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Child Care Subsidies and Child Care Choices: The Moderating Influence of Household Structure

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Abstract

For the past 20 years, the federal government has supported the employment of low income mothers with child care subsidies administered through the Child Care and Development Fund (CCDF). Recent research suggests that CCDF-funded subsidies may additionally serve as a developmental support for low-income children by enabling mothers to purchase more formal, higher quality care. This study investigates whether household structure alters this effect of subsidy receipt on selection of child care using data from the Child Care Supplement to the Fragile Families Child and Wellbeing Study (FFCWS) and the Early Childhood Longitudinal Study- Birth Cohort (ECLS-B). Results indicate that household structure moderates the effect of subsidy use on child care choices, but that the moderating effect differed across samples. In the FFCWS, living with extended family increased the likelihood that mothers used subsidies for family, friend and neighbor care rather than center-based care; in the ECLS-B, living with extended family *decreased* the likelihood of mothers using subsidies for family, friend, and neighbor care versus center-based care. Findings suggest that household structure is an important moderator of subsidy use, but that its impact may differ based on contextual and demographic factors.

Keywords: child care subsidies, child care arrangements, household structure

Child Care Subsidies and Child Care Choices: The Moderating Influence of Household Structure

Over the past twenty years, the federal government has substantially increased funding for child care subsidies through the Child Care and Development Fund (CCDF). The CCDF offers child care subsidies to low-income, working families via state administered vouchers given directly to families or through contracts with child care providers (US DHHS, 2008). The explicit goal of CCDF is to support maternal employment among low income families, not necessarily to support the development of low-income children. However, recent research has found that subsidy receipt predicts the use of higher quality child care (Johnson, Ryan, & Brooks-Gunn, 2012; Ryan, Johnson, Rigby, & Brooks-Gunn, 2011), and extensive research finds that child care quality positively predicts children's cognitive outcomes (National Institute for Child Health and Human Development Early Child Care Research Network [NICHD ECCRN], 2002; NICHD ECCRN & Duncan, 2003; Vandell & Wolfe, 2000), particularly for low income children (Currie, 2001; McCartney, Dearing, Taylor, & Bub, 2007). These links suggest child care subsidies have the potential to enhance low-income children's developmental outcomes.

Subsidies predict the use of higher quality care largely because they predict the use of more formal types of child care (Johnson et al., 2012; Ryan et al., 2011). Specifically, subsidy use predicts greater use of center- versus home-based care, and among home-based users, greater use of family child care (FCC) versus more informal family, friend, and neighbor (FFN) care (Ryan et al., 2011; Henly, Ananat, & Danziger, 2006). Although overall, subsidies predict greater use of formal care types (centers and FCC), a sizeable minority of subsidy recipients use their subsidy to pay for FFN care even though FFN providers tend to offer the lowest quality care for preschool-aged children (Johnson et al., 2012; Ryan et al., 2011). Thus, although

subsidies are shifting families into higher quality care, not all families are using subsidies to purchase care that is, on average, of the highest quality available. To strengthen links between subsidy receipt and child care quality, therefore, it is important to understand why mothers use subsidies in different ways.

One potentially important, yet understudied, predictor of how mothers use child care subsidies is household structure. Whether a parent lives with other adults may influence the relative convenience and affordability of formal child care options. Specifically, we think that if a mother lives with extended family (her parents or other adult relatives), she may be more likely to use her subsidy to purchase FFN care versus care from a center or FCC provider because her resident relatives could provide more convenient, flexible, and likely inexpensive child care even with a subsidy. By contrast, if a mother lives alone (that is, without the biological father or extended family), she may be more likely than other recipients to use her subsidy for center care because FFN care would not necessarily be more convenient than a center – and may not even be available. If so, single mothers living alone may benefit the most from the subsidy system in terms of its impact on child care quality, whereas mothers living with extended family may benefit the least. These patterns would also suggest that mothers living with extended family should be targets of any effort to strengthen the link between child care subsidies and child care quality.

Previous Research

Subsidy use and child care choices. Although subsidies predict greater use of formal care on average (Brooks, 2002; Crosby, Gennetian, & Huston, 2005; Henly, Ananat & Danziger, 2006; Johnson et al., 2012; Ryan et al., 2011; Tekin, 2005; Weinraub, Shaly, Harmon, & Tran, 2005; Wolfe & Scrivner, 2004), most states currently allow mothers to use their subsidies to pay

any provider regardless of type (or quality). Using data from the Fragile Families and Child Wellbeing Study (FFCWS), Ryan and colleagues (2011) found that nearly 20% of subsidy recipients used their subsidy to pay for kith and kin care, a finding echoed in other similar research (Blau, 2003; Chaudry, 2004). Mothers may choose these arrangements even though subsidies lower the cost of formal care for several reasons. First, for mothers who work non-standard hours, center-based care may be unavailable during all or some of their work hours. Second, if mothers do not believe that available centers offer better quality care than a family member, they may not be willing to pay for this arrangement. Third, for some mothers, a caregiver who shares their cultural identity and values may be paramount, resulting in a preference for FFN care regardless of affordability, availability, and convenience (Lowe & Weisner, 2004). Finally, the subsidy may not be generous enough to sufficiently reduce the cost of higher quality child care, leading mothers to select a lower quality but more affordable option. The latter scenario may be especially true for the lowest-earning mothers within the subsidy-eligible population.

Household structure and child care choices. In theory, household structure should impact mothers' child care choices because it influences the amount of economic and caregiving support available to them. First, mothers living with their child's biological father should use the least non-parental care. Two biological parents will most easily be able to arrange work and caregiving to fill in necessary gaps, making paying for outside the home care less necessary. Second, living alone or with a new partner should predict the use of center-based or FCC because if the other parent or extended family is not in the home, parental or FFN care may not be the most convenient or even available option. Finally, living with extended family or other adults (with or without the biological father) should predict the use of FFN care, as using

available, in-home caregivers is less expensive and more convenient than more formal care types, two influential factors in mothers' child care decisions (Hofferth, 1991; Kim & Fram, 2009; Kisker & Maynard, 1991). It is also possible mothers who prefer care by a relative, either because it is less expensive or because of cultural concerns, move in with extended family to facilitate this option. Indeed, Liang, Fuller, & Singer (2000) note that household structure is likely to be endogenous to certain maternal beliefs about child care, including a priori preferences for FFN care. Regardless of the direction of this relationship, mothers who live with extended family should use relatives for child care far more often than counterparts living in two biological parent families or living alone.

