More or Less Care in Multigenerational Households? An Empirical Analysis of Time Use in Cambodia

Savet Hong
saveth@demog.berkeley.edu

1 Introduction

Anthropologists and demographers have noted a strong preference for nuclear households in Cambodia (Crochet 2011, Demont and Heuveline 2008, Frieson 2011, Ovesen et al. 1996, Zimmer et al. 2006). In 2004, about 35% of the population live in non-nuclear households. Most of these non-nuclear households have at least one coresiding grandparent. In this rural agricultural setting, where time spent on agricultural labor is vital, grandparents can be influential in household function. Yet, the functional role of Cambodian grandparents has been understudied. Studies conducted in other countries may shed light on the importance of grandparents in Cambodia. These studies suggest that coresiding grandparents are active caregivers for grandchildren within the household. Whether or not Cambodian grandparents behave similarly can now be tested since Cambodia recently collected its first and only time use data.

The economic and demographic conditions may be driving the amount of time allocated to childcare in households more strongly than the presence of grandparents. That is, economic systems shape how working adults, who are themselves parents, spend the vast majority of their waking hours. The ability to have a flexible working schedule can allow them time for other activities such as caregiving. The dominant economy in Cambodia is subsistence rice agriculture, and 85% of the Cambodian population resides in rural areas (DHS 2001, 2006). According to Zimmer and Kim (2001) about 60% of the elderly live in non-nuclear households, that is someone other than the spouse or a child resides in the household. This includes households with children-in-law and grandchildren. Based on the 2004 Cambodia Socio-Economic Survey (CSES), about 37% of elderly, those aged 60 and above, reside in multigenerational households, which may include their spouse, a married child, and grandchildren. Even though the elderly population only accounts for 6% of the total population, a significant share of children are exposed to multigenerational households because of the high fertility rate in the country.

About a quarter of the children under the age of five reside in a household with at least one grandparent. This includes multigenerational households, where the child's siblings, parents and grandparent are in the household, and extended-multigenerational households, similar to multigenerational households but includes aunts, uncles and cousins. Of the two forms

of coresiding grandparent households, multigenerational households are second to nuclear households in Cambodia in terms of the most preferred living arrangement.

Furthermore, the Cambodian economy is based on subsistence agriculture where time intensive labor is required in the field. Cambodian women are expected to care for their children, work on the family farm, and manage the household finances. Balancing these responsibilities constrains her ability to care for young children in the household. Therefore, the presence of grandparents in the household may either increase the constraint by demanding additional care time or alleviate some constraints by providing childcare time.

This paper examines the relative influence of household structure. Specifically, it uses the first nationally collected time use data to compare time spent on childcare between nuclear and multigenerational households, testing for potential differences based on the presence of grandparents in the households. Before presenting the research, the paper will review the literature on the role of grandparents and time use.

1.1 Grandparents as Caregivers

The focus of the literature on coresidence grandparents has been on American single mothers and black families, suggesting a potential role for Cambodian grandparents. However, due to differences in socio-cultural practice, Cambodian grandparents may behave differently.

For instance, in Western countries like the US, coresiding grandparents are generally found in households with single teen mothers, whereas in Cambodia this is not the case. Because of Cambodia's near universal marriage and low level of sexual activity prior to marriage (DHS 2001), most children reside in two-parent households. As most elderly Cambodians coreside with other family members, many children are exposed to two-parents as well as a coresiding grandparent.

Furthermore, the literature on black families in the US suggests that grandmothers act as surrogate parents. In a community study in Chicago, Pearson et al. (1990) examine the presence of grandparents in households of first graders and the roles of grandparents. This study finds that black grandmothers tend to coreside in single mother households where they are second to mothers in active caregiving. These black grandmothers actively perform parenting roles through disciplining and punishing children. In another study, Wilson et al. (1990) find that coresiding grandmothers provide more childcare in single mother households than two-parent households. These studies find that when fathers are present in these multigenerational households, grandmothers are less involved in providing support in household work, childcare and discipling children. The role of grandparents, especially grandmothers, is in the form of a secondary parent in the absence of fathers in the households.

As the majority of Cambodian households with young children are two-parents households, the function of grandparents, as surrogate parents in place of absent parents, may not be as relevant to Cambodia. Instead, given the high poverty and agrarian nature in Cambodia, the roles of grandparents in Cambodia may be more similar to those in low-income families in other countries. In a qualitative study of rural, low income families in the US, Reschke et al. (2006) find that grandmothers act as caregivers in the event of an emergency and when mothers have to go to school or work. Coresidence grandmothers provide childcare

in these families, which allows mothers to be employed. Therefore, Cambodian grandparents could be providing childcare for their grandchildren, thereby freeing mothers' time for agriculture or market labor.

Since the literature on grandparents largely takes place in developed countries where there are strong social supports for the elderly in terms of Social Security, pension or welfare programs, the focus on the literature has been on grandparents providing for younger generations. However, Cambodia is similar to other Asian countries where social support for the elderly is absent or lacking. Very few Cambodian elderly receive a pension, savings or health insurance. Therefore, they rely on their adult children for physical and financial assistance (Zimmer et al. 2006). Consequently, the presence of grandparents in the households may become an economic constraint, diverting resources from children. Because women are socialized to support their aging parents, mothers' time for childcare may decline as her time is diverted towards caring for aging parents. Therefore, coresiding grandparents can actually be disadvantageous to mothers' time spent on childcare.

Because of the agricultural setting, lack of social support for the elderly, and pressure on mothers' time for labor and care, Cambodian grandparents can play an important role in the household. Moreover, it is an interesting question if their presence in households with young children improves the outcome, time spent on care, or serve as a disadvantage by diverting resources for their use? A question which we shall pursue in this research.

1.2 Time Use Filling in the Gap

In studies on the allocation of time for childcare, parent involvement is usually considered. Due to the financial, organizational, and other resources required to collect time use data, time use studies are mainly conducted in the US or Europe (Chenu and Lesnard 2006). As these studies are principally based in developed countries, where household structure are mainly nuclear, parental time for childcare becomes the usual level of analysis. Parents might not necessarily be the only childcare provider, as childcare time can be drawn from other members of the household, which includes older children in these nuclear households. Since household structure in Cambodia is not just nuclear but includes other structures such as multigenerational households, structural differences may shape childcare time differently. Households with other coresiding adults such as grandparents may influence the amount of childcare time parents provide.

Generally, the social expectation is that children are cared for by their parents, particularly their mothers. This expectation is not limited to Cambodia, but has been demonstrated to be practice elsewhere. Time use studies have shown that mothers spend more time providing childcare than fathers (Bianchi 2000, Chenu and Lesnard 2006, Craig 2006, King and Evenson 1983). While the trend in developed countries has shown a rise in fathers' participation in childcare, mothers still spend more time with children as a primary activity or a secondary activity while performing household work (Bianchi 2000, Craig 2006). Therefore, this study expects that Cambodian mothers will spend more time on childcare than fathers. However, for households to maintain or gain economic security, mothers participation in the labor force is also necessary.

Cambodian women are actively involved in the economy. As Cambodia has only one major urban center, the capital city Phnom Penh, with a few smaller cities (Zimmer et al. 2006), there are limited modern occupations. Urban services and modern manufacturing in the garment industry provide the most paid employment opportunities and draw on female migration from rural areas. Whereas in rural parts of Cambodia, agricultural farming, notably in rice crop, remains a vital part of village life. Both men and women participate in rice cultivation with men doing the ploughing and women the transplantation. During the busy season relatives and neighbors collaborate with each other by ploughing or cultivating each other's field in turn (Chandler 1972, Ovesen et al. 1996). However, most households are not able to produce enough rice for their own consumption (Crochet 2011, Ovesen et al. 1996). To earn extra cash income, women sell fresh produce, meat or prepared food at the village market (Frieson 2011). As women are actively participating in the labor market in Cambodia, mothers' involvement in income generating activities may compete with time for childcare. Some studies in the US suggest maternal employment does not dramatically change the amount of time mothers spend on childcare. That is, they find that mothers' time on childcare has been stable, in part, because they reduce the amount of time spent on other activities such as sleep, housework or leisure time (Bianchi 2000). Since the economic conditions are different between these countries, Cambodian mothers may not have much flexibility in reducing time elsewhere and still maintain the operation and finance of their households. Consequently, employed mothers would either have to limit childcare time or may need other family members' aid. This would then require households to utilize other household members time to provide childcare in addition to mothers' childcare time.

