use of resources may be, and to gain a better understanding of the child care environment in their locale.

Examining informal caregivers in particular, a study examining individual determinants of turnover is badly needed. This type of study may use a survey method or a more qualitative interview approach to understand the individual factors which influence turnover among these caregivers. This type of study would provide some much needed insight into the decision-making process around turnover for informal caregivers, particularly when defining turnover as moving on and off the subsidy program. This study would likely be much more expensive and time consuming than some of the other studies discussed, however it would help feed into a repeat of the present study by possibly providing a way of fine-tuning the independent variables.

For future studies, it is important to address why Hispanic's are underrepresented in the informal child care population on CAPS and therefore in this particular study. A study to address the particular issues and needs of this population is needed and warranted. Due to the growing Hispanic population, and growing Spanish churches and social services groups, it may

be much more possible to access this population now than several years ago. Concerns around this group include legal issues. One reason they are underrepresented in this study is that illegal immigrants cannot participate in the CAPS program in Georgia. There are also several cultural and language barriers that would need to be negotiated in this study.

Another important area for future examination is the unexplained variance in the regression models. The findings from the additional ANOVA analysis contributed to this somewhat, however it is also important to consider other issues such as economic issues (unemployment levels), the way variables were defined and operationalized for this study, whether the statistical tools are appropriate, and the use of a larger sample size. Each of these things may help to explain some of the unexplained variance in the regression models from this study.

While this particular study did not produce the new, predictive findings it was testing, it does provide insights into the impact of current child care dollars, directions for new research, and the important information that this particular needs assessment model is not useful for state and local decision makers. It is critical that we continue examining this issue however, to improve the situation for all parties involved; agency case workers, caregivers, children in care, and families using this type of care. By continuing to seek a way for decision makers to proactively determine the best use of limited resources, situations can be improved for all parties involved.

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Figure 1: Model of Variables