Research on determinants of parents' child care choices supports these hypothesized patterns. First, mothers living with their child's biological father are less likely to use non-parental care of any kind, and use fewer hours of care, than mothers living in any other household structure (Henly, Ananat, & Danziger, 2006), a pattern replicated among low-income, working parents (Hirshberg, Huang, & Fuller, 2005). It is important to note, however, that married and cohabiting mothers who do use extra-familial care tend to have higher average levels of education and income than mothers in the same household structure who do not, and may use center-based care as an investment in their child's development rather than a work support (Singer, Fuller, Keiley, & Wolf, 1996; Liang, Fuller, & Singer, 2000; Hirshberg, Huang, & Fuller, 2005). Even among the subsidy eligible, Burstein & Layzer (2007) have shown that parental beliefs about the purpose of child care drives child care choices; for less constrained mothers living with their child's biological father, these preferences may manifest in using either exclusively parental care or center-based care for educational purposes.

Just as mothers living with the biological father use parental care more often than single mothers, mothers living with extended family use FFN child care more often than mothers without family in the home. The presence of secondary caregivers consistently predicts the choice of unpaid, non-center based care (Ahn, 2012; Burstein & Layzer, 2007; Fuller, Holloway, & Liang, 1996; Lehrer, 1983; Leibowitz, Waite, & Witsberger, 1988), particularly when mothers are employed (NICHD ECCRN, 1997). For example, Burstein & Layzer (2007) reported that living with a grandparent increased the likelihood of relative care by 23 percentage points, aunts and uncles by 13 percentage points, and other relatives by 5.8 percentage points. Finally, research on mothers living without partners is somewhat contradictory. For example, some report a greater probability of using center-based care for single versus partnered mothers (Liang, Fuller, & Singer, 2000), whereas others report single parents are more likely to rely on relative care than partnered mothers (Ehrle, Adams, & Tout, 2001). This contradiction likely arises because this research defines single mothers as unpartnered regardless of their living with extended family. By combining those with and without in-home extended family, these studies do not address varying levels of caregiving support that may exist within this group.

Household Structure, Subsidy Use, and Childcare Choices

These patterns of child care use suggest that household structure may impact both whether eligible mothers apply for a child care subsidy and how recipients use subsidies. First, if subsidy users are more likely to purchase center based care, and mothers living with relatives are more likely to use FFN care, mothers living with relatives may be less likely to apply for subsidies than mothers in two biological parent households or living alone. The subsidy system is complicated, requiring parents to recertify their eligibility regularly through lengthy paperwork (Blau, 2003). Subsidies are based on parents' employment and income, which may change often

for low-income families, making subsidy recertification time-consuming (Adams & Rohacek, 2002; Herbst, 2008). If mothers have low- or no-cost or child care at home, they may not want to invest the time in subsidy application and recertification. By contrast, mothers living alone should be the most likely to apply for and use subsidies because they are the most likely to need care and to use it for the greatest number of hours (Ahn, 2012). The cost-savings for them is more likely to outweigh the cost of time spent navigating the system.

Previous research generally corroborates these hypothesized patterns. Tekin (2005) reported that the presence of an additional relative in a household reduces the likelihood of subsidy receipt by about two percentage points. Burstein & Layzer (2007) report that among low income families, single parents living alone were substantially more likely to have applied for a subsidy than those headed by a couple, and that the presence of other relatives was also associated with lower likelihood of having applied. However, among applicants, single parent families remained more likely to receive a subsidy than those with partners, whereas the presence of other adults in the household did not change the likelihood of subsidy receipt. Herbst (2008) found that female-headed households were more likely to be eligible and participate than their two-parent counterparts, controlling for the presence of older adults in the household. While more research is needed to clarify these patterns, existing literature suggests that household structure does impact mothers' subsidy application and receipt, most likely because mothers living with extended family, and those living with the biological father, are not as motivated to apply for subsidies as those living alone.

Second, mothers living with relatives who do apply for and receive subsidies may be more likely to use them to pay for FFN care, as opposed to center-based or FCC, than mothers living in other household structures. First, cost and convenience are likely to limit child care

options, even for subsidy receiving mothers (Ralkes, Torquati, Wang, & Shjegstad, 2012). Though states use market prices to set subsidy amounts, many use out-of-date prices, or set the reimbursement rate at less than 75% of care costs (Adams, Schulman, & Ebb, 1998), leaving mothers with significant co-pays. Second, mothers may have a preference for FFN care, regardless of cost, for quality or cultural reasons. Indeed, due to either of these concerns, mothers may move in with extended family specifically to benefit from FFN care. Thus, the overall effect of subsidies on the use of center based care should be weaker among mothers living with extended family who have alternative care available than for mothers living in other household structures.

However, it is also possible that mothers living with relatives are less likely to use subsidies overall, but once in the system *equally* likely to use subsidies for center-based care as other mothers. For example, if the subsidy system encourages mothers to use center-based care, or if mothers apply for subsidies with the intent of finding higher quality care, the overall effect of subsidies on the use of center-based and more formal care would be greater for mothers living with extended family, because they are more likely to use lower quality FFN care in the absence of subsidies.

Existing research cannot adjudicate between these hypotheses because few studies have simultaneously looked at household structure and subsidy receipt. Tekin (2005) reported that while controlling for subsidy receipt, the number of relatives in a household positively predicts the use of FFN care, but he did not examine whether this association varied by subsidy receipt. Likewise, Huston, Chang & Gennetian (2002) found that the presence of other adults in the household reduced the likelihood of using center-based or non-relative FCC in a sample eligible

for child care subsidies. Again, neither this study nor any other examined whether this association varied by subsidy receipt.

Present Study

The present study addresses this gap by exploring how household structure moderates subsidy use in two samples of families eligible for subsidies in their states of residence. To test our competing hypotheses thoroughly, two datasets will be used. First, we will use data from the Fragile Families Child and Wellbeing Study (FFCWS), which consists of an urban, low-income sample of primarily non-marital births. This sample reflects a likely target for subsidies and potential CCDF reforms. A second dataset, the nationally representative Early Childhood Longitudinal Study- Birth Cohort (ECLS-B), allows us to examine whether patterns of subsidy use and care choice by household structure are different for the broader subsidy eligible population which is more geographically diverse and advantaged than an exclusively urban, mostly unmarried sample. Specifically, using two datasets allows us to compare the impact of household structure within a subgroup of substantial policy relevance and in the national population.

Methods

Data

Fragile Families Child Care Study. Data are drawn from the Child Care Supplement to the FFCWS (CCS-FFCWS). The FFCWS is a longitudinal birth cohort study that oversampled unwed births to parents in large U.S. cities in order to examine associations between nonmarital childbirth and parent and child outcomes (see Reichman, Teitler, Garfinkel, & McLanahan, 2001 for a detailed description of the larger FFCWS design). Data for the CCS were collected in 2002 and 2003 in 14 of 20 FFCWS cities. As part of the FFCWS, participants in all 20 cities were

asked if they used child care for 10 hours per week or more. Of the families visited at home in these 14 cities, 1150 families fit the CCS criteria. Because some of these families refused to allow their child's provider to participate, some providers refused to participate, and some arrangements ended soon after the parent interview, child care observations were conducted in the child care settings of 777 of the eligible children.