Potential caregivers, apart from parents, include other children and grandparents in the household. With a total fertility rate of approximately 4 children per woman (DHS 2001, Neupert and Prum 2005), the youngest child has on average three older siblings (assuming all survived) who could provide childcare. The role of older children providing some form of childcare has been hinted at in one study. In a longitudinal study of high school students in Minnesota, Gager et al. (1999) examine teenagers' contribution to household labor, which includes babysitting younger siblings in the household. They find that teens in the 9^{th} grade contribute 15-17 hours a week on domestic labor. As these students progress through high school, the amount of time they contribute declines. By the twelfth grade, boys contribute 9 hours and girls 13 hours a week. As children age, the demand of school, social activities, and employment in the labor force reduces the amount of time they have available to participate in domestic activities such as supervising younger siblings. The pressure on children's time in Cambodia actually starts earlier than those experienced by American children. Participation in the labor force in Cambodia is considered as aged 10 and older, and about 48% of those aged 10-14 are economically active. Therefore, Cambodian children at very young ages would already experience limited time to contribute to childcare for the youngest children in the household.

Unlike the children in these households, grandparents are at an age where they have completed their schooling and have limited involvement in the labor force. Most grandparents only have primary education, most likely because the armed conflicts in the 1970s interrupted

schooling for some, and educated people were also targeted for murder during the Khmer Rouge period (1975-79) (de Walque 2004, 2005). In terms of economic productivity, grandparents in Cambodia, similar to elderly in other parts of Asia, are expected to be supported by their adult children (Knodel et al. 2005, Zimmer et al. 2007). Participation in the labor force begins to decline after age 50 with a 43% participation rate among those age 65 and over (CSES 2004). Thereby, grandparents have more flexibility with their time to provide additional childcare for children in the household. While time use studies have not quantified the amount of childcare grandparents provide, one study suggests their potential role. Desai and Jain (1994) study the impact of maternal employment in rural India on childcare. They find that mothers of children under the age of five provide less than two hours of childcare. These children spend more time in the care of someone else. Whom these individuals are in providing alternate care was not the focus of their study, but they did note that some of the alternate caregivers were coresiding grandparents. As the economic constraint faced by rural Cambodians are similar to those in rural India, coresiding grandparents in Cambodia may provide childcare support for the youngest children in the household. As grandparents are in multigenerational household, the benefits of additional childcare time from grandparents would then benefit children in multigenerational households.

As Cambodian nuclear and multigenerational households are confronted by similar economic constraints, utilizing other household members time for childcare in addition to parental time becomes important. Since the number of children within households do not substantially differ, then both household structures potentially have similar amount of childcare time contributed by older children. As these children also contribute to the economic resources within the household, their time for childcare becomes limited. Therefore, whether or not grandparents act as an additional childcare providers can determine the difference in the quantity of care children received between these household structures.

1.3 Research Question

Bridging the gap in the literature between time use and coresiding grandparents, this research examines the time spent on care between different household structures, more specifically the difference between nuclear and multigenerational households. As the Cambodian setting is largely agricultural with a lack of social support for the elderly, and has some variations in household structures despite the cultural preference for nuclear households, this research asks the questions:

1. Are there differences in time spent on childcare between multigenerational and nuclear household structures?

2. Does parental time spent on caregiving change with the presence of coresiding grandparents?

3. If grandparents contribute to time spent on care, does the number of grandparents in the household matter?

2 Data and Method

To address these questions, I analyze the 2004 Cambodia Socio-Economic Survey (CSES). The CSES was conducted by the National Institute of Statistics from November 2003 to January 2005. This is a nationally representative multistage sample survey designed to collect information at two levels: first, village information on the economy, infrastructure, and employment, and second, household information on demographics, employment, education, housing conditions and health. With close to a 100% response rate, 14,978 households were interviewed composed of 74,719 members. Notably, at the household level, the 2004 wave of the CSES collected the first time use data in the country. This was an extensive collection. Everyone in the household age five and above reported their activities, which yielded a total of 65,636 time use records.

This study uses a subsample of the CSES time use data. The analytic sample is restricted to nuclear and multigenerational households. Nuclear households consist of either a single or two parents with children. Multigenerational households are three generational households that include children, their parents, and grandparent(s) in the households. To ensure that households are comparable except for the presence or absence of grandparents, the analysis is restricted to households with at least one parent. There were only a few households with only grandparents and grandchildren, these were excluded. Furthermore, prior studies suggest that very young children demand the most care time with older children requiring little or no care time (Gustafsson and Kjulin 1994, Ho 1979). Therefore, households without any children under the age of five are excluded. Reports of relationship to head of household are used to identify grandparents and potential parents. Individual reports of coresiding mother or father are used to identify parents of children. Within the nuclear and multigenerational households, 47 households with 51 children under the age of five did not report at least one coresiding parent and were excluded. Five multigenerational households had discrepancies between reports of relationship to head and reports of coresiding parents. For one of these households, the relationship between the head and children were ambiguous and was excluded from analysis. In the other four households, the relationship to head and other children report of coresiding parents were used. This left 4,508 households with 23,193 members of whom 8,743 are parents and 798 are grandparents. Among parents and grandparents, 8,627 and 787, respectively, completed the time use diary.

2.1 Dependent Variable: Caregiving Time

The questionnaire for the CSES provided by the National Institute of Statistics to researchers is in English. The term care in English does not have a direct translation into Khmer, the national language in Cambodia, but there are multiple Khmer terms associated with caregiving in Cambodia. The closest translation of care into Khmer is *thae reaksaa*, to provide care. This concept can be used to refer to providing care for elderly or children. For clarification, terms designating older or younger generation would generally need to follow it. The term *thae toam* is commonly used, and tends to be association with children. These terms come with expectation of ensuring the comfort of the recipient. For elderly, this entails

providing physical assistance in their daily activities and financial support. Similarly, the physical needs of children are more demanding requiring feeding and changing diapers, as well as disciplining and playing with them. Something to note about these terms is that they are more conceptual terms instead of terms that defines a particular activity. A more action specific terminology associated with care is *muer kon khmang*, literally, watch young children. This is more in the context of supervision of young children.

A Khmer version of the questionnaire was not provided, which would have illuminated the terminology used during the survey. Unfortunately, the CSES also did not provide additional information on terminology used in association with the concept of care or activities associated with caregiving. Nor did it provide information on how enumerators were trained to ask for information on care, the terminology used or how enumerators prompt respondents to report details of activities associated with care. Given that this paper is interested in time spent on care and not the caregiving activities, this should not be a problem. The data groups caregiving for elderly and children as one activity. Since many of the elderly are actively participating in the labor market and reporting caregiving time, this analysis assumes that reported caregiving time is primarily childcare time.

Furthermore, the Cambodian time use diaries record activities to a detail level of half-hour blocks during a 24 hours period. CSES coded reported activities into 22 primary categories. This includes activities such as sleeping, attending school, working in agricultural or market labor, and providing care for children and elderly. The total amount of time spent on an activity within the 24 hours is calculated for the analysis.

