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Maternal Employment, Community Contexts, and the Child-Care Arrangements of Diverse Groups

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Abstract

Integrating family and child data from the Early Childhood Longitudinal Study-Birth Cohort with contextual data from the Census, this study examined associations among maternal employment, aspects of communities related to child care supply and demand, and the early care and education arrangements of 4-year-olds in Mexican-origin, black, and white families. Children with employed mothers were more likely to be in informal care arrangements than in early childhood education, regardless of racial/ethnic background. For children in Mexican-origin families, selection into informal care over early childhood education was more likely in zip codes with greater demand for care as measured by higher female employment. Utilization of parent care versus early childhood education was also more likely for children in Mexican-origin and black families in zip codes with higher female employment. Constraints associated with maternal employment thus hindered children from enrolling in early childhood education, and community contexts posed challenges for some groups.

Keywords

Early childhood; child care arrangements; maternal employment; community; immigration/migrant families; race

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The link between maternal employment and child wellbeing is often discussed in terms of parenting and family time use (Bianchi, 2000; Brooks-Gunn, Han, & Waldfogel, 2010), but mothers' participation in the paid labor force also has implications for their children's early care arrangements, which, in turn, influence children's school readiness (Clarke-Stewart & Allhusen, 2005). Families with employed mothers face a potential tradeoff between concerns over accessibility and affordability on the one hand and learning opportunities for children on the other. Indeed, families *need* child care when mothers work for pay, but they must meet this need while balancing issues of cost and scheduling that could limit children's exposure to early childhood education, the sector of the early child care market that is most closely associated with increased school readiness. Child care contexts within communities

also influence families' ability to utilize early childhood education, with some communities being better situated to support diverse types of families (Coley, Votruba-Drzal, Collins, & Miller, 2014; Crosnoe, Purtell, Davis-Kean, Ansari, & Benner, 2016). Consequently, studying the links between mothers' employment and families' use of informal versus formal child care in different kinds of communities can inform our understanding of how labor and child care and education markets work with and against each other to serve families (Meyers & Jordan, 2006).

In this spirit, this study examined the links between U.S. mothers' employment and their children's experiences in early child care and education across community contexts defined by the female labor force participation rate within zip codes (a marker of child care demand) and number of child care centers within counties (a marker of child care supply). The expectation was that maternal employment would increase the odds of children being in non-parental care while decreasing their odds of being in early childhood education, especially in communities with higher female employment rates and lower numbers of child care centers.

Notably, this study also compared these hypothesized associations across three key groups with different socioeconomic circumstances, racial/ethnic identities, and immigration histories: Mexican-origin families, non-Latino black families, and non-Latino white families. These three groups provide theoretically strong contrasts, as they have distinct background characteristics that could influence the associations among maternal employment, community context, and early care and education. For example, black families are a socioeconomically disadvantaged group subject to discrimination based on skin color, and Mexican-origin families are a quickly growing group with high levels of socioeconomic disadvantage and a more prominent recent history of associated discrimination. Within the Mexican-origin population, immigrant families also face language barriers and have less familiarity with U.S. education than their counterparts headed by U.S.-born parents (Kao & Thompson, 2003), which may be reflected in their low levels of preschool enrollment (Crosnoe 2007; Fuller 2007; Karoly & Gonzalez 2011). We expected, therefore, that the links among maternal employment, community contexts, and early care and education would be stronger for Mexican-origin and black families than for white families.

These hypotheses were tested with nationally representative data on U.S. children in the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B). By examining variation in the role of maternal employment in the selection of children into early care and education, this study can shed light on the family dynamics that shape parents' arrangements for their children's early childhood ecologies. By situating families' circumstances in the larger child care contexts of their communities, it can also illuminate potential vulnerabilities in efforts to promote early childhood education enrollment in underrepresented groups. As such, this work has the potential to contribute to multiple literatures on family studies, population research, and education.

Maternal Employment and Early Care and Education

The accommodations framework (Meyers & Jordan, 2006) and its applications (Coley et al., 2014; Crosnoe et al., 2016a) focus on how parents meet varying needs for child care within

different social, cultural, and contextual circumstances. Under this framework, children's early care and education arrangements reflect both active and passive decision-making as parents attempt to reconcile their own needs for child care with broader social and cultural forces that influence their perceptions of what is good for their children and the practical realities of what is available and accessible.