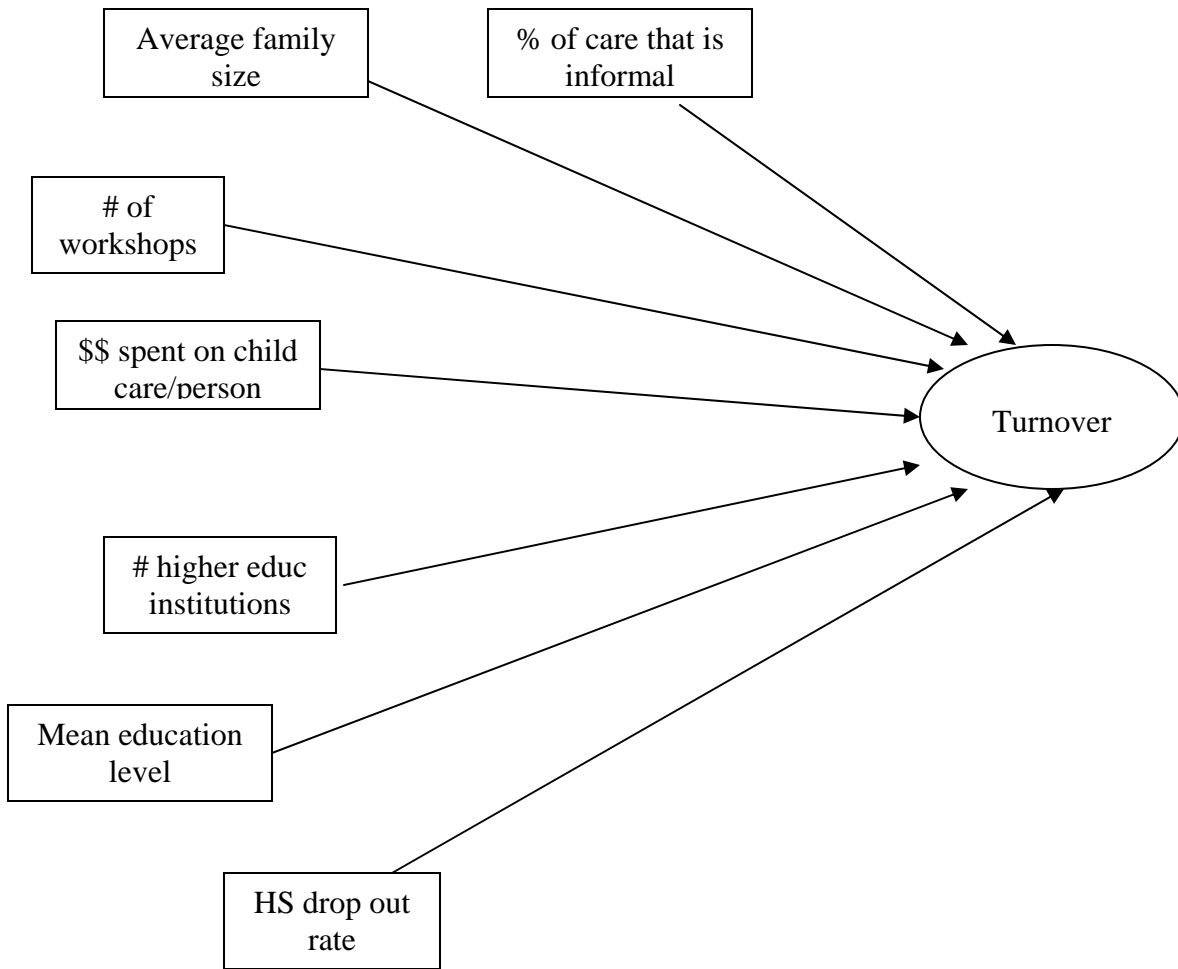


Figure 2: Map of Georgia depicting the Four Georgia Categories

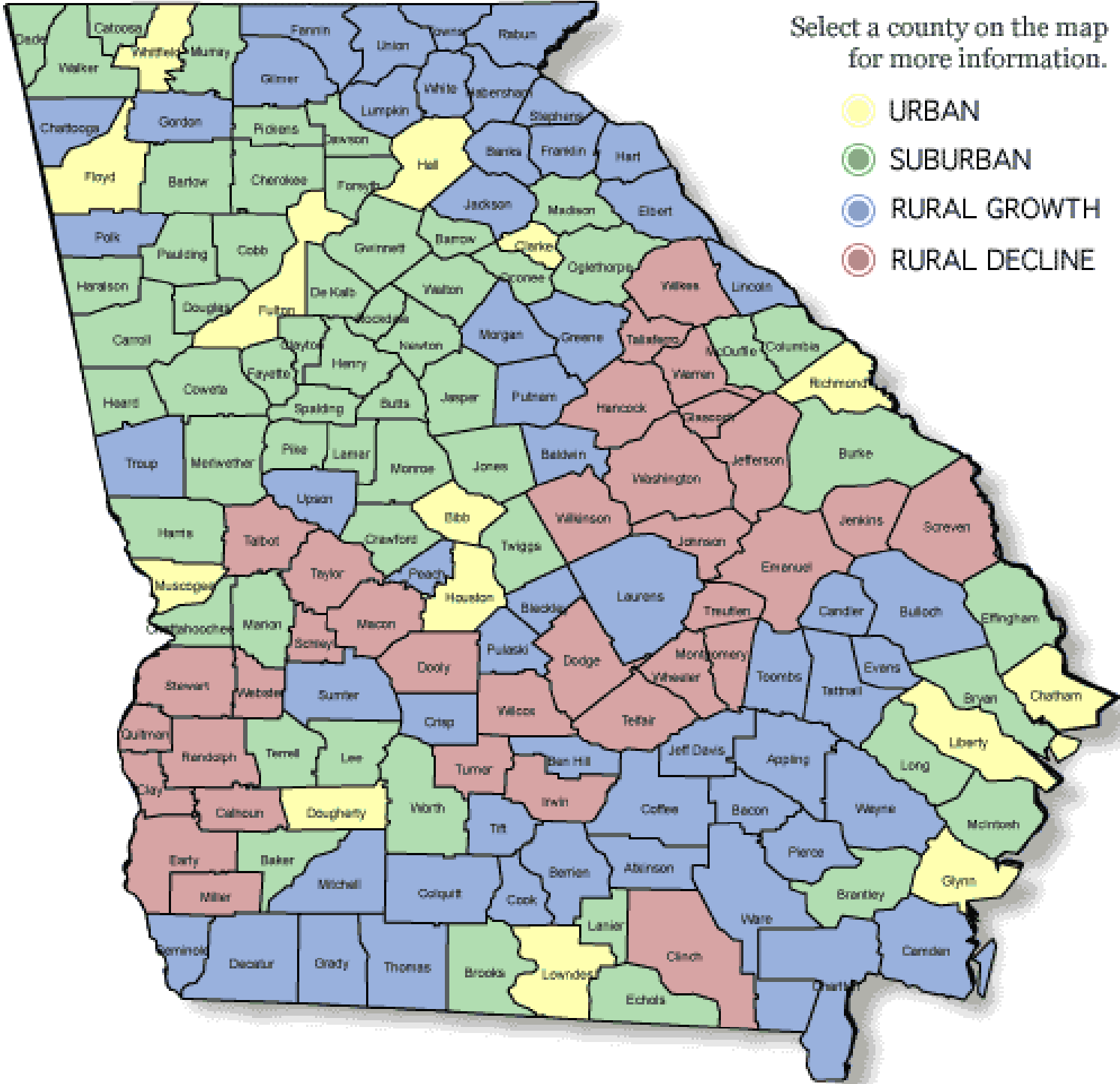


Figure 3: Distribution of Four Georgia Categories and Informal Caregivers in Georgia