2.2 Individual and Household characteristics

This study analyzes time spent on childcare by household structure. The primary focus being on potential differences between nuclear and multigenerational households. Other household characteristics that have been noted in the literature to influence childcare includes single or two-parent households, household size, the number of young children, household income and living in urban or rural areas.

Time spent on childcare can also be influenced by individual characteristics such as sex, age, education and employment status. In addition, prior studies have found parental time with children also fluctuates depending on days of the week, being that parents spend more time on childcare during the weekend.

The descriptive statistics of the analytic sample are presented in Tables 1-3. Household characteristics are shown in Table 1. Multigenerational households have on average one additional person in the household. A higher percentage of single parents reside in multigenerational households. However, nuclear households have slightly more children under the age of five. Table 2 shows parental characteristics. Over 90% of parents are employed with those in nuclear households spending more time in agricultural labor. Parents in multigenerational households report having more education than those in nuclear households. And Table 3 highlights the characteristics of grandparents in multigenerational households. Almost three-quarters of all grandparents are grandmothers and 2.41% have secondary education but not higher. In addition, in the analytic sample, more than half of grandparents are still actively

working and 80% of those working are performing agricultural labor.

Table 1: Unweighted Household Characteristics of 2004 CSES sample

	Total % or mean (standard deviation)	Nuclear Households % or mean (standard deviation)	Multigenerational % or mean (standard deviation)
household size	5.14 (1.75)	5.05 (1.76)	5.77 (1.54)
number of children <5	1.27 (0.48)	1.28(0.49)	1.23 (0.43)
number of children 5-9	0.81 (0.81)	0.83 (0.82)	0.68 (0.81)
number of children10-17	0.79 (1.07)	0.82 (1.08)	0.62 (0.94)
# of Parents			
Single	6.01	5.00	12.26
Two-parent	93.99	95.00	87.74
Disability	3.16	2.721	5.58
Household Income (riels)	625,209.8 (2315032)	625,562.9 (2448978)	623,029.9 (1192961)
Employment Status			
Employed	76.58	77.69	71.35
Unemployed	0.33	0.16	1.16
Not in labor force	23.09	22.16	27.49
Employment Sector			
Agriculture	78.56	79.12	75.68
Non-Agriculture	21.44	20.88	24.32
urban	15.51	15.55	15.29
rural	84.49	84.45	84.71
Weekend	20.04	19.77	21.51
Sample size	23,193	19,572	3,621
# Households	4,507	3,879	628

Table 2: Unweighted Characteristics of Parents of 2004 CSES sample

	Total % or mean (standard deviation)	Nuclear Households % or mean (standard deviation)	Multigenerational % or mean (standard deviation)
Gender			
Male	48.78	48.96	47.67
Female	51.22	51.04	52.33

Table 2 – continued from previous page

	Total % or mean (standard deviation)	Nuclear Households % or mean (standard deviation)	Multigenerational % or mean (standard deviation)
Age	32.48 (7.49)	32.75 (7.59)	30.75 (6.51)
Education			
none	0.55	0.26	0.00
primary	85.11	85.84	80.79
lower secondary	9.42	9.33	9.93
secondary plus	5.25	4.57	9.28
# of Parents			
Single	6.01	5.00	12.26
Two-parent	93.99	95.00	87.74
Disability	4.64	5.04	2.12
Employment Status			
Employed	91.87	91.75	92.62
Unemployed	0.11	0.07	0.42
Not in labor force	8.02	8.19	6.96
Employment Sector			
Agriculture	77.03	77.57	73.58
Non-Agriculture	22.97	22.43	26.42
urban	15.51	15.55	15.29
rural	84.49	84.45	84.71
Weekend	26.63	26.67	26.38
Sample size	8,743	7,564	1,179
# Households	4,507	3,879	628

Table 3: Unweighted Characteristics of Cambodian Grandparents

	Total % or mean (standard deviation)
Gender	
Male	27.57
Female	72.43
Age	64.11 (9.02)
Education	
none	1.37
primary	85.91

Table 3 – continued from previous page

	Total % or mean (standard deviation)
lower secondary	10.31
secondary plus	2.41
# of Grandarents	1.42 (0.49)
Disability	19.55
Employment Status	
Employed	54.48
Unemployed	2.40
Not in labor force	43.13
Employment Sector	
Agriculture	78.65
Non-Agriculture	21.35
urban	15.41
rural	84.59
Weekend	27.09
Sample size	798
# Households	628

2.3 Analysis Plan

I begin with a descriptive analysis of care time spent in nuclear and multigenerational household structures. This includes single and two-parent households as well as the number of coresidence grandparents. This form of descriptive analysis does not adjust for social demographic characteristics, which allows us to see existing patterns in time spent on care.

This is followed by two sets of regression analysis to understand if the observed pattern persist when social demographic conditions are the same. The first set of regression analysis examines parental time on care. That is, I examine the amount of time parents in nuclear and multigenerational households spend on caregiving if their social demographic conditions are held constant. This procedure addresses the second research question.

To address the third research question, another set of regression analysis examines how much time grandparents spend on caregiving if they resided in single or two grandparent households. As grandparents in two-grandparent multigenerational households could be reporting care time for their grandchildren or their spouse, single grandparent multigenerational households provide additional information. The assumption is that the care time reported by grandparents in single grandparent multigenerational is time spent on childcare.

The regression analysis used for investigating time spent on care by parents and grandparents is a linear hierarchical structural model. Structural modeling adjusts for clustering of observations in the data. Because of the multistage sampling design of households, individuals are not randomly selected, and therefore, can be expected to cluster within households

and villages. Since parents and grandparents are nested within households, there is the potential for similarity of characteristics of parents and grandparents. Structural modeling can adjust for this clustering. Thus, a two-level linear hierarchical structural model would be appropriate for this analysis. These levels are defined as:

1. i, for a given individual,

2. j, at the household level, where a household may have varying number of individuals.

In terms of the equations for parental time, the individual-specific, or level 1, variables are sex, age, education, and employment status. The household-specific, or level 2, variables are family structure, head of household is single, household size, number of children under the age of five in the household, household income, urban, and weekend.

Level 1: model with individual-specific covariates

$$\begin{aligned} y_{ij} &= \eta_{0j} + \beta_1 age_{ij} + \beta_2 female_{ij} + \beta_3 edu\_none_{ij} + \beta_4 edu\_lwsec_{ij} + \beta_5 edu\_secpl_{ij} \\ &\quad + \beta_6 employ_{ij} + \beta_7 NFL_{ij} + \epsilon_{ij}, \qquad \epsilon_{ij} \sim N(0, \theta) \end{aligned}$$

Parental time on care is a function of an individual-specific intercept (η_{0j}), age (with coefficient β_1), being female (with coefficient β_2), level of education (with coefficient β_3, β_4, or β_5), being employed in the labor market (β_6) or not in the labor force (β_7). ϵ_{ij} represents the individual and household-specific error term given by a normal distribution with mean 0 and variance θ.

The household specific intercept is modeled as:

Level 2: model with household-specific covariates

$$\begin{aligned} \eta_{0j} &= \gamma_{00} + \gamma_{02} multigen_j + \gamma_{01} single_j + \gamma_{03} hhsize_j + \gamma_{04} kids04_j + \gamma_{05} kids59_j + \gamma_{06} kids1017_j \\ &\quad + \gamma_{07} urban_j + \gamma_{08} urban_j + \gamma_{09} sat_j + \gamma_{0(10)} sun_j + \zeta_j, \qquad \zeta_j \sim N(0, \psi) \end{aligned}$$

Household-specific intercept is a function of the household-average intercept (γ_{00}), residing in multigenerational household structure (with coefficient γ_{01}), the parent is single (γ_{02}), the size of the household (γ_{03}), the number of children under age five (with coefficient γ_{04}), the number of children age five to nine (with coefficient γ_{05}), the number of children age ten to seventeen (with coefficient γ_{06}), household income (γ_{07}), being in an urban area (γ_{08}), time use collected on weekend (γ_{09} and $\gamma_{0(10)}$). Representing the household-specific error, ζ_j is given by a normal distribution with mean 0 and variance ψ.