Maternal employment is a prominent factor in the accommodations framework. The clearest reading of this framework is that paid employment should increase a mothers' need for child care. Even though the number of stay-at-home fathers is on the rise (Livingston, 2014), mothers' participation in the paid labor force most often means that their children will spend at least some time in non-parental care. Options include informal care, usually by relatives or non-relatives in or outside of the home, and formal care options, such as center-based care, preschool, and Head Start, which are often referred to as early childhood education. Relative to informal care options, early childhood education programs are more structured and have academic components and curricula, such as regularly scheduled reading and math activities (Bassok et al., 2016). Early childhood education, therefore, is one form of early child care that can promote school readiness—the level of preparation that children have to succeed cognitively, socially, and emotionally in K-12 schooling at the onset of kindergarten (Duncan & Magnuson, 2013; Magnuson & Waldfogel, 2005).

Affordability, accessibility, convenience, and flexibility are crucial components in how mothers working for pay use child care (Pungello & Kurtz-Costes, 1999), and these considerations may steer families with employed mothers away from using early childhood education as a form of early child care. Formal care options such as preschool tend to be significantly more expensive than informal options, and also have more limited hours (e.g., many preschools are only part-time) and inflexible schedules (e.g., a fixed time for drop-off and pick-up). These barriers may be hard for employed mothers to overcome, as they do not typically have control over their own work schedules and need to maintain some cost control in child care expenses (Berger & Black, 1992; Clarke-Stewart & Allhusen, 2005; Duncan & Magnuson, 2013). Indeed, families with employed mothers place greater importance on practical child care considerations (reliability, location, available time) over learning characteristics, and families with a practicality orientation are less likely to choose center-based care (Kim & Fram, 2009). We anticipated that exposure to maternal employment would be positively associated with non-parental care, but with higher odds of being in informal versus formal care.

Maternal Employment and Early Care and Education across Diverse Populations

Notably, the accommodations framework connects the proximate circumstances of families' lives to broader social and cultural forces, suggesting that the factors driving child care behaviors in one segment of the population might not be the same in another. Indeed, the linkage between mothers' employment and their use of early child care and education is unlikely to be the same across diverse racial/ethnic groups that differ in orientations to,

histories of, and constraints on both maternal employment and child care (Crosnoe, Ansari, Purtell, & Wu, 2016).

For example, African American and Mexican-origin families have lower levels of incomes and educational attainment than white families. Middle- and high-income families have greater power to select child care arrangements that meet their needs, such as affording early childhood education programs and/or arranging secondary care to supplement such programs when scheduling is difficult. Consequently, disparities in income across racial/ethnic groups may be manifested in which groups tend to use early child care education (vs. informal options) the most (see Coley et al., 2014). Similarly, more educated mothers tend to prioritize benefits for children's school readiness when navigating the early child care market and better know how to access these benefits. Groups with lower rates of maternal education, therefore, often have lower levels of early childhood education enrollment than those with higher rates of education (see Augustine, Cavanagh, & Crosnoe, 2009).

Families of different racial/ethnic and immigration backgrounds may also hold varying child care preferences, which could influence the association between maternal employment and early care and education. Some studies find that black and Latino/a families are more likely than whites to place greater importance on both practical and learning-based options (Kim & Fram, 2009), while others fail to find major racial/ethnic differences in preferences (Shlay, 2010). One study, however, shows that cost and location were slightly more important to Latino/a families with employed mothers than those with mothers not employed for pay, and Latino/a families with employed mothers with a preference for cost and location were more likely to utilize informal care (Yesil-Dagli, 2011). Mexican-origin and black families with employed mothers also view utilization of relative care as appropriate, whereas whites are more likely to view relative care as burdensome and may only rely on relatives for backup care (Uttal, 1999).