County	Four Georgia Category	Informals (8/2004)	County	Four Georgia Category	Informals (8/2004)
APPLING	RG	21	ECHOLS	S	1
ATKINSON	RG	2	EFFINGHAM	S	4
BACON	RG	0	ELBERT	RG	5
BAKER	S	5	EMANUEL	RD	17
BALDWIN	RG	12	EVANS	RG	2
BANKS	RG	0	FANNIN	RG	3
BARROW	S	1	FAYETTE	S	2
BARTOW	S	0	FLOYD	U	5
BEN HILL	RG	7	FORSYTH	S	0
BERRIEN	RG	4	FRANKLIN	RG	1
BIBB	U	11	FULTON	U	121
BLECKLEY	RG	26	GILMER	RG	0
BRANTLEY	S	3	GLASCOCK	RD	0
BROOKS	S	20	GLYNN	U	4
BRYAN	S	1	GORDON	RG	2
BULLOCH	RG	10	GRADY	RG	30
BURKE	S	1	GREENE	RG	17
BUTTS	S	1	GWINNETT	S	41
CALHOUN	RD	6	HABERSHAM	RG	0
CAMDEN	RG	8	HALL	U	7
CANDLER	RG	0	HANCOCK	RD	15
CARROLL	S	20	HARALSON	S	5
CATOOSA	S	1	HARRIS	S	2
CHARLTON	RG	0	HART	RG	2
CHATHAM	U	62	HEARD	S	0
CHATTAHOOCHEE	S	0	HENRY	S	10
CHATOOGA	RG	0	HOUSTON	U	11
CHEROKEE	S	2	IRWIN	RD	1
CLARKE	U	17	JACKSON	RG	0
CLAY	RD	22	JASPER	S	1
CLAYTON	S	55	JEFF DAVIS	RG	5
CLINCH	RD	1	JEFFERSON	RD	1
COBB	S	1	JENKINS	RD	0
COFFEE	RG	2	JOHNSON	RD	24
COLQUITT	RG	4	JONES	S	6
COLUMBIA	S	3	LAMAR	S	4
COOK	RG	34	LANIER	S	6
COWETA	S	0	LAURENS	RG	15
CRAWFORD	S	1	LEE	S	5
CRISP	RG	18	LIBERTY	U	23
DADE	S	0	LINCOLN	RG	4
DAWSON	S	0	LONG	S	9
DECATUR	RG	40	LOWNDES	U	59
DEKALB	S	119	LUMPKIN	RG	2
DODGE	RD	19	MACON	RD	38
DOOLY	RD	16	MADISON	S	0
DOUGHERTY	U	36	MARION	S	11
DOUGLAS	S	8	MCDUFFIE	S	2
EARLY	RD	34	MCINTOSH	S	0

MERIWETHER	S	3	WAYNE	RG	3
MILLER	RD	31	WEBSTER	RD	2
MITCHELL	RG	31	WHEELER	RD	1
MONROE	S	2	WHITE	RG	3
MONTGOMERY	RD	1	WHITFIELD	U	0
MORGAN	RG	4	WILCOX	RD	43
MURRAY	S	0	WILKES	RD	4
MUSCOGEE	U	73	WILKINSON	RD	46
NEWTON	S	7	WORTH	S	8
OCONEE	S	4			
OGLETHORPE	RG	0			
PAULDING	S	1			
PEACH	RG	5			
PICKENS	S	0			
PIERCE	RG	9			
PIKE	S	0			
POLK	RG	5			
PULASKI	RG	23			
PUTNAM	RG	13			
QUITMAN	RD	6			
RABUN	RG	0			
RANDOLPH	RD	6			
RICHMOND	U	77			
ROCKDALE	S	2			
SCHLEY	RD	0			
SCREVEN	RD	19			
SEMINOLE	RG	19			
SPALDING	S	19			
STEPHENS	RG	0			
STEWART	RD	12			
SUMTER	RG	12			
TALBOT	RD	11			
TALIAFERRO	RD	5			
TATTNALL	RG	22			
TAYLOR	RD	7			
TELFAIR	RD	13			
TERRELL	S	11			
THOMAS	RG	13			
TIFT	RG	0			
TOOMBS	RG	2			
TROUP	RG	5			
TREUTLEN	RD	3			
TROUP	RG	18			
TURNER	RD	5			
TWIGGS	S	5			
UNION	RG	1			
UPSON	RG	1			
WALKER	S	0			
WALTON	S	7			
WARE	RG	22			
WARREN	RD	10			
WASHINGTON	RD	18			