As for analyzing time spent on care by grandparents, the regression equations are similar to those for parents. Individual characteristics that may impact time spent on care by parents are just as important for grandparents, so the level one model for grandparents is the same as the one for parents. As for level 2, since all the grandparents in this subsample reside in multigenerational households, this variable is omitted from the regression. However, as

the presence of another grandparent in the household can influence their care time, this is included in the model. Thus, the model for level 2 is

$$\begin{aligned}\eta_{0j} &= \gamma_{00} + \gamma_{02}granpls_j + \gamma_{01}single_j + \gamma_{03}hhsize_j + \gamma_{04}kids04_j + \gamma_{05}kids59_j + \gamma_{06}kids1017_j \\ &\quad + \gamma_{07}urban_j + \gamma_{08}urban_j + \gamma_{09}sat_j + \gamma_{0(10)}sun_j + \zeta_j, \qquad \zeta_j \sim N(0, \psi)\end{aligned}$$

For the regression analysis for time spent on care by parents and grandparents, four models are considered for each. Initially, the model will not contain any covariates to estimate the variance in care time that is between and within households. Next, the individual-level variables are added into the model. Subsequent models will include household level characteristics. Thus, Model 3 will contain the variables for household structure or the presence of multiple grandparents. The final model includes all level 2 characteristics such as income, urban and day of the week for time use.

3 Results

3.1 Descriptive Analysis

The overall characteristics of the households, parents, and grandparents were discussed in Section 2.2; now, we turn to childcare time. Table 4 shows the average household's total hours per day in primary childcare activities. The most striking feature of this table is that multigenerational households spend twice as much time on childcare.

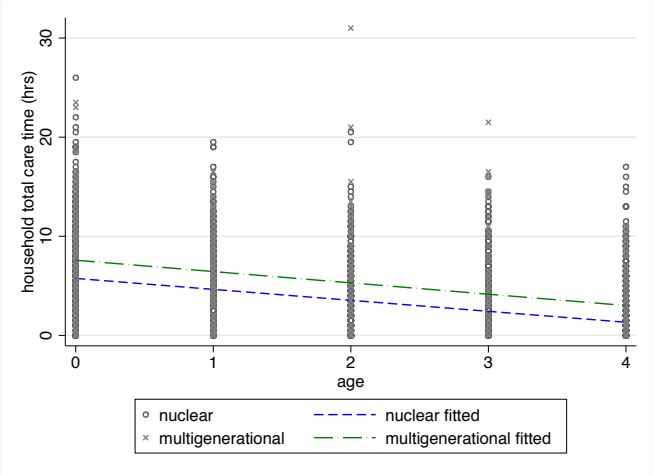
Table 4: Total Hours Per Day of Household Care Time by Family Structure, Cambodia, 2004

famstr	**mean**	**sd**
nuclear	2.63	3.10
multigenerational	4.92	4.37
Total	2.95	3.40

Source: Calculated by author.

Furthermore, the pattern of more childcare time generated by multigenerational households persists when considering the age of children in the household. Figure 1 shows households' total hours on childcare by the age of the youngest child in the household. In general, the amount of time spent on childcare tends to overlap between both forms of household structure. This is shown by the overlay of circles and x's, representing nuclear and multigenerational households respectively. Also, with increasing age of the youngest child, the spread of the graph narrows towards less amount of time. This suggests that both household structures invest less time on childcare with increasing age of the youngest child in the household. While they share many similar characteristics, the graph also shows that multigenerational household still invest more childcare time at every age.

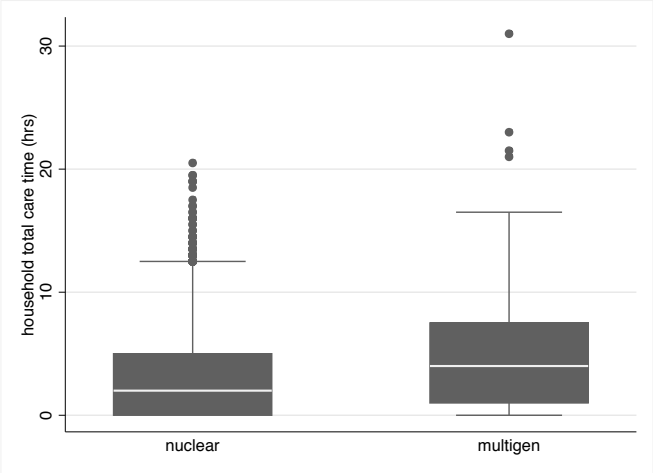
Figure 1: Household Total Time on Childcare by Age of Youngest Child and Family Structure in Cambodia, 2004



Also, when taking into account the number of children under the age of five in these households, the same pattern emerges but with greater variation. Figure 2 shows the distribution of total hours per child under the age of five in the households. The box plot shows that there is more variability in childcare time among multigenerational households. The shaded region of the box plot represents the interquartile range of the distribution of childcare time. That is, the bottom and top of the box represent the 25^{th} and 75^{th} percentile of childcare time for each household structure. The white line through the middle of these boxes represent the 50^{th} percentile. That is among nuclear household, half spend less than 2 hours on childcare per child and half of the nuclear households spend more than this. Whereas, the median time on childcare for multigenerational household is 4 hours per child. As for the lines extending from these boxes, known as whiskers, they represent the lowest data point that is within 1.5 of the interquartile range from the lower quartile or highest data point within 1.5 of the interquartile from the upper quartile. Any data point beyond the whiskers are considered outliers. The box for nuclear household is very condense, showing that fifty percent of nuclear households spend less than 4 hours on childcare per child. It also has a very long tail in that several households are outliers by spending exceptionally more time on childcare. Whereas there are only four multigenerational households that are outliers in the amount of time they spend on childcare. The majority of multigenerational households spend less than 7.5 hours per child on childcare. In general, this figure shows a greater spread on the amount of childcare time spent by multigenerational households, but the spread is at a higher number of hours than nuclear households.

Households that are able to provide more childcare have more household members but less children under the age of five. Since there are more people in the household who can provide childcare, this explains why some of the outliers in Figure 2 are able to report more than 24 hours of childcare time. Take the extreme outlier for multigenerational households

Figure 2: Hours Per Child Spent on Care by Family Structure in Cambodia, 2004



for instance. This household has two parents, two grandparents and three children aged 13, 11 and 2. Each grandparent and the mother reported about 8-9 hours of childcare each and the eldest child contributed 5 hours, giving the household a total of 31 hours of childcare time. The most reported hours of childcare time per child under the age of five for nuclear household is 21.5 hours. Similar to the multigenerational household, this household has two parents and three children aged 9, 6, and 0. Unlike the multigenerational household where most of the childcare time came from the adults in the household, in this nuclear household children reported more childcare time than their parents, 7-8.5 and 2-3 hours respectively. The pattern emerging from the outliers suggests that grandparents reduce the demand for childcare time from children in the household, and they generate a substantial amount of childcare time.

The broad overview presented thus far suggest that multigenerational households collectively generate on average 2 hours more childcare time than nuclear households. The disparity between household structure is not as great when comparing parental time on childcare. Table 5 presents the total hours parents spend on childcare in a given day, and similarly, Table 6 shows the amount of time spent in a given day, per child under the age of five. Unlike the pattern for overall household structure, these tables show that parents in nuclear households are spending more time on childcare than parents in multigenerational households. Instead of hours, the difference is in matters of minutes, which is not enough to explain the substantial difference in the overall childcare time between these household structures.