The Early Childhood Longitudinal Study- Birth Cohort. Identical analyses were conducted with data drawn from the ECLS-B. The ECLS-B followed a nationally representative cohort of 10,700 children from birth in 2001 through kindergarten entry to gather information on their early home and learning environments, and developmental outcomes (Jacobson Chernoff, Flanagan, McPhee, & Park, 2007). Children were first observed at approximately 9-months-old and thereafter in 2003 at 2-years-old; in 2005-2006, when children were in preschool, and in 2006-2007, when children were in kindergarten. The current study uses data from the 9-month and 2-year-old waves. Response rates for the 9-month and 2-year-old waves were 74% and 93%, respectively, and weights were created to account for sampling and survey non-response; once applied, these weights adjust the sample to be representative of all children born in the United States in 2001.

At the 2-year and preschool waves, child care providers and (for centers) directors completed phone interviews in which they responded to questions about their program. Also, direct observational assessments of children's care settings were conducted with a subsample (by design) of children ($N \approx 1400$ at the two year wave). Of the $N \approx 2,800$ eligible for the child care observation, $N \approx 1,400$ did not participate due to lack of parental consent, lack of provider consent, or changes in provider (Nord, Edwards, Andreassen, Green, & Wallner-Allen, 2006). The provider and interview and observation were all conducted with the child's primary care

provider, defined as the care arrangement in which the child spent the greatest amount of time per week.

Analytic Samples

Fragile Families. Of the 777 children for whom we had child care quality data in the CCS-FFCWS, we restricted our analytic sample to families eligible for CCDF subsidies in their state of residence at the time of the three-year interview ($N = 456$). Although it is possible recipients began receiving subsidies before three years, because recipients must demonstrate their eligibility regularly, income and employment information obtained at three years should reflect ongoing eligibility status. Using mothers' reports of welfare receipt, household income, and employment status, we simulated families' eligible status in three steps. First, all families receiving Temporary Assistance for Needy Families (TANF) at three years were classified *subsidy-eligible* (21%), because in all 14 CCS states, families enrolled in TANF were automatically eligible (US DHHS, 2002; 2003). Second, by comparing the annual income thresholds for each state (based on 12 times the monthly income thresholds in the year the parent was interviewed) to the families' annual income, we classified families *income-eligible* if their incomes fell at or below the states' income threshold for their family size. Third, families interviewed in 2002 were classified *employment-eligible* if the mother worked part- or full-time, or was in school or job training, because the 14 CCS states had no minimum work hours requirement and considered students categorically eligible in that year. In 2003, five states began requiring cohabiting or married mothers and their partners to work minimum hours, so we factored this requirement into our employment-eligible classification for those interviewed in 2003. Finally, if families were *both* income- and employment-eligible according to these rules,

they were classified subsidy-eligible. Combining the TANF recipient and income- and employment-eligible groups yielded a subsidy-eligible sample of 446.

When we cross-classified subsidy-eligible families with subsidy recipients (see below for a definition of subsidy-recipient), 40 recipients were misclassified as ineligible for subsidies. Because we do not have administrative data on families' TANF receipt, income, or employment, and because we gathered eligibility information at a single time point, it is not surprising our eligibility calculations did not match families' eligibility status in all cases (Herbst, 2008). Of these 40, 12 were using home-based child care and 28 were using center-based care. We recoded the 12 cases using home-based child care as subsidy-eligible because we assumed families could not receive any other kind of government subsidy to pay for home-based care. Thus, if the provider reported that the family was receiving a subsidy, that subsidy must have come from the CCDF. We recoded the 28 cases using center-based care as subsidy-eligible only after checking providers' reports of subsidy source and sponsoring agency to ensure that families were not using some other form of subsidization. This recoding yielded a final subsidy-eligible sample of 486. The final analytic sample included 462 of these children because 24 cases were missing data on our key treatment variable, subsidy use, or on one or more covariates.

Among the 1,150 families who fit the criteria for the CCS, 650 families were eligible for child care subsidies (not shown). When we compared our analytic sample ($N = 462$) to those for whom child care data were not collected ($N = 194$), few demographic differences emerged, suggesting that among those eligible for subsidies, the child care sample was not highly selective. The analytic sample had a slightly higher average income-to-needs ratio at the time of the focal child's birth (1.45 versus 1.23, $p < .10$) and mothers were more likely to have been born in the U.S. (95% versus 90%, $p < .05$); however, the groups did not differ in terms of

race/ethnicity, family structure, mothers' age, mothers' employment status, or receipt of government assistance.

Early Childhood Longitudinal Study-Birth Cohort. In the ECLS-B, as in the FFCWS, analyses were restricted to families who were eligible for subsidies at the time of the preschool wave interview and who had valid child care quality data. First, families eligible for child care subsidies were identified from the full sample of families who participated in the preschool wave. Subsidy eligibility was simulated using mothers' report of welfare receipt, household income, and work status, and state CCDF rules from the year of preschool data collection (US DHHS, 2005). Using the same decision rules as in the FFCWS, mothers who received welfare and those who met both income and employment eligibility requirements were deemed subsidy eligible in the ECLS-B, yielding a subsidy eligible sample ($N \approx 2500$). Of subsidy eligible families, approximately 28% received subsidies (see Measures section for a description of how subsidy receivers were classified); that this estimate so closely reflects the national estimate from 2005 (29%; ASPE, 2008) increases confidence in the identification of eligible families (and of subsidy receivers).

Next we restricted the subsidy eligible sample to the child care subsample. Of families who participated in the child care observation at the preschool wave, approximately 750 were eligible for subsidies. Thus, the final analytic sample included 750 subsidy eligible families with child care observation data.

Before excluding cases missing child care quality data, subsidy eligible families who had child care quality data were compared to subsidy eligible families who did not; as with the FFCWS, few demographic differences emerged between the two groups. Participants were more likely to be white or Hispanic and less likely to be black, Asian, or another race (results not

shown). On all other key maternal characteristics – education, employment status, marital status, English proficiency, and maternal age – subsidy eligible families with and without child care quality data were statistically equivalent.

Measures

Subsidy Receipt.

Fragile Families. To determine our subsidy recipient group, we began with child care providers' responses to the question, "Is any part of the child's care paid for by government support?" Responses were coded "0" if the provider responded that the focal child did not receive government support and "1" if the provider responded he/she did. Providers who responded in the affirmative were asked which government program provided the funding. Children whose providers reported their care was subsidized by the state or local board of education, a state pre-Kindergarten program (e.g., the Abbott program in New Jersey), Head Start or Early Head Start, or a private non-profit foundation were recoded as "0" and were excluded from the subsidy group. Additionally, if a child's provider responded to the question, "Is the center sponsored by or affiliated with any organizations or schools?" with either Head Start or a public school, the child was similarly excluded from the subsidy group. The remaining providers reporting government support either reported "CCDF" explicitly or a state or county social service agency likely to receive CCDF funds. In our analytic sample, 42% ($n = 195$) of eligible children received a subsidy according to this definition (whereas, 36 children were funded by Head Start and 34 were funded through the public school system).