Mexican-origin families also face a specific set of constraints related to the processes of migration and incorporation that could influence the association between maternal employment and early care and education options. Familiarity with the peculiarities of the U.S. child care market and its connections with the U.S. educational system can vary according to nativity, how long parents have lived in this country, and whether they accrued their education here; language barriers can make navigating the child care market difficult; and racial/ethnic-based discrimination—which can affect both immigrant and non-immigrant Mexican-origin families—plays a powerful role in segregating children within the early child care and education market just as it does in the formal K-12 system (Adair, 2015; Crosnoe et al., 2016b; Fuller et al., 2009; Genishi & Goodwin, 2008). We hypothesized, therefore, that the positive association between maternal employment and use of informal care versus early childhood education would be the strongest for children of Mexican origin, followed by children of black parents, and weakest for children of white parents.

Contextualizing Maternal Employment and Early Care and Education in Communities

In line with the accommodations framework, the ways in which parents with varying needs and preferences attempt to arrange early child care and education depend on the specific child care markets that they must navigate. Such markets are localized, as parents search for child care that they can reasonably get to everyday given home and work locations (Meyers & Jordan, 2006). Prior studies have found that community child care contexts can influence parent decision-making regarding care options in general (Coley et al., 2014; Pungello & Kurtz-Costes, 1999) and can moderate associations between maternal employment and care options (Gordon & Chase-Lansdale, 2001).

Following this logic, this study focused on two community-level factors related to child care supply and demand. First, female employment rates are highly correlated with maternal employment rates, thereby representing aggregate demand for non-parental child care within communities. When paired with a control for child care supply (discussed below), the female employment rate also gauges competition for child care within a community. Such aggregate demand and competition, in turn, can challenge parents' effectiveness at securing formal child care arrangements. Second, the number of formal center-based child care options represents one measure of the aggregate supply of early childhood education options within communities. Such aggregate supply can facilitate parents' ability to secure educationally-focused child care.

The hypothesis, therefore, is that employed mothers would be even more likely to choose informal care options over formal care options in communities with higher female employment rates, but they would be less likely to choose informal care options over formal options in communities with a higher supply of child care centers. We anticipated that the most disadvantaged families would have the hardest time overcoming the contextual constraints on arranging early care and education for their children. Given our logic that Mexican-origin families will be the most disadvantaged in the early child care and education market (followed by families headed by black parents), the combination of maternal employment, high community demand for child care, and low community supply for early childhood education would be most negatively associated with children of Mexican-origin parents being enrolled in early childhood education, followed by children of blacks, and then children of whites.

Hypotheses

1. Exposure to maternal employment would be negatively associated with the use of parent care but positively associated with use of informal types of care (relative, non-relative) versus early childhood education (preschool, center care, Head Start).
2. Maternal employment would be more strongly (and positively) associated with utilization of informal care over early childhood education in communities with higher female employment rates.

3. The positive association between maternal employment and use of informal care over early childhood education would be attenuated or would become negative in communities with a greater supply of child care centers.

4. These associations would be strongest for children in Mexican-origin families, followed by children in black families, and weakest for children in non-Latino white families.

Methods

Data and Sample

Hypothesis testing drew on the ECLS-B, which is a nationally representative sample of approximately 10,700 children born in the U.S. in 2001. Data collection occurred in several waves when children were aged 9 months, 2 years, and 4 years and then upon kindergarten entry (in 2006 or 2007) through direct child assessments and observations, birth certificate records, parent interviews, and child care and early care providers. The ECLS-B children were 4 years-old in 2005, making this dataset somewhat dated for understanding more recent child care patterns. Despite this shortcoming, the ECLS-B was ideal for understanding selection into early childhood care and education because it is one of the only nationally representative datasets that followed children and families *prospectively* from birth through kindergarten. The ECLS-B was also designed with the purpose of understanding transitions to non-parental care and education among families with young children (National Center for Education Statistics, 2017).

The analytical sample for this study initially included children who participated in the 9 month, 2 year, and 4 year waves with longitudinal sampling weighting to account for differential attrition across waves (n = 8,900; sample sizes are rounded to the nearest 50 to comply with restricted-use data regulations). The sample was further restricted to the three racial/ethnic groups of interest (n = 6,300), who were identified through birth certificates and parent reports as Mexican-origin (n= 1,050; n = 650 with at least one Mexican-born parent and n = 400 with U.S.-born parents), non-Latino white (n = 3,900), and non-Latino black (n = 1,350). The sample was further restricted to children who had valid zip codes in the 4 year wave that could be matched with a corresponding county. A small number of children (less than 100) in these racial/ethnic groups in the longitudinal sample had zip codes that could not be located within the United States, likely because they were living on military bases or in other areas outside of the country. The final sample included 6,250 cases.