These tables may not elucidate much information on parental time on childcare by household structure, but they provide additional information on other patterns of childcare. For instance, both Table 5 and 6 highlight the gender difference in caregiving. Cambodian mothers spend more time on childcare than their spouse irrespective of household structure. When focusing on the number of parents in the households, single parents spend less time on

Table 5: Parent Time on Care in a Day by Household Structure in Cambodia, 2004

Parents	nuclear mean (sd)	multigenerational mean (sd)
single	1.23 (2.03)	1.16 (2.21)
mother	1.29 (2.03)	1.32 (2.34)
father	0.69 (1.92)	0.18 (0.60)
two-parents	1.35 (2.46)	1.34 (2.40)
mother	2.48 (2.96)	2.40 (2.88)
father	0.21 (0.84)	0.29 (1.02)

Source: Author's calculation from CSES 2004 data.

Table 6: Parent Time on Care Per Child in a Day by Household Structure in Cambodia, 2004

Parents	nuclear mean (sd)	multigenerational mean (sd)
single	1.11 (1.93)	1.02 (2.01)
mother	1.15 (1.93)	1.16 (2.13)
father	0.69 (1.92)	0.18 (0.60)
two-parents	1.10 (2.11)	1.12 (2.09)
mother	2.04 (2.58)	1.99 (2.55)
father	0.17 (0.70)	0.24 (0.87)

Source: Author's calculation from CSES 2004 data.

childcare in both nuclear and multigenerational households. The presence of an additional parent in these households enables mothers to spend about twice as much time on childcare. This suggests that while fathers are not spending time on childcare, their presence in the household frees up mothers' time from other activities that will enable them to spend more time providing childcare.

Similar to the pattern seen for parents, gender and the number of grandparents in the households influence their contribution to childcare. Table 7 shows the caregiving time reported by grandparents, and Table 8 shows the amount of childcare time grandparents provide by the number of coresiding parents. These tables indicate that the gender difference in providing childcare that exists among parents also persists among grandparents. Grandmothers provide more childcare time than grandfathers; although, this pattern is not as strong in single grandparent households. In households with only one grandparent, grandfathers spend almost as much time on childcare as households with only a grandmother, 2.08 and 2.11 hours respectively.

Table 7: Grandparents' Time on Care Per Child in Cambodia, 2004

Grandparent	**multigenerational**	
	grandmother	grandfather
single	2.11 (2.86)	2.08 (2.83)
two-grandparents	2.03 (2.77)	0.62 (1.76)
Total	2.08 (2.83)	0.70 (1.90)

Source: Author's calculation from CSES 2004 data.

Table 8: Grandparents' Time on Care Per Child by Number of Parents in Cambodia, 2004

Parent	**single grandparent**		**multiple (2) grandparents**	
	grandmother	grandfather	grandmother	grandfather
single	2.36 (3.09)	1.83 (3.56)	2.54 (3.13)	0.64 (2.16)
two-parents	2.08 (2.84)	0.80 (1.98)	1.94 (2.71)	0.62 (1.70)

Source: Author's calculation from CSES 2004 data.

The amount of childcare time grandparents provide is also related to the number of parents in the household. Grandparents are responsive to the number of parents residing in the household. Whereas the presence of an additional parent parent increases the amount of childcare time of one parent, grandparents provide more childcare support when single parents are in the household. That is, single parents elicit more childcare time from grandparents in the household, especially grandmothers.

Alternatively, the gender differentiation among parents and grandparents in childcare may be a consequence of division of labor. Table 9 shows parental time on daily activities

Table 9: Hours Spent on Activities by Parents and Household Structure in Cambodia, 2004

activities	**nuclear**			**multigenerational**		
	total	father	mother	total	father	mother
market labor	3.00 (3.81)	4.11 (4.11)	1.94 (3.14)	2.96 (3.76)	3.81 (4.01)	2.18 (3.34)
agricultural labor	1.92 (3.00)	2.66 (3.51)	1.22 (2.19)	2.07 (3.11)	2.84 (3.54)	1.36 (2.45)
domestic labor	2.14 (2.18)	0.87 (1.63)	3.35 (1.94)	1.96 (2.21)	0.82 (1.57)	3.01 (2.12)
childcare	1.35 (2.45)	0.21 (0.85)	2.43 (2.94)	1.33 (2.39)	0.29 (1.01)	2.28 (2.84)

Source: Author's calculation from CSES 2004 data.

Table 10: Total Hours Spent Per Day on Activities by Grandparents in Multigenerational Household Structure in Cambodia, 2004

activities	**total**	**grandfather**	**grandmother**
market labor	1.30 (2.76)	1.55 (2.97)	1.21 (2.68)
agricultural labor	1.36 (2.54)	2.19 (3.04)	1.05 (2.24)
domestic labor	1.45 (1.86)	0.53 (1.29)	1.80 (1.92)
childcare	1.91 (2.85)	0.84 (2.16)	2.31 (2.97)

Source: Author's calculation from CSES 2004 data.

and Table 10 for grandparents. The first two activities in these tables are related to economy, that is, time spent on market and agricultural labor. The second set of activities are related to the home, reports of time spent on household work, domestic labor, and childcare. In Table 9, the average time spent on each activity by parents in each family structure type is reported under total, and this is further disaggregated by gender. This table shows that fathers in nuclear and multigenerational households almost exclusively spend their time in the labor force. They spend around 7 hours, about twice as much time as mothers, on agricultural and market labor. Mothers participate in these economic activities, but the majority of their time, around five hours, are spent on household matters such as domestic labor and childcare. Mothers in nuclear households actually spend more time on these activities than those in multigenerational households. However, parents in multigenerational households have the benefits of having additional time from grandparents. As Table 9 shows, grandfathers, like fathers, spend more time on economic activities, and grandmothers spend more time on domestic activities. Grandmothers spend slightly more time on childcare than coresiding mothers. These tables indicate that the presence of fathers are essential for resource generating activities, which complements mothers' domestic and caregiving roles. Furthermore, the presence of grandparents slightly reduces maternal childcare time and increases her market labor participation. However, grandmothers' childcare time does not supplement those of mothers', but rather complement her time on childcare.

This descriptive analysis indicates that under current conditions in Cambodia, there exist differences in childcare time by family structure and the number of parents in the household. That is, multigenerational households provide more childcare time primarily through mothers and grandmothers, and dual parent households also are able to generate more childcare time. This addresses the first research question, and the next section will address the second question on if parental time does differ by household structure once socio-demographic characteristics are taken into account.

3.2 Parents' Time

The step-wise regression results for parental time on childcare is shown in Table 11. The rows are organized into three parts: the first set of variables are individual characteristics, the second are household level characteristics, and the third is information on the model. Unlike the descriptive results above, once individual and household characteristics are controlled for, parents in nuclear and multigenerational households do not significantly differ in the amount of time they spend on childcare. Some individual and household characteristics are better predictors of parents providing childcare time than others.

For instance, individual characteristics such as gender, age and employment status are important predictors of how much time parents will provide for childcare. This analysis finds that mothers spend 1.89 hours more than fathers when all other characteristics are the same except for their gender. Similar to the descriptive analysis, this finding is consistent with the Cambodian concept of gender role in providing primary care for children. This result is not unique to Cambodia, as time use studies in other countries reported the gender division of labor where fathers spend more time in the market sector while mothers provide childcare

for very young children (Bianchi 2000, Gustafsson and Kjulin 1994).