Table 1

*Descriptive Statistics for Urbanization*

Variable	N		Percent	
	Total	Informal	Total	Informal
Urban	14	10	8.8%	7.2%
Suburban	55	50	34.6%	36.2%
Rural Growth	56	50	35.2%	36.2%
Rural Decline	34	28	21.2%	20.3%

Table 2

*Descriptive Statistics for Other Independent and Dependent Variables*

Variable	N	Mean	Std. Dev.
Total Population (N=159)			
Percent of care options that are informal	159	23.9	24.0
Number of child care workshops	159	8.1	29.8
Average family size	159	3.1	0.1
Amount spent on child care per person	159	18.7	12.3
Average education level (18+)	159	3.3	0.4
High school drop out rate	159	6.9	4.4
Number of higher education institutions	159	0.7	2.1
Turnover rate	138	10.8	17.3
Population with Informal Caregivers (N=138)			
Percent of care options that are informal	138	24.3	24.3
Number of child care workshops	138	8.5	31.8
Average family size	138	3.1	0.1
Amount spent on child care per person	138	19.2	12.5
Average education level (18+)	138	3.3	0.4
High school drop out rate	138	6.9	4.6
Number of higher education institutions	138	0.8	2.2

Table 3

*Descriptive Statistics by Urbanization Category*

Variable	N	Mean	Std. Dev.
Urban/Suburban counties (N=60)			
Percent of care options that are informal	60	15.1	16.9
Number of child care workshops	60	16.9	46.9
Average family size	60	3.1	0.1
Amount spent on child care per person	60	18.2	13.2
Average education level (18+)	60	3.5	0.4
High school drop out rate	60	6.3	2.9
Number of higher education institutions	60	1.2	3.2
Turnover rate	60	11.9	18.1
Rural Growth/Decline (N=78)			
Percent of care options that are informal	78	31.4	26.8
Number of child care workshops	78	2.1	3.9
Average family size	78	3.0	0.1
Amount spent on child care per person	78	19.9	12.0
Average education level (18+)	78	3.3	0.4
High school drop out rate	78	7.4	5.5
Number of higher education institutions	78	0.4	0.7
Turnover rate	78	9.9	16.8

Table 4

*Correlations Between Key Variables for Total Population (N=159)*

	1	2	3	4	5	6	7	8	9
1. Urban	-	0.42**	-0.29**	-0.23**	0.06	-0.54**	0.05	-0.31**	-0.02
2. % care		-	-0.12	-0.01	0.37**	-0.37**	-0.08	-0.14	-0.12
3. Wrkshps			-	0.15	0.19*	0.49**	-0.12	0.91**	-0.07
4. Famsize				-	0.11	0.14	-0.30**	0.04	0.02
5. CC\$\$					-	0.01	0.06	0.25**	-0.22*
6. Educ						-	-0.15	0.44**	-0.05
7. Dropout							-	-0.04	-0.09
8. #institute								-	-0.10
9. Turnover									-

\* significant at  $p < .05$ . \*\* significant at  $p < .01$

Urban – Urbanization level. %care – Percent of care options that are informal. Wrkshps - Number of child care workshops. Famsize – Average family size. CC\$\$ - Amount spent on child care per person. Educ – Average education level for those 18 and older. Dropout – Drop out rate. #institute – Number of higher education institutions. Turnover – Turnover rate.

Table 5

*Correlations Between Key Variables for Counties with Informal Caregivers (N=138)*

	1	2	3	4	5	6	7	8	9
1. Urban	-	0.42**	-0.29**	-0.20*	0.02	-0.55**	0.05	-0.31**	-0.02
2. % care		-	-0.12	0.01	0.34**	-0.39**	-0.09	-0.14	-0.12
3. Wrkshps			-	0.18*	0.19*	0.47**	-0.12	0.91**	-0.07
4. Famsize				-	0.20*	0.12	-0.30**	0.05	0.02
5. CC\$\$					-	-0.01	0.05	0.26**	-0.22*
6. Education						-	-0.16	0.44**	-0.05
7. Dropout							-	-0.04	-0.09
8. #institute								-	-0.10
9. Turnover									-

\* significant at  $p < .05$ . \*\* significant at  $p < .01$

Urban – Urbanization level. %care – Percent of care options that are informal. Wrkshps - Number of child care workshops. Famsize – Average family size. CC\$\$ - Amount spent on child care per person. Education – Average education level for those 18 and older. Dropout – Drop out rate. #institute – Number of higher education institutions. Turnover – Turnover rate.