Measures

Early Child Care and Education—Based on parent reports of their primary care arrangements when their children were 4 years-old (Wave 3 of the ECLS-B) and following conventions in the literature (NICHD Early Child Care Research Network 2005), we created a 3-category measure that captured any exposure to formal types of child care that were likely to involve educational components versus informal arrangements: 1) any exposure to early childhood education (e.g., preschool, center-based care, Head Start); 2) relative care only or non-relative care only in any location; 3) sole parent care. This categorization is

consistent with prior studies of early care and education that compare formal options such as center-based care or preschool to informal options such as parent or relative care (see Coley et al., 2014; Crosnoe, 2007; Crosnoe et al., 2016a; Turney & Kao, 2009; Yesil-Dagli, 2011). Approximately 22% of children in the analytic sample had multiple care arrangements, with the most common form of multiple care (19% of the sample) being some combination of Head Start or center care and relative or non-relative care. Children in formal care plus informal care spent a similar number of hours in early childhood education as children who were solely in formal care. For this reason, children with multiple forms of care including formal care were included in the early childhood education category. We also explored the possibility of creating a more complex typology of early care and education, such as by disaggregating relative and non-relative care and by taking location into account, but this typology included small cells sizes of Mexican-origin children for some categories.

Maternal Employment—A categorical variable was created to measure maternal employment at child age 4. A mother was considered employed if she was employed for pay outside of the household on a part-time or full-time basis (versus out of the labor force or unemployed but looking for paid work). We considered alternative measures of maternal employment that took part-time versus full-time employment status and non-standard schedules into account, but we decided against the use of these measures because of concerns over cell sizes for the Mexican-origin group.

Community Child Care Context—Child care context variables were measured at child age 4. Contextual measures were merged into the child's record based on zip code identifiers in the restricted-use ECLS-B dataset, with a zip code to county crosswalk to assign zip codes to counties. In cases where zip codes spanned more than one county, the zip code was assigned to the county where the majority of zip code residents resided. The female employment rate was measured by the percent of females employed in the child's zip code (at age 4, based on data from the 2000 decennial census). The total number of child care centers was measured at the county level using data for the year 2005 (when the child was 4 years-old) from the Census County Business Patterns. In the Census County Business Patterns, child care centers were identified using the 6-digit North American Industry Classification System (NAICS) code, "624410- Child Day Care Services." Ideally, the number of child care centers would be measured at the zip code level to assess the nearest options to a child's home, but the Census County Business Patterns data do not have 6-digit NAICS codes available at the zip code level. The number of child care centers in the county was divided by the total population of children in the county aged 5 and under (based on the 2000 decennial census) and then multiplied by 1,000. Consequently, this variable was the total number of child care centers per 1,000 children aged 5 and under in the county where the child was living in 2005 at age 4.

Race/Ethnicity—The three population groups of interest included children of Mexican origin, children of non-Latino/a blacks, and children of non-Latino/a whites. The racial/ethnic and national origin statuses of households were discerned based on reports of parental race/ethnicity and national origin group on children's birth certificates. Children were considered to be of Mexican origin if one or both parents was listed on the child's birth

certificate as Hispanic of Mexican origin. In a separate set of analyses, we estimated models with the Mexican-origin group split into immigrant (n = 650 with at least one foreign-born parent) and U.S.-born (n = 400) subgroups, based on parent reports of country of birth (inside or outside of the U.S.). Dividing the sample in this way, however, created problems with underpowered interactions. For example, there were very few Mexican immigrant children with mothers who were not employed who selected relative or non-relative care. In the results, we make note of interactions that were significant for Mexican-origin subgroups (by immigrant or U.S.-born household status) that merit further investigation.