Given low rates of subsidy take-up nationally, 43% represents a relatively large percentage of eligible families using federal subsidies (e.g., in 2005, the percentage of federally eligible children served was 29% nationally [ASPE, 2008]). When evaluating this usage rate, it is

important to note that our sample is not nationally representative, so usage rates in the CCS-FFCWS cannot be expected to reflect actual take-up rates. Specifically, our sample only includes families with 3-year-olds, and parents of young children are more likely to use subsidies than those with school-aged children (Herbst, 2008). Our study also includes only families using some form of nonmaternal care, thus excluding any eligible non-users who use no care at all. Finally, the larger Fragile Families study only sampled families living in large cities, and it oversampled unwed births by a proportion of two to one. Both sampling criteria could yield high take-up rates in our sample. We also acknowledge we may have overestimated the usage rate in our sample if some children received government funding from a non-CCDF source, or if we somehow underestimated the number of families eligible for subsidies in the CCS.

ECLS-B. Unlike FFCWs, in which the measure of subsidy use was drawn directly from provider report, in the ECLS-B, we constructed the measure of subsidy receipt from both parent and child care provider report. Following prior studies (Forry, 2009; Herbst, 2008), families who indicated that the child's primary non-parental care arrangement occurred in a center were coded as receiving a subsidy if (1) the parent reported receiving assistance paying for child care from a government or welfare agency and the child did not attend Head Start or public pre-k, or (2) the parent reported using center-based care, that the care was free, *and* the provider reported the care was not Head Start or public pre-k. Parents who indicated that their child's primary non-parental care arrangement was home-based were coded as receiving a subsidy if (1) the parent reported receiving assistance paying for care from a government or welfare agency, or (2) the parent reported that there was no charge for the care *and* the provider reported that he or she was licensed or part of a family child care network, provided care in the provider's home, and cared

for 3 or more children in addition to the focal child. Families not meeting these conditions were coded “0” on the dichotomous subsidy receipt variable.

When subsidy receivers were cross-classified with subsidy eligible families, a number of subsidy receivers were misclassified as ineligible. As in the CCS-FFCWS, because the ECLS-B does not have administrative data on families’ welfare receipt, income, or employment, and data came from a single time point, it is not surprising that eligibility estimates did not match eligibility status in all cases. To address the flaws in our eligibility simulation, families in center-based care were recoded as eligible if they were receiving at least one other means-tested public benefit (e.g., food stamps, Medicaid) or their household income was below 185% of the poverty line. Families in home-based care were recoded as eligible if they appeared income eligible (they were receiving at least one other means-tested public benefit or their household income was below 185% of the poverty line), and it could be assumed that their care was subsidized (based on provider report of whether the provider was regulated, affiliated with a family child care network, and accepted subsidies). Of the 750 subsidy eligible families with child care observations, approximately 200 received subsidies, a take up rate of 43%.

Type of care. To classify child care type we created a three level variable, such that the child was enrolled in FFN, FCC, or center-based care. In the FFCWS, provider-reported care type was used. In the ECLS-B, first parent report determined whether a child was in center or home-based care. Then, for children whose parents reported home-based care, provider report of the number of children cared for and whether or not that care took place in the provider’s (versus the child’s) home was used to determine whether the home-based care was FCC or FFN. Specifically, following prior studies (Rigby, Ryan, & Brooks-Gunn, 2007), if two or fewer

children were watched, the provider was coded as FFN rather than FCC; this tended to co-occur with care taking place in the provider's home.

Household structure. To determine household structure in both datasets, we relied on mothers' self-reported household membership. Mothers living with the child's biological father only were coded as a biological father family, mothers living with any kin over 18 were coded as an extended family, and mothers living alone or with a new partner were coded as alone. Mothers living with a new partner were included in the alone group because the nature of a new partner's relationship to and responsibilities for the focal child is likely different than that of a biological father. A comparison of demographic characteristics also revealed that mothers living with new partners were more similar to those living alone in terms of age, racial/ethnic background, and child care choices than to mothers living with the biological father.

Covariates. In all multivariate models we entered a rich set of covariates that influence child care choices and subsidy receipt. Specifically, we included characteristics known to predict subsidy receipt among subsidy-eligible families and mothers' child care choices (Johnson, Martin, & Brooks-Gunn, 2011). These controls were: maternal education (as dummy variables indicating less than high school, GED or high school diploma, or some college, with college degree or more as the reference), household income (as income-to-needs ratio), maternal race (dummy variables for African American, Hispanic, Asian, and other race with White as the reference), maternal immigrant status, and mother's work status (employed part time, unemployed, and enrolled in school or a job training program, with full time employment as the reference).

Additionally, within the FFCWS analyses, we included city-level control variables to control for state variation in subsidy eligibility requirements, labor market conditions, and policy

context. We included dummies for the largest cities in the dataset, Baltimore, Detroit, Newark, Philadelphia, Richmond, Corpus Christi, Indianapolis, and Milwaukee.

Time invariant covariates such as age at childbirth and immigrant status were collected during baseline interviews in the Fragile Families data, and at the first interview for the ECLS-B data. Data on time variant characteristics such as household structure, income to needs, and employment were drawn from the earliest interview prior to entering the child care arrangement to insure that subsidy receipt did not alter the characteristics. Thus, within the ECLS-B, all data were taken from the first interview at 9 months, whereas within the FFCWS, information on household income, educational attainment, and maternal employment, was obtained from the parent interview conducted just before the child entered the observed child care setting. Note, in most cases the time point used preceded the three-year interview and so did not reflect the same information used to determine subsidy eligible status.

Analytic Strategy

In order to model care choices across three unordered types, multinomial logistic regression was used. This strategy allowed us to estimate simultaneously the choice between center and FFN, and center and FCC. Using the FFCWS data, we ran three models. First, we estimated the main effects of subsidy and household structure on care choices, holding constant all covariates. Second, we added interactions between subsidy use and household structure to explore whether mothers in different household structures used their child care subsidies differently. Finally, we included city level covariates to account for the impact of different policy and market environments. The FFCWS weights were not used in analyses because not all of the CCS cities were among those included in the FFCWS national sample for which weights are available.

Using the ECLS-B data we replicated the first two models. No model included state covariates because state level controls are not analogous to the city level controls in the FFCWS. Specifically, controlling for city in the FFCWS addresses both state policy context and the local child care market. Without city level data, this analysis was not possible in the ECLS-B and was thus omitted. We applied NCES replicate weights W22J1-W22J90, which allowed us to produce nationally representative estimates.