Table 11: HLM Regression of Parental Time for Care in Cambodia, 2004

	Model 1 $\beta(se)$	Model 2 $\beta(se)$	Model 3 $\beta(se)$	Model 4 $\beta(se)$
female		1.812***	1.813***	1.888***
		(0.05)	(0.05)	(0.05)
age		-0.035***	-0.036***	-0.024***
		(0.00)	(0.00)	(0.00)
Educational Level				
Primary		-0.024	-0.022	0.008
		(0.05)	(0.05)	(0.05)
Lower Secondary		-0.043	-0.039	0.006
		(0.10)	(0.10)	(0.10)
Upper Secondary +		-0.105	-0.092	-0.056
		(0.12)	(0.13)	(0.13)
Employment Status				
Employed		-1.949***	-1.947***	-1.916***
		(0.09)	(0.09)	(0.09)
Unemployed		-0.484	-0.452	-0.366
		(0.67)	(0.67)	(0.66)
Multigenerational			-0.086	-0.086
household			(0.07)	(0.09)
Single parent				-0.734***
				(0.14)
household size				0.040
				(0.05)
# kids 0-4				0.446***
				(0.06)
# kids 5-9				-0.112*
				(0.05)
# kids 10-17				-0.101
				(0.06)
household income				-0.000
				(0.00)
urban				-0.174**
				(0.06)
Saturday				-0.028
				(0.07)
Sunday				0.127
				(0.07)

Random effects				
Intercept	1.343***	3.369***	3.387***	2.369***
	(0.03)	(0.15)	(0.15)	(0.19)
Between group ψ	0.000***	0.365***	0.364***	0.256**
	(0.00)	(0.09)	(0.09)	(0.13)
Within group θ	2.438***	2.070***	2.070***	2.066***
	(0.02)	(0.02)	(0.02)	(0.02)
N	8743	8743	8743	8739

This division of labor has implications for mothers who are in the labor force. Model 3 shows that the magnitude of effect for employment status on childcare time is greater than the effect of gender. A parent whose individual characteristics are the same as any other parent except for working in the labor force can expect to spend a difference of 1.95 hours on childcare. That is, employed parents spend almost two hours less on childcare than a parent who is not in the labor force. This is a substantial amount of time which children lose from employed parents. It also hints at a divergent trend from developed countries analysis since the trend of parental time on childcare in developed countries has been stable or increasing with rising maternal participation (Bianchi 2000). This difference is explained in part by the minimal differences found in developed countries between employed and unemployed parents as unemployed mothers did not spend more time on childcare (Bianchi 2000, Bianchi and Robinson 1997). Also, participation in childcare by fathers in developed countries have been rising with maternal employment (Bianchi 2000, Craig 2006). Given that most parents in Cambodia or other developing countries do not work in white collar jobs where there are structured work schedules with sufficient income that allows them to have more time to allocate to other activities, Cambodian parents then need to maximize their time in the labor force. Consequently, this implies that employment status of both mothers and fathers in Cambodia diverts parental time from childcare.

On a substantially smaller scale than gender and employment status is the effect of age on parents' time on childcare. Although, since age is a continuously increasing variable the effect can become larger. For instance, a young twenty year old parent is expected to spend 0.72 hours less on childcare whereas a forty year old parent would spend 1.62 hours less time on childcare. Given that other studies have found the incremental gain in childcare time for each additional child is marginal (Gustafsson and Kjulin 1994, Ho 1979) and given that Cambodia has a high fertility rate, it can be expected that as Cambodian parents age they will have additional children. Moreover, these older children are able to contribute to household labor and childcare, thereby diminishing the need for aging parents to provide intensive amount of time on childcare for the youngest children.

In addition to individual characteristics that influence parental time on childcare, some household characteristics are associated with parental time for childcare. For instance, while most studies suggest that household size increases parental time (Bianchi and Robinson 1997, Quittner and Opipari 1994), this analysis finds that the number and age of children in the household are stronger indicators of parental time for childcare. Each additional child under

the age of five in the household increases parental time for childcare by 0.45 hours. However, having children aged five and over reduces childcare time of parents. Since children as young as 10 years old start participating in the labor market in Cambodia to help their families earn additional income, older children can be expected to spend more time in the employment sector and have less time available for domestic labor. Younger children who have not enter the labor market would then have less time constraint and be able to spend more time on household chores and watch over younger siblings. Therefore, it is not surprising that each additional child age 5 to 9 significantly reduces parental time on childcare more than the number of children age 10 to 17. Children age 5 to 9 provide more childcare time than older children (results not shown), thereby freeing up parental time from childcare. Therefore, this analysis suggests that it is not the household size itself that influences childcare time of parents but rather the age and number of children in the household.

In addition, geographical location of households also informs parental time for childcare. Model 4 suggests that parents whose households are in urban areas spend 0.17 hours less on childcare than parents in rural areas. Since the living expenses of urban areas cost more than rural areas, this requires parents to earn higher income to sustain basic living conditions. Therefore, it becomes vital for parents in these geographical regions to maximize their time in the paid labor force. By investing more time in economic activities, parents in urban areas have less time to invest in childcare as their primary activity.

The emphasis on being economically active combined with limited white collar job opportunities also manifest itself in the absence of a pattern in childcare by days of the week. Since parental time for childcare does not significantly differ by day of the week, this suggests that parents spend almost as much time on weekends as they do on weekdays on market and agricultural labor. As local markets and shops are open daily, operation of the facility is maintained by vendors or their unpaid family members throughout the week. In addition, because of the poverty level, people are employed in multiple jobs. For instance, teachers can offer tutoring on weekends to earn additional money to supplement their government earnings. Therefore, there is less of a distinction between weekdays and weekends in Cambodia. This may explain why parental time for childcare does not statistically differ by day of the week.

Among these household characteristics, the number of parents in the household is the most important indicator of parental time for childcare. Unlike the indicator for multigenerational households, where household structure does not appear to influence parents time on childcare once individual characteristics are controlled for, the effect of being in a single parent household seen in the descriptive analysis remains strong in the regression analysis. Model 4 indicates, once individual and household characteristics are controlled for, that individuals who are the sole parent in the households spend about three-quarter an hour less on childcare than parents who have a spouse in the household. That is, single parents spend substantially less time on childcare than a parent who is in a dual parent household. The presence of a second parent enables greater division of labor that allows one person to invest more time in childcare; therefore, single parent cannot invest in childcare time as much as they would otherwise.

Overall, the regression analysis does not support the second research question; household structure does not influence how much time parents provide for childcare. Although, the analysis suggests that household level characteristics such as single parent status and the number of children under the age of five influence the amount of childcare time spent by parents. Furthermore, parental time for childcare is more driven by individual characteristics such as gender, age, and employment status.

3.3 Grandparents' Time

Now turning to the third research question about grandparents' caregiving time; this section presents the results from the regression analysis in Table 12. This table is organized in the same manner as the one for parents, with information on individual, household, and the model by rows with results from different regression models by columns. As indicated by the descriptive analysis, grandparents do provide childcare time; the amount of time they provide for childcare is not influence by the number of grandparents in the household once socio-demographic characteristics are controlled for.