Table 6

*Correlations by Level of Urbanization for Counties with Informal Caregivers*

	1	2	3	4	5	6	7	8	9
Urban/Suburban Counties (N=60)									
1. Urban	-	-0.04	-0.28*	0.13	-0.52**	-0.28*	-0.10	-0.47**	0.23
2. % care		-	-0.09	0.17	0.17	-0.31*	0.07	-0.07	-0.25
3. Wrkshps			-	0.17	0.31*	0.47**	-0.22	0.93**	-0.11
4. Famsize				-	0.14	0.18	-0.35**	-0.01	-0.19
5. CC\$\$					-	0.07	0.13	0.39**	-0.32*
6. Education						-	-0.42**	0.42**	-0.03
7. Dropout							-	-0.08	-0.12
8. #institute								-	-0.13
9. Turnover									-

\* significant at p<.05. \*\* significant at p<.01

Urban – Urbanization level. %care – Percent of care options that are informal. Wrkshps - Number of child care workshops. Famsize – Average family size. CC\$\$ - Amount spent on child care per person. Education – Average education level for those 18 and older. Dropout – Drop out rate. #institute – Number of higher education institutions. Turnover – Turnover rate.

Table 6 continued

*Correlations by Level of Urbanization for Counties with Informal Caregivers*

	1	2	3	4	5	6	7	8	9
Rural Growth/Rural Decline (N=78)									
1. Urban	-	0.43**	-0.24*	0.22	0.19	-0.43**	-0.12	-0.29*	-0.05
2. % care		-	-0.12	0.12	0.43**	-0.34**	-0.19	-0.27*	-0.04
3. Wrkshps			-	0.19	0.05	0.29**	-0.03	0.42**	-0.11
4. Famsize				-	0.31**	-0.34**	-0.26*	-0.06	0.13
5. CC\$\$					-	-0.04	0.01	0.07	-0.13
6. Education						-	0.11	0.46**	-0.21
7. Dropout							-	0.07	-0.08
8. #institute								-	-0.15
9. Turnover									-

\* significant at p<.05. \*\* significant at p<.01

Urban – Urbanization level. %care – Percent of care options that are informal. Wrkshps - Number of child care workshops. Famsize – Average family size. CC\$\$ - Amount spent on child care per person. Education – Average education level for those 18 and older. Dropout – Drop out rate. #institute – Number of higher education institutions. Turnover – Turnover rate.

Table 7

*Results from Multiple Regression Analysis for Full Model (Step-wise)*

Independent Variable	Regression Coefficient	Beta	t-value
Amount spent on child care per person	-0.31	-.22	-2.64**
Percent of care options that are informal		-0.06	-0.63
Number of child care workshops		-0.02	-0.26
Average family size		0.07	0.77
Average education level (18+)		-0.06	-0.65
Drop out rate		-0.08	-0.95
Number of higher education institutions		-0.05	-0.52

\*p<.05. \*\* p<.01.  $R^2 = 0.049$ .  $F = 6.97$

Table 8

*Results for Regression for Urban/Suburban Counties (Step-Wise)*

Independent Variable	Regression Coefficient	Beta	t-value
Amount spent on child care per person	-0.44	-0.32	-2.56*
Percent of care options that are informal		-0.20	-1.16
Number of child care workshops		-0.01	-0.06
Average family size		-0.15	-1.23
Average education level (18+)		-0.01	-0.05
Drop out rate		-0.08	-0.61
Number of higher education institutions		-0.00	-0.03

\*p<.05 . \*\* p<.01.  $R^2 = 0.10$ .  $F = 6.58$

Table 9

*Results for Regression for Rural Growth/Decline Counties (Simple Regression)*

Independent Variable	Regression Coefficient	Beta	t-value
Amount spent on child care per person		-0.18	-0.91
Percent of care options that are informal		-0.05	-0.59
Number of child care workshops		-0.33	-0.57
Average family size		21.29	0.94
Average education level (18+)		-12.00	-0.98
Drop out rate		-0.12	-0.33
Number of higher education institutions		-1.27	-0.37

\*p<.05 . \*\* p<.01.  $R^2 = 0.09$ .  $F = 0.95$