Results

Descriptive Statistics

In general, the CCS-FFCWS sample is more socioeconomically disadvantaged than the ECLS-B sample, perhaps because the FFCWS is exclusively urban and oversamples non-marital births. A greater proportion of mothers gave birth as teens, 23% versus 20%, respectively; fewer have completed high school, 32% versus 24% or completed college, 3% versus 6%, than those in the ECLS-B. The FFCWS contains more mothers who work full time, 44% versus 37%, but also more mothers who are unemployed, 31% versus 15%. The income-to-needs ratio further displays this difference, as mean for the FFCWS is about 0.8 lower. Overall, however, both samples are disadvantaged relative to national norms, which is expected of subsidy eligible samples.

The datasets contain different proportions of household structures. In the FFCWS, 41.5% of mothers lived in extended family households, whereas 35% of the ECLS-B families lived in this structure. Conversely, in the ECLS-B, 40% lived in biological father households, whereas in the FFCWS, 29% lived with only their child's biological father. Finally, the FFCWS sample is also predominantly African American; nearly 70% of the sample is Black in the FFCWS as opposed to 34% of the ECLS-B sample. These differences reflect the urbanicity of the FFCWS

sample and its overrepresentation of nonmarital births relative to the nationally representative ECLS-B.

Bivariate Results

Table 1 displays patterns of subsidy use, child care choices, and demographic characteristics by household structure and sample. As hypothesized, in both samples rates of subsidy take up are highest for mothers living alone, 51% and 56% for the FFCWS and ECLS-B respectively. Rates were not lowest, however, for mothers living with extended family as expected, but rather were lowest for mothers living with their child's biological father, 37% and 33% respectively, in both samples. Finally, in the FFCWS, mothers living with extended family have a lower income-to-needs ratio than mothers in two parent families, whereas in the ECLS-B this pattern is reversed.

Table 2 displays the proportion of mothers choosing different types of child-care as a function of subsidy use and household structure. By breaking out child care choices in this way, we can observe descriptively how mothers in different household structure may use subsidies in different ways. In the FFCWS, mothers not receiving subsidies who are living with their child's biological father or with extended family use FFN care most often, with 60% using this care type. However, unsubsidized mothers living alone or with a new partner used FFN care less often (45%), and center-based care more often (50%). On average, subsidy receipt was related to more formal care choices across all household structures; among subsidy recipients center-based care is the most frequently used; for those living with their child's biological father just 10% are in FFN care, and for those living alone or with a new partner, 13%. This pattern is seen within the extended family household structure as well, but to a lesser extent; although nearly 50% use

center-based care, 31% of subsidy receiving mothers in this household structure still choose FFN care.

In the ECLS-B, as in the FFCWS, mothers in all household structures not receiving subsidies chose FFN care most often, 50%, 59%, and 46% for biological father, extended family, and alone households, respectively. Indeed, relative to the FFCWS, unsubsidized ECLS-B mothers use extremely low levels of center-based care; just 16%, 9%, and 14% of biological father, extended family, and alone households respectively used this type of care. Again, subsidy receipt was related to more formal care choices across all household structures; among subsidy recipients center-based care is most frequently used, and for all subgroups, FFN care becomes the least frequent care choice. However, whereas in the FFCWS mothers in extended family households use subsidies on FFN care at a higher rate than other mothers, in the ECLS-B these mothers use comparably low levels of FFN care (and comparably high levels of center based care) when subsidized. Finally, the ECLS-B families use far more FCC than their FFCWS counterparts. Over 30% of unsubsidized mothers in each household structure used FCC, whereas less than 10% of unsubsidized mothers used FCC in the FFCWS.

Multinomial Logistic Regression Models

Table 3 displays results from the multinomial logistic regression models for the FFCWS sample. Model 1 examined the main effect of household structure on child care choices, controlling for a rich set of covariates. Panel one displays estimates for the comparison between center-based and FFN care and panel 2 displays estimates for the comparison between center-based and FCC. Estimates are displayed as relative risk ratios (RRRs). The RRR for subsidy indicates the ratio of the probability of choosing FFN care relative to choosing center care for subsidy recipients versus non-recipients. Holding constant family characteristics, subsidy

recipients were approximately 80 percent less likely to choose FFN care over center-based care relative to non-recipients. Conversely, the estimated RRR for the extended family subgroup indicates that relative to those in the biological father household structure, mothers living with extended family were about 80% more likely to choose FFN care over center-based care, relative to mothers living with biological father.

In Model 2, interactions between subsidy receipt and household structure were entered into the equation to test how subsidy use differed by household structure. Given that the main effects of subsidy and living with extended family predicted use of FFN care in opposite directions, we were particularly interested in how mothers living in this household structure use their subsidies. The RRR for the interaction between subsidy receipt and extended family household structure indicates that mothers living with kin are nearly five times more likely to use their subsidy to purchase FFN versus center-based care than mothers in biological father households. In Model 3, city covariates were added to address the importance of different policy climates in child care choices. Results were substantively unchanged with the addition of these covariates.

To ease interpretation of the interaction between subsidy receipt and extended family households, we computed predicted probabilities of choosing each care type by subsidy receipt and household structure, setting all covariates to their means. Figure 1 displays the predicted probabilities for the FFCWS using estimates from Model 2. For mothers living with their child's biological father, subsidies increased the probability of using a center from 0.34 to 0.72, and decreased the probability of using FFN care from 0.59 to 0.09. Similarly, for mothers living alone, subsidies increased the probability of using center based care from 0.52 to 0.79, and decreased the likelihood of using FFN care from 0.45 to 0.12. The magnitude of these changes

were much different for mothers living with extended family; subsidies did make these mothers more likely to use centers (from 0.32 to 0.49) and less likely to use FFN (from 0.62 to 0.32), but much less so than for mothers either of the other two household structures.

Panel 2 reports the RRRs for the comparison between center-based care and FCC. These models resulted in no statistically significant associations; however, the proportion of families using FCC was quite small, reducing statistical power to detect associations.

Table 4 displays the results from the multinomial logistic regression models for the ECLS-B sample. Model 1 tests for the main effect of household structure on child care choice while controlling for mother and child level covariates. Again, panel one gives the estimates for the comparison between center-based care and FFN care. Holding constant family characteristics, subsidy recipients were 97% less likely to choose FFN care than center-based care relative to non-recipients. Conversely, the RRR for the extended family subgroup indicates that mothers living with extended family were 78% more likely to choose FFN than center based care relative to those in the biological father households. However, this association was significant only at the trend level.

In Model 2, as in the FFCWS analyses, interactions were entered into the model to address how subsidy use may differ by household structure. Unlike in the FFCWS analyses, the RRR for the interaction between subsidy receipt and extended family household structure indicates that mothers in extended family household structures were *less* likely to use their subsidies to purchase FFN versus center-based care relative to mothers in biological father households. This estimate was also significant only at the trend level.

Figure 2 displays predicted probabilities of choosing each care type by subsidy receipt and household structure in the ECLS-B, using estimates from Model 2 and setting all covariates

to their means. For mothers living with their child's biological father, subsidies increased the probability of using a center from 0.14 to 0.64, and decreased the probability of using FFN care from 0.41 to 0.08. Similarly for mothers living alone, subsidies increased the likelihood of using center-based care from 0.15 to 0.63. For mothers living with extended family, this change was the largest. Subsidies increased the probability of using center based care from 0.07 to 0.67, and decreased the probability of using FFN care from 0.58 to 0.07.