Table 12: HLM Regression of Grandparents' Time for Care in Cambodia, 2004

	Model 1 $\beta(se)$	Model 2 $\beta(se)$	Model 3 $\beta(se)$	Model 4 $\beta(se)$
female		1.200***	1.164***	1.184***
		(0.23)	(0.24)	(0.24)
age		-0.013	-0.014	-0.007
		(0.01)	(0.01)	(0.01)
Educational Level				
Primary		-0.154	-0.150	-0.205
		(0.23)	(0.23)	(0.23)
Lower Secondary		0.065	0.058	-0.090
		(0.52)	(0.52)	(0.52)
Upper Secondary +		1.038	1.041	0.928
		(1.03)	(1.03)	(1.03)
Employment Status				
Employed		-1.286***	-1.281***	-1.352***
		(0.22)	(0.22)	(0.22)
Unemployed		-0.640	-0.643	-0.767
		(0.65)	(0.65)	(0.64)
Multiple grandparents			-0.091	0.077
			(0.22)	(0.36)
Single parent				0.230
				(0.39)
household size				-0.190

				(0.28)
# kids 0-4				0.127
				(0.36)
# kids 5-9				-0.026
				(0.31)
# kids 10-17				0.053
				(0.33)
household income				0.000*
				(0.00)
urban				-0.263
				(0.28)
Saturday				-0.362
				(0.29)
Sunday				-0.077
				(0.30)
Random effects				
Intercept	1.927***	2.646**	2.744**	3.184*
	(0.10)	(0.92)	(0.95)	(1.28)
Between group ψ	0.971	1.144	1.142	1.080
	(0.38)	(0.31)	(0.31)	(0.32)
Within group θ	2.676***	2.448***	2.449***	2.449***
	(0.15)	(0.15)	(0.15)	(0.15)
N	798	798	798	798

Instead, individual characteristics such as gender and employment status are stronger predictors of the amount of childcare time grandparents provide. Parallel to the results for parents, grandmothers provide more childcare time than grandfathers. Once individual and household characteristics are adjusted for (Model 4), grandmothers are expected to spend 1.18 hours more on childcare time than grandfathers. This gender difference, while substantial, is about half the amount expected for parents. Grandfathers actually spend more time on childcare so that the gender difference in time spent on care is smaller between grandparents than it is between parents. This smaller gender difference in childcare can be attributed in part to grandparents participating in the labor force at lower levels. Since the majority of grandparents reside in rural areas, their ability to participate in the labor force becomes limited as they age because of the physical demand in the dominant occupations of agriculture, forestry and farming. Moreover, given that the social expectation is for children to support their elderly parents (Zimmer and Kim 2001), grandparents are more likely to withdraw from the labor force when their adult children are able to provide them with support. This is reflected in the fact that grandparents report the most leisure time. As they have more available time, they are able to invest more childcare time for their coresiding grandchildren.

Consequently, employed grandparents, like parents who are employed will then have

less time to invest in childcare. Based on Model 4, employed grandparents are estimated to spend 1.35 hours less time on childcare than grandparents who are not in the labor force. Time spent on the labor force is time which grandparents lose on spending with their grandchildren. Therefore, their employment status influences their involvement in the lives of their coresiding grandchildren.

Interestingly, the amount of time grandparents spend on childcare is not influenced by any household characteristics except income, and the effect is extremely small. Unlike studies in the U.S. where grandparents provide childcare in low-income households, this analysis find that Cambodian grandparents are more likely to provide childcare in wealthier households. Since wealthier households are able to provide financial support for coresiding grandparents, this eliminates the demand for grandparents to be employed to help pool household resources. Thereby, grandparents in these households are less likely to be employed, which then increases their available time and allows them to use their time for childcare.

Other household characteristics do not appear to influence grandparents' time on childcare. For example, this analysis suggests that the presence of single parents in the household does not significantly influence the amount of time grandparents spend on childcare. The implication is that there is an underlying pattern that grandparents do not differentiate how much childcare time they provide by the number of parents that are in the household. Instead, individual characteristics are the main drivers of grandparents' involvement in childcare. Grandparents residing in single parent households are prominently grandmothers, who invest more time in childcare. Therefore, the descriptive result in Table 8 may actually be detecting more of the gender effect than the presence of single parent. Also, the age and the number of children in the household is not associated with childcare time provided by grandparents. This may potentially be due to the strong expectation that childcare is the domain of mothers, and the care grandparents provide is rather supportive in nature.

Consequently, this analysis suggest that the support grandparents provide in childcare is principally driven by their individual characteristics rather than those of the household.

4 Discussion

The results presented in this study are designed to elucidate the influence of family structure on the amount of care time children receive. Investigating this relationship is done by examining three different aspects of family structure on childcare time. First, an overview of family structure pattern in childcare time is examined, followed by an analysis of parental time for childcare. The third aspect considered how the presence of multiple grandparents in the household influences the amount of childcare time grandparents provide.

The most notable finding is that the total care time children receive strongly differs by household structure: multigenerational households generate more care time for children than nuclear households. This difference is largely driven by grandparents who provide additional care time. Since parents' time on childcare did not differ between multigenerational and nuclear households, the childcare time generated by grandparents represent the additional time. That is, grandparents are not substituting parental time for childcare but supple-

menting it. Therefore, children in multigenerational household benefit from the presence of coresiding grandparents.

Moreover, children are benefiting more from the presence of grandmothers than grandfathers. While both grandparents contribute to agricultural or market labor, grandmothers spend half as much time as grandfathers in market labor. Grandmothers trade off their market time to spend more time on domestic labor and childcare. Since Cambodian women are trained to be responsible for domestic matters, it is reasonable to expect women to continue to perform some of these duties as they age and become grandmothers. Thus, grandmothers provide mothers with secondary support for childcare.

In multigenerational households, grandparents, especially grandmothers, may also be spending their time in tandem with mothers. Grandmothers providing household labor and childcare can be doing these activities at the same time as mothers. If all the childcare time reported in multigenerational households were performed jointly then his may overestimate the amount of time children actually receive. That is to say, the additional childcare time gained by grandmothers would be marginal and overestimates the actual care time children receive. However, in larger households current childcare allows mothers and grandmothers to spread their time between children. This would allow each child to receive more focused attention from an adult in the household. Moreover, joint childcare data for which the CSES did not collect, may indicate the quality of the time. Concurrent childcare in multigenerational households may stimulate children socially and cognitively.

On a different note, mothers and grandmothers may still be providing childcare even though primary childcare time declines with increasing age of children. Because the CSES collects only primary activities, the results of this analysis reflect the direct childcare time children are given by parents and grandparents. What is not reflected is the time children may actually be receiving as a secondary activity. Studies that collect concurrent activities suggest that mothers also perform childcare as a secondary activity while performing housework (Craig 2006). Therefore, mothers and grandmothers in Cambodia may also be watching children while performing market or domestic labor. Secondary childcare may be more important for older children. Once children are able to walk and talk, parents and grandparents can supervise them from a distance while performing other activities. Thereby, reducing the demand for direct primary childcare, and increasing the demand for secondary childcare as children age.

Also, findings in this study suggest, distressingly but not unexpectedly, that children living in single parent households have a disadvantage. Two-parent households allow responsibility to be shared between parents, but single parent households will have the same responsibility but less opportunity for sharing responsibilities. Since time is limited, single parents are not able to equally invest their time. The data suggests that single parents spend twice as much time as dual parents on market labor, trading off their domestic responsibilities. Since 90% of all single parents in Cambodia are women, single mothers substantially spend less time on childcare. For children residing in multigenerational households, the care they receive from grandmothers help buffer the loss of caregiving time from the single parent. However, children in single parent nuclear households do not have coresiding grandparents

to help buffer the loss time. They experience reduced care time from their single parent, and lack care time from the absent parent and grandparents.

As Cambodia continues to modernize, the proportion of children experiencing a disadvantage in childcare time may continue to rise. While the divorce rate is at low levels, it has been increasing (Heuveline and Poch 2006). Combined with concerns of women being abandoned by their husbands (Öjendal and Sedara 2006), this would lead to a rise of single parent households, which would disadvantage a greater number of children in receiving adequate childcare.

4.1 Study Limitations

Unlike previous studies on time spent on childcare, this study examines the input of care time grandparents provide and the characteristics of coresiding grandparents that provide additional childcare time. The complex analysis adjusted for potential confounding and clustering that could mask the underlying pattern that exists. Also, the results from the hierarchical models did not differ from the ordinary least square models performed on the nationally representative sample (see Appendix). Even so, there are limitations to this study.