Covariates—We measured several covariates that are implicated in the accommodations framework and its applications (Coley et al., 2014; Crosnoe et al., 2016a; Meyers & Jordan, 2006). Child and household characteristics included child gender, low birth weight status, mother's age at child's birth, household socioeconomic status at child age 2 (a standardized index that incorporated maternal and paternal educational attainment, parental income, and parental occupational prestige), father employment status at child age 2 (resident father employed versus not employed), household composition at child age 2 (non-resident father, total number of siblings, three or more adults in the household), living in an immigrant household (at least one parent was born outside of the U.S.), whether the child's parent migrated to the U.S. as a minor or an adult, language other than English spoken at home at child age 2, and mobility within or between counties between ages 2 and 4 years. When possible, variables were measured at child age 2 so that they preceded the process of selection into early care and education at age 4. Results are robust to the measurement of these variables at age 2 or age 4.

For preferences for child care options, the ECLS-B age 4 survey asked parents a series of questions regarding the importance of various child care characteristics. Using these variables, we created two indices of child care preferences. The first index gauged a preference for affordable and flexible care by combining the following four variables: 1) provides sick care; 2) close to home; 3) reasonable cost; 4) flexible hours. The second index measured a preference for a "familiar" caregiver: 1) caregiver of the same racial background; 2) caregiver you already knew; 3) affiliated with your religion. Both of these indices had a Cronbach's alpha of .61. The response scales were as follows: "1-Very important"; "2-Somewhat important", and; "3-Not too important." The indices were created by summing responses and dividing by the total number of items, then reverse coding so that higher values indicated greater importance on that preference.

Multivariate models also incorporated controls for contextual-level characteristics from the 2000 decennial census, including zip code percent Mexican-Latino/a, zip code percent foreign born, zip code capita income in 1999 (in $1,000s), zip code total population (logged), and county total population (logged).

Analytical Strategy

Multinomial logistic regression models were estimated to predict children's child care arrangements. The reference category was any exposure to formal child care options that were likely to involve early childhood education components, and the alternative categories

were relative care or non-relative care only, and parent care only. This multi-category outcome was regressed on maternal employment and covariates, race/ethnicity and maternal employment interactions, focal community-level variables and maternal employment interactions, focal community-level variables and race/ethnicity interactions, and then all two- and three-way interactions among maternal employment, community-level variables, and race/ethnicity. Appendix Table A1 lists cell sizes for two-way interactions, some of which were significant (see Table 4). These models were estimated in Stata 14.0 and incorporated person and stratification weights to account for the ECLS-B survey design, non-response, and differential attrition across waves. The weights take both the primary sampling unit and stratification identifier into account to adjust standard errors for the geographic non-independence of observations associated with the sampling design. All missing data in the analytical sample were estimated using the MI IMPUTE suite of commands with 10 multiply-imputed datasets. For the multivariate analyses, some continuous variables were centered at their means, including zip code percent female employment, zip code per capita income (in $1,000s), and mother's age at child's birth.

Because early childhood education opportunities and constraints (including child care subsidies, publicly funded pre-K, and child welfare policies) vary greatly across states, these models also employed state fixed effects. In order to deal with model estimation issues related to this state fixed effects specification, states that had 10 or fewer cases were dropped from the models using state fixed effects, which reduced the total sample size by fewer than 50 cases.

Results

An Overview of Mothers and Children in Different Groups and Communities

Table 1 displays the main sample characteristics. Over two-thirds of 4 year-olds had some exposure to formal early child education programs (preschool, center care, Head Start), with the next most prevalent category being parent care followed by relative and non-relative care. These patterns were likely driven by the highest overall enrollment in formal programs of whites, who made up the largest share of the sample (Crosnoe, 2007; Turney & Kao, 2009). Over half of children lived in households with a mother who was employed for pay at age 4. On average, the mean female employment rate in counties where children were living was 54.4%, and the mean number of child care centers was 3.92 centers per 1,000 young children.

These overall patterns varied noticeably, however, across diverse populations of children. Table 2 shows that over 70% of the children of black and white parents had some exposure to early childhood education, whereas just over 50% of the children of Mexican-origin parents were enrolled in these programs. For all three groups, the next most prevalent type of child care was parental care, but Mexican-origin children were much more likely to be in this form of care than children in the other two groups. In fact, over one-third of children of Mexican-origin parents were under the care of a parent and had no exposure to early childhood education.