Panel 2 reports the RRRs for the comparison between center-based and FCC. In both Model 1 and Model 2 the RRR for subsidy was statistically significant and below 1. These coefficients indicate that families receiving subsidies were far less likely to choose FCC as opposed to center based care relative to non recipients, further suggesting that subsidies move families into more formal care arrangements. No significant interaction between household structure and subsidy receipt emerged in these models, indicating that mothers are neither more nor less likely to use their subsidies for FCC (versus center care) if they live in different household types.

Discussion

The present study explored whether the impact of subsidy use on child care choices is moderated by mothers' household structure. We used two subsidy eligible samples, one drawn from the exclusively urban FFCWS and the other drawn from the nationally representative ECLS-B. Using multinomial logistic regression models and controlling for a rich set of covariates, we found that subsidy receipt consistently predicted the use of more formal care arrangements, regardless of household structure, a pattern in line with previous research (Crosby, Gennetian, & Huston, 2005; Johnson, Ryan, & Brooks-Gunn, 2012; Ryan et al., 2011; Tekin, 2005; Weinraub, Shaly, Harmon, & Tran, 2005; Wolfe & Scrivner, 2004). However, household

structure was also an important predictor of care choice. As we hypothesized, in both datasets, mothers in extended family household structures were more likely to choose FFN over center care than mothers in other household types, suggesting that that cost, convenience, and confidence in your provider can strongly influence child care choices (e.g. Raikes et al., 2012). In line with our hypotheses, we also found that household structure was an important moderator of the association between subsidy receipt and care selection, however, the direction of that effect differed by sample. Below we discuss the possible reasons for and implications of these divergent findings.

Differences Between the FFCWS and ECLS-B Findings

For mothers living with extended family in the ECLS-B, receiving a subsidy increased the likelihood of choosing center-based over FFN care relative to mothers living with their child's biological father. Conversely, in the FFCWS, these mothers were less likely to use their subsidies to purchase center-based over FFN care than mothers living with their child's father. These discrepant interactions may have emerged in part because of demographic differences between the FFCWS and ECLS-B samples. Though both samples consisted of subsidy eligible mothers, those in the ECLS-B were more advantaged socioeconomically, a difference that persisted for mothers in the extended family households. More advantaged mothers choose center care more often than less advantaged mothers (Liang, Fuller, & Singer, 2000). This pattern suggests that mothers in the ECLS-B living with extended family would be more likely to use the increased purchasing power of a subsidy to pay for center care than mothers living with extended family in the FFCWS.

Mothers at different levels of advantage may prioritize features of care differently for several reasons. First, more advantaged mothers may prefer centers because they are more likely

to value child care as an educational experience, and mothers who see child care this way are more likely to choose centers (Burstein & Layzer, 2007; Liang, Fuller, & Singer, 2000). By contrast more disadvantaged mothers may prefer FFN because they define quality in less educational terms. For example, while low income mothers report care “quality” as their greatest concern, they tend to equate quality with warmth, reliability, and experience with children—characteristics attributed to FFN caregivers (Phillips, 1995).

Second, the lower cost and higher convenience of FFN care may be more important to mothers in highly disadvantaged settings. These mothers may be more likely to move in with extended family in order to use low or no cost, in-home care and use subsidies only to supplement the household income. These concerns and the allure of supplemental income may not be as strong for more advantaged mothers. Rather, more advantaged mothers may be more able to afford centers, and may be more likely to work the standard hours that make center-based care convenient.

Third, high quality centers may have been unavailable or less available for the FFCWS mothers than for the ECLS-B mothers. Previous research suggests that few high-quality centers exist in low-income urban neighborhoods (Galinsky, Howes, Kontos, & Shinn, 1994; Gordon & Chase-Lansdale, 2001; Loeb et al., 2004; Phillips et al., 1994). For these families, what is available in the neighborhood may be a more important determinant of care choice than family level factors (Fuller, Kagan, Loeb, & Chang, 2004). For example, considerable research suggests that low-income mothers worry about their child’s health and safety in outside child care settings, and these concerns may partially explain the use of FFN care in more urban, disadvantaged settings (Brayfield, Deich, & Hofferth, 1993; Lowe & Weisner, 2004; Phillips,

1995). It is possible that low-income mothers in these settings are more likely to move in with extended family in order to use FFN care than low-income mothers more generally.

Some support for differential availability of child care comes from the FCC data in the FFCWS. In the FFCWS data, just 5.62% of unsubsidized mothers and 16.92% of subsidized mothers chose a FCC provider. The small numbers of mothers choosing this arrangement may reflect a dearth of available FCC homes, a potentially important avenue for moving children into more formal care arrangements. If FCC was not available in the urban FFCWS environments, but was available to ECLS-B mothers, mothers in these samples faced fundamentally different sets of choices.

Limitations

Before discussing the policy implications of our study, we must first consider its limitations. Most importantly, our analyses do not model mothers' decisions to apply for child care subsidies or select household structures, thus the reported associations between household structure, subsidy receipt and type of care may not identify causal links. The interactions between household structure and subsidy receipt may reflect the impact of household structure on mothers who decide to apply for a subsidy and *then* with the increased purchasing power of a subsidy make their child care decision. However, it may also reflect the impact of household structure on a priori child care decisions that drive subsidy application and subsequent use. In either scenario, household structure is likely an important factor in child care choices. But, from a policy perspective the temporal ordering dictates how and if intervention is possible. If mothers are choosing to live with extended family because of a priori preferences for FFN care, there is little the subsidy administration can do to promote the use of formal care outside of altering their preferences through education. On the other hand, if mothers living with extended family make

child care choices *after* choosing to live with family, intervention may be possible in ways we describe below. The present analysis cannot tease apart these potential causal chains.

Even if we could be sure about the sequence of these choices, by using logistic regression to estimate causal effects we assume that all family characteristics driving selection into subsidy use and care arrangements are observable and included in our analysis. Our method only takes into account variables entered into the model, so our results may be biased if any confounding covariates were excluded. However, based on our review of the literature, we feel confident that we included a comprehensive set of observable covariates.

Policy Implications and Conclusions

Despite these limitations, this study revealed unique patterns of subsidy use by household structure that could inform child care subsidy policy and administration. Results across datasets suggest that household structure influences how mothers use child care subsidies, albeit in complex ways contingent on geographic or demographic context. In general, mothers living with extended family are choosing the lowest quality care for their children, and moreover, in the most urban, disadvantaged environments, child care subsidies may not help these mothers get more for their children from child care. Nationally, however, mothers living with extended family do seem to be able to use CCDF subsidies to purchase higher quality child care than they would have otherwise.