Along the same line, as the CSES only has records of who provided care time, it does not collect information on who was the actual recipient of the care. By not collecting this, we cannot identify whether the recipient of care is a younger or older child. If a preferential pattern of care exists, then the design of the survey does not allow it to be discerned. Also, this analysis assumes that all care time is childcare time since the CSES classified care for children and elderly as a single category. If parents and grandparents are performing mainly elderly care, then the analysis overestimates the amount of care time children receive and potentially be diverting resources. However, since most Cambodian elderly are actively participating in the labor market well into their 70s and a very small proportion reported any disability, then grandparents may not require much care time. Instead, they are generating childcare time.

Lastly, all reported care is assumed to be generated for members of the household. Since rural villages tend to be collections of related households (Crochet 2011), if adults in one household are watching children from a different but related household then this will bias the estimated amount of time children in the household receive. Or if children in a household are being cared for by relatives in a neighboring household, then this would underestimate the total care time children are receiving. Since this study restricted the analysis to households with children under the age of five and childcare is considered an important responsibility for women, we expect that parents in this study are actually reporting the time they spend on their children. Furthermore, while Cambodians prefer to live in close proximity to relatives, the functioning of each household is considered independent (Ovesen et al. 1996), so that caring for children in the household is most often performed by members of that household.

5 Conclusion

The findings of this study support the hypothesis that household structure does impact the amount of care children receive. The presence of grandparents, especially grandmothers, and two-parents increase the amount of direct care a child receives. Since time is a limited commodity, the time allocated to childcare by families becomes an investment in the well-being of children. The amount of childcare time children receive may then influence the gradient of their health outcome. Thereby, family structures able to provide more childcare time may have healthier children. This research forms the basis for studying the relationship between time spent on care and child health outcomes.

References

Bianchi, S. (2000). Maternal employment and time with children: Dramatic change or surprising continuity? *Demography*, 37:401–414. 10.1353/dem.2000.0001.

Bianchi, S. M. and Robinson, J. (1997). What did you do today? children's use of time, family composition, and the acquisition of social capital. *Journal of Marriage and Family*, 59(2):pp. 332–344.

Chandler, D. P. (1972). *The Land and People of Cambodia*. J.B. Lippincott Company.

Chenu, A. and Lesnard, L. (2006). Time use surveys: a review of their aims, methods, and results. *European Journal of Sociology / Archives Europennes de Sociologie*, 47(03):335–359.

Craig, L. (2006). Does father care mean fathers share? a comparison of how mothers and fathers in intact families spend time with children. *Gender and Society*, 20(2):pp. 259–281.

Crochet, S. (2011). *Anthropology and the community in Cambodia: reflections of the work of May Ebihara*, chapter Catching facts or sketching the elephant? Village monographs on Cambodia, yesterday, today, tomorrow, pages 131–152. Monash University Press.

de Walque, D. (2004). The long-term legacy of the Khmer Rouge in Cambodia. Technical report, World Bank, Development Research Group.

de Walque, D. (2005). Selective mortality during the Khmer Rouge Period in Cambodia. *Population and Development Review*, 31(2):351–368.

Demont, F. and Heuveline, P. (2008). Diversity and change in Cambodian households,1998-2006. *Journal of Population Research*, 25(3):287–313.

Desai, S., Chase-Lansdale, P., and Michael, R. (1989). Mother or market?effects of maternal employment on the intellectual ability of 4-year-old children. *Demography*, 26:545–561. 10.2307/2061257.

Desai, S. and Jain, D. (1994). Maternal employment and changes in family dynamics: The social context of women's work in rural south india. *Population and Development Review*, 20(1):pp. 115–136.

DHS (2001). Cambodia demographic and health survey 2000. Technical report, Directorate General for Health, National Institute of Statistics Cambodia, and ORC Macro, #2, Kim II Sung Blvd, Phnom Penh, Cambodia.

DHS (2006). Cambodia demographic and health survey 2005. Technical report, National Institute of Public Health, National Institute of Statistics Cambodia and ORC Macro, #2, Kim II Sung Blvd, Phnom Penh, Cambodia.

Frieson, K. G. (2011). *Anthropology and the community in Cambodia: reflections of the work of May Ebihara*, chapter No longer a 'happy balance': the decline of female status in Khmer village culture, pages 171–188. Monash University Press.

Fuligni, A. and Masten, C. L. (2010). Daily family interactions among young adults in the united states from latin american,filipino,east asian,and european backgrounds. *International Journal of Behavioral Development*, 34(6):491499.

Gager, C. T., Cooney, T. M., and Call, K. T. (1999). The effects of family characteristics and time use on teenagers' household labor. *Journal of Marriage and Family*, 61(4):pp. 982–994.

Gustafsson, B. and Kjulin, U. (1994). Time use in child care and housework and the total cost of children. *Journal of Population Economics*, 7:287–306. 10.1007/BF00517301.

Heuveline, P. and Poch, B. (2006). Do marriages forget their past? marital stability in Post-Khmer Rouge Cambodia. *Demography*, 43(1):99–125.

Ho, T. J. (1979). Time costs of child rearing in the rural philippines. *Population and Development Review*, 5(4):pp. 643–662.

Hsin, A. (2007). Children's time use: Labor divisions and schooling in indonesia. *Journal of Marriage and Family*, 69(5):12971306.

King, E. and Evenson, R. E. (1983). Time allocation and home production in philippine rural households. *Women and Poverty in the Third World*, pages 35–61.

Knodel, J., Kim, S. K., Zimmer, Z., and Puch, S. (2005). Older persons in cambodia: A profile from the 2004 survey of elderly. Report 05-576, Population Studies Center, University of Michigan Institute for Social Research.

Neupert, R. F. and Prum, V. (2005). Cambodia: Reconstructing the demographic stab of the past and forecasting the demographic scar of the future. *European Journal of Population / Revue Europenne de Dmographie*, 21(2/3):pp. 217–246.

Öjendal, J. and Sedara, K. (2006). Korob, kaud, klach: In search of agency in rural cambodia. *Journal of Southeast Asian Studies*, 37(03):507–526.

Ovesen, J., Trankell, I.-B., and Ojendal, J. (1996). *When every household is an island: social organization and power structures in rural Cambodia*. 15. Uppsala University.

Pearson, J. L., Hunter, A. G., Ensminger, M. E., and Kellam, S. G. (1990). Black grandmothers in multigenerational households: Diversity in family structure and parenting involvement in the woodlawn community. *Child Development*, 61(2):pp. 434–442.

Primo, D. M., Jacobsmeier, M. L., and Milyo, J. (2007). Estimating the impact of state policies and institutions with mixed-level data. *State Politics & Policy Quarterly*, 7(4):446–459.

Quittner, A. L. and Opipari, L. C. (1994). Differential treatment of siblings - interview and diary analyses comparing 2 family contexts. *Child Development*, 65(3):800–814.

Reschke, K. L., Manoogian, M. M., Richards, L. N., Walker, S. K., and Seiling, S. B. (2006). Maternal grandmothers as child care providers for rural, low-income mothers. *Journal of Children and Poverty*, 12(2):159–174.

StataCorp (2011). Stata statistical software: Release 12.

Wilson, M. N., Tolson, T. F. J., Hinton, I. D., and Kiernan, M. (1990). Flexibility and sharing of childcare duties in black families. *Sex Roles*, 22:409–425. 10.1007/BF00288161.

Zimmer, Z. and Kim, S. K. (2001). Living arrangements and socio-demographic conditions of older adults in Cambodia. *Journal of Cross-Cultural Gerontology*, 16(4):353–381.

Zimmer, Z., Knodel, J., Kim, K. S., and Puch, S. (2006). The impact of past conflicts and social disruption on the elderly in cambodia. *Population and Development Review*, 32(2):333–360.

Zimmer, Z., Korinek, K., Knodel, J., and Chayovan, N. (2007). Poverty, gender and youth: Support by migrants to their elderly parents in rural cambodia and thailand: A comparative study. Technical report, Population Council.