If mothers who live with extended family use their subsidies for FFN care more often in urban, disadvantaged contexts because of cost and convenience, subsidy administrators could make it easier for these mothers to choose out of home care by expanding subsidy generosity. Eliminating the co-payment, for example, may influence the decision of many of these mothers.

This interpretation implies that mothers in the more disadvantaged, urban context of the FFCWS are less able to afford center care, even with a subsidy, than mothers nationwide.

It is also possible, however, that mothers in the more disadvantaged, urban context of the FFCWS face a much more restricted child care market, one that is either more expensive, lower in quality, or both. To determine whether these market forces shape the association between household structure and subsidy use, future research needs to explore the quality and affordability of the child care supply in recipients' communities. If the supply of high quality center-based or family child care is limited in a neighborhood or city, or the cost exceeds the value of a subsidy, the subsidy system should explore approaches to enhancing and insuring access to high quality care and facilitating the growth of high quality child care in recipients' communities.

The CCDF has a unique ability to support low-income children both economically and developmentally. In order to do so, however, more research is needed to understand both the housing and child care the options mothers face. Although our findings cannot illuminate mothers' decision-making processes, they suggest that mothers' household structure is an important avenue for future policy research.

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Table 1
Descriptive Statistics by Household Structure and Sample

	FFCWS			ECLS-B		
	Bio. Dad	Ext. Fam.	Alone	Bio. Dad	Ext. Fam.	Alone
Proportion HH Struct	29.44	41.56	29.00	38.83	35.98	25.19
Subsidy Take Up	36.76	40.10	50.75	32.67	42.21	56.16
Center	44.85	39.58	63.43	32.44	29.88	44.52
FFN	42.65	49.48	29.10	36.00	40.91	25.69
FCC	12.50	10.49	7.46	31.55	29.33	29.79
Race						
White	16.18	5.21	8.21	43.78	24.13	25.00
Black	58.82	69.27	79.85	20.15	35.12	52.73
Hispanic	22.79	22.40	11.19	20.40	23.06	12.11
Other	2.21	3.13	0.75	15.67	17.69	10.16
Born in US	91.28	94.79	98.51	82.29	83.58	95.50
Mother <20 at Birth	13.24	34.90	14.18	10.07	36.10	14.88
Education						
Less than HS	33.82	34.38	28.36	16.22	35.34	21.38
HS/GED	32.35	41.15	41.79	39.11	38.46	43.79
Some College	27.21	23.44	26.87	35.44	22.84	30.69
Completed College	6.62	1.04	2.99	8.22	3.37	4.14
Employment						
Full Time	50.00	33.85	53.73	39.56	30.46	39.38
Part Time	16.91	20.31	15.67	25.11	19.18	21.23
In School/Training	3.68	9.38	6.72	18.89	34.53	29.45
Unemployed	29.41	36.46	23.88	16.44	15.59	9.93
Income-Needs Ratio	1.70	1.24	0.91	1.43	1.66	0.84
Child's Age (months)	35.43	35.50	35.71	24.51	24.33	24.58

Table 2
Child Care Choices by Family Structure and Subsidy Use

Table 2a. Fragile Families Data

	Bio. Dad		Ext. Fam.		Alone/Partner		
	no subs n=86	subsidy n=50	no subs n=115	subsidy n=77	no subs n=66	subsidy n=68	
Subsidy Take Up		36.76		40.10		50.75	+
Center	31.40	68.00	33.04	49.35	50.00	76.47	***
FFN	61.63	10.00	61.74	31.12	45.45	13.24	***
FCC	6.98	22.00	5.22	19.84	4.55	10.29	**

Table 2b. ECLS-B Data

	Bio. Dad		Ext. Fam.		Alone/Partner		
	no subs n=250	subsidy n=150	no subs n=200	subsidy n=150	no subs n=100	subsidy n=150	
Subsidy Take Up		33.92		42.86		56.57	**
Center	16.41	65.93	8.65	61.94	13.76	69.01	**
FFN	49.81	7.41	59.13	11.54	45.87	9.15	**
FCC	33.84	26.67	32.21	26.92	40.37	21.83	

Note. + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Source: ECLS-B 9 month Kindergarten Restricted Use Data File; *N*s rounded to nearest 50 per NCES data security require

SUBSIDIES AND HOUSEHOLD STRUCTURE

Table 3
Multinomial Logistic Regression Models Predicting Child Care Choices: Fragile Families Data

Center vs. Family, Friend, and Neighbor Care						
	Model 1		Model 2		Model 3	
	RRR	SE	RRR	SE	RRR	SE
Subsidy	0.19***	0.05	0.07***	0.04	0.05***	0.03
<i>HH Structure</i>						
Alone/Partner	0.62	0.19	0.52+	0.19	0.46*	0.18
Extended Fam	1.80*	0.52	1.14	0.39	1.18	0.44
Bio Dad (omitted)	--	--	--	--	--	--
<i>Interactions</i>						
Alone/Partner*Subs	--	--	2.52	1.82	2.66	2.00
Extended Fam*Subs	--	--	4.88*	3.22	4.52*	3.10
Center vs. Family Child Care						
	Model 1		Model 2		Model 3	
	RRR	SE	RRR	SE	RRR	SE
Subsidy	1.70	0.61	1.32	0.79	0.82	0.51
<i>HH Structure</i>						
Alone/Partner	0.40+	0.19	0.39	0.31	0.34	0.27
Extended Fam	1.16	0.48	0.87	0.57	0.85	0.51
Bio Dad (omitted)	--	--	--	--	--	--
<i>Interactions</i>						
Alone/Partner*Subs	--	--	1.10	1.05	1.24	1.21
Extended Fam*Subs	--	--	1.75	1.43	1.77	1.41
Log Likelihood		-367.35		-364.13		-339.07
X ²		145.25		151.70		201.94
Pseudo R ²		0.165		0.17		0.21

Note. N= 462. Covariates entered in model but not shown: race, education, employment or enrollment in school/vocational needs ratio, US citizenship by birth, mother's age, child's age. In model three, city fixed effects were included.

+ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

SUBSIDIES AND HOUSEHOLD STRUCTURE

Table 4
 Weighted Logistic Regression Models Predicting Child Care Choices: ECLS-B Data

Center vs. Family Friend and Neighbor Care				
	Model 1		Model 2	
	RRR	SE	RRR	SE
Subsidy	0.03***	0.01	.040***	0.02
<i>HH Structure</i>				
Alone/Partner	1.39	0.50	1.04	0.42
Extended Fam	1.78+	0.52	3.12*	1.51
Bio Dad (omitted)	--	--	--	--
<i>Interactions</i>				
Alone/Partner*Subs	--	--	1.91	1.41
Extended Fam*Subs	--	--	0.24+	0.19
Center vs. Family Child Care				
	Model 1		Model 2	
	RRR	SE	RRR	SE
Subsidy	0.11***	0.03	0.13***	0.05
<i>HH Structure</i>				
Alone/Partner	0.90	0.30	0.83	0.39
Extended Fam	1.03	0.30	1.67	0.78
Bio Dad (omitted)	--	--	--	--
<i>Interactions</i>				
Alone/Partner*Subs	--	--	0.95	0.60
Extended Fam*Subs	--	--	0.53	0.32

Note. N= 1000. Source: ECLS-B 9-month-Kindergarten Restricted Use Data File. Ns rounded to nearest 50 per NCES data Standard errors are jackknife standard errors. All estimates are weighted by replicate weights WK45T1-WK45T90. Covariates entered in model but not shown: race, education, employment or enrollment in school/vocational training, incor citizenship by birth, mother's age, child's age. + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

SUBSIDIES AND HOUSEHOLD STRUCTURE

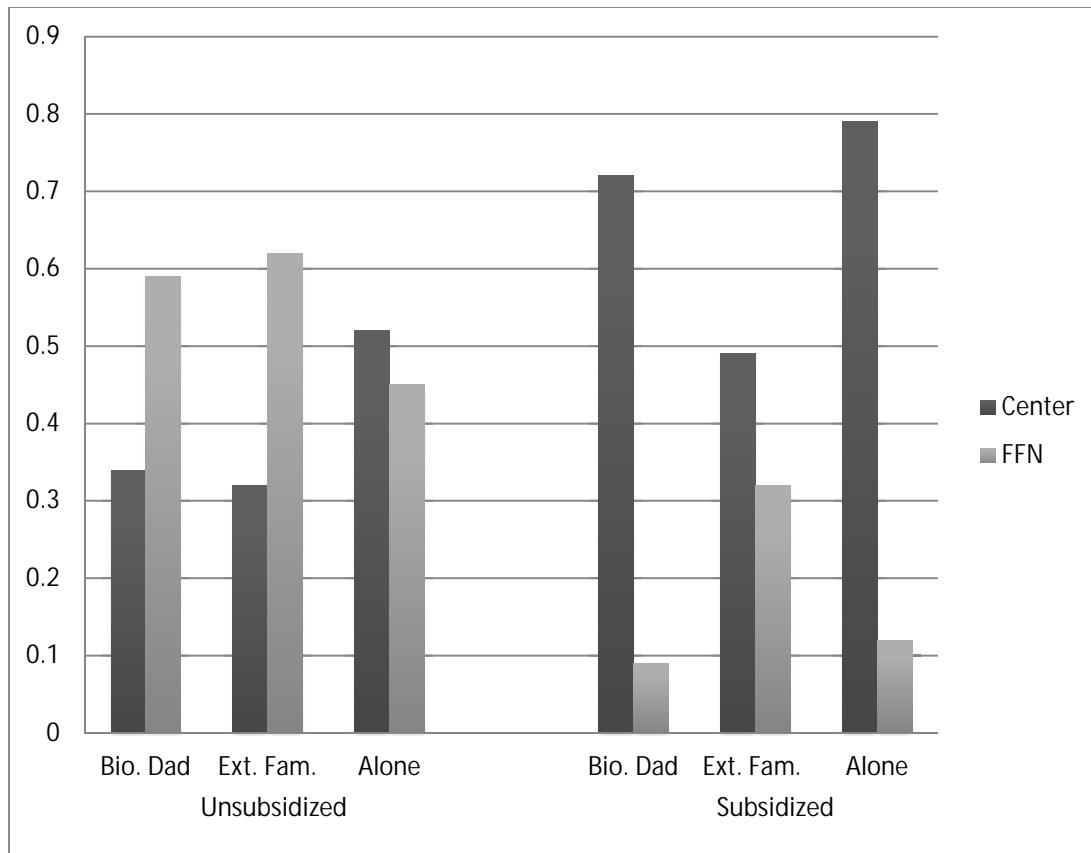


Figure 1. FFCWS Predicted Probabilities: Care Type by Household Structure and Subsidy Receipt

SUBSIDIES AND HOUSEHOLD STRUCTURE

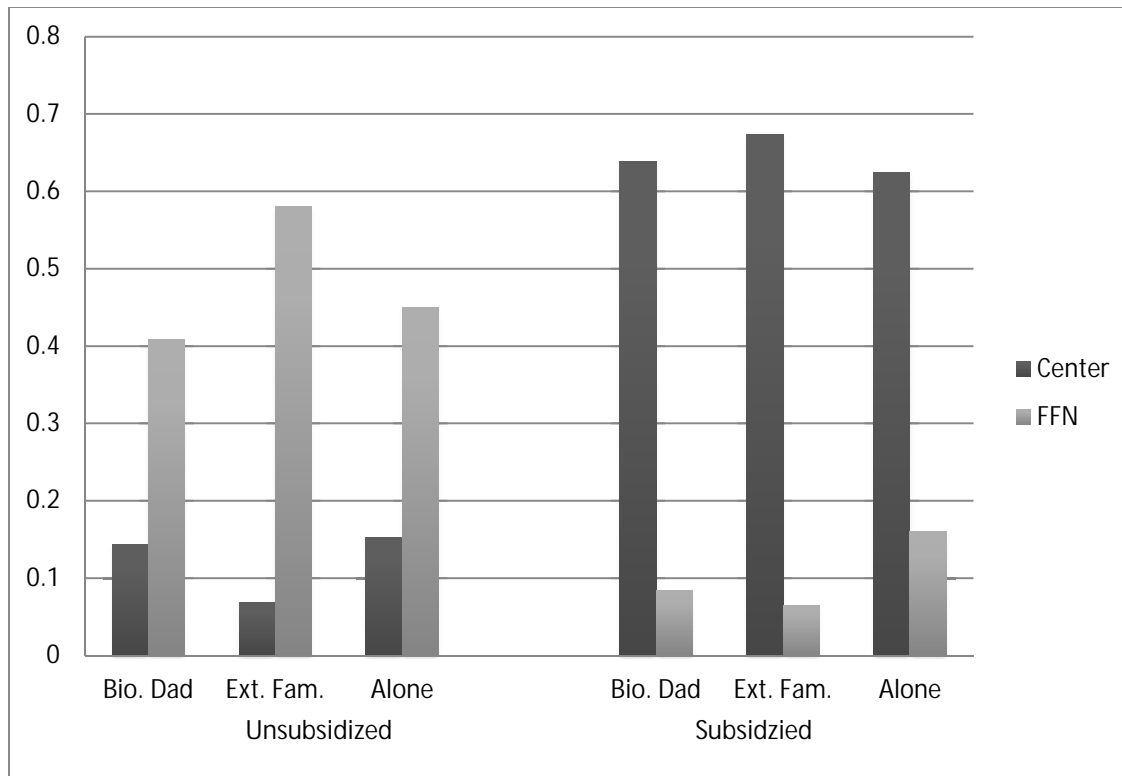


Figure 2. ECLS-B Predicted Probabilities: Care Type by Household Structure and Subsidy Receipt