Racial/ethnic variation in maternal employment and community child care contexts may have contributed to these racial/ethnic differences in early child care and education. Table 2 demonstrates that, compared to the children of black and white parents, the children of Mexican-origin parents were much less likely to have a mother who was employed. Forty-six percent of children of Mexican immigrants had a mother employed for pay, compared with approximately 60% of children in the other groups. Relative to the children of white parents, the children of Mexican-origin and black parents lived in zip codes with lower female employment rates. On average, the children of white and black parents also had 1.1 more child care centers per 1,000 children in their counties than the children of Mexican-origin parents.

Linking Maternal Employment to Early Child Care and Education

The first hypothesis predicted that mothers' employment would increase their use of non-parental child care but decrease their use of early childhood education relative to informal care. Table 3 displays the results of a multinomial logistic regression model predicting informal child care options (relative or non-relative care and parental care) versus formal early childhood education options. Consistent with the hypothesis, this model shows that maternal employment was associated with children having the greatest odds of being in informal non-parental child care arrangements (relative or non-relative care), followed by early childhood education programs, and then parental care. Differential selection into informal care versus early childhood education by maternal employment was striking; for children with employed mothers, the odds of being in relative or non-relative care versus early childhood education were 3.5 times ($e^{\wedge 1.265} = 3.54$) those of children without employed mothers, net of race/ethnicity and covariates.

There was also a significant association between the female employment rate at the zip code level and early care and education patterns. Net of race/ethnicity and covariates, children were more likely to be in relative or non-relative care if they lived in zip codes with higher female employment rates. Specifically, a one percentage point increase in the zip code female employment rate was associated with a 2% increase ($e^{\wedge 0.017}=1.02$) in the odds of selecting relative or non-relative care versus early childhood education. Contrary to our expectations, however, the supply of child care centers in the county was not significantly associated with the odds that children were in informal versus formal types of care. Thus, net of race/ethnicity and other predictors, there were not major differences in early care and education patterns across community child care contexts.

Notably, some racial/ethnic disparities in early child care and education arrangements disappeared after controlling for differences in maternal employment, community child care context, other covariates, and state fixed effects. The results in Table 3 show that children of Mexican-origin and black parents were not significantly different from children of white parents in their selection into informal care versus early childhood education. The children of black parents, however, were less likely than whites to be in parent care than in early childhood education when these variables were held constant, which could be due to higher utilization of Head Start programs among black families.

The second hypothesis predicted that the positive association between maternal employment and the use of informal care over early childhood education would be even stronger in zip codes with higher female employment rates. The third hypothesis predicted that the positive association between maternal employment and use of informal child care options would be attenuated or become negative in counties with more child care centers per 1,000 young children. We estimated two-way interactions (not shown) between maternal employment and zip code female employment rates, as well as maternal employment and county number of child care centers, and did not find that these interactions were significant. In other words, the tendency for families with employed mothers to use informal care over early childhood education did not vary significantly across communities according to zip code female employment rates or county child care center supply levels.

Examining Racial/Ethnic Variability

The fourth hypothesis predicted that the link between mothers' employment and their use of early child care and education, and the moderation of the association between maternal employment and early care and education by community context, would be strongest for children in Mexican-origin and black families relative to whites. There were no significant three-way interactions, however, among maternal employment, the community-level variables, and race/ethnicity. Thus, contradicting our hypotheses, the tendency for maternal employment to have counteracting implications for formal and informal early child care arrangements did not vary across communities for any of the racial/ethnic groups. In exploratory models estimated using Mexican-origin subgroups (immigrant versus U.S.-born) and disaggregated informal care categories (relative versus non-relative), we found that children of Mexican immigrants with employed mothers were even more like to be in non-relative care versus early childhood education than children of whites with employed mothers. These maternal employment by race/ethnicity interactions lacked statistical power, but should be explored in future work.

In going through the steps to build the final model, we did observe significant two-way interactions between community variables and race/ethnicity, which are presented in Table 4. When covariates and state fixed effects were taken into account (Model 1 in Table 4), there was not a significant association between female employment rates at the zip code level and use of informal versus formal child care options among the children of white parents. For the children of Mexican-origin parents, however, the association between choosing relative or non-relative care over early childhood education was positive as the zip code female employment rate increased. For each one percentage point increase in the zip code female employment rate, the total odds of being in relative or non-relative care versus early childhood education increased by 5% for children of Mexican-origin parents ($e^{\wedge 0.001+0.052} = 1.05$). Additionally, although there was not a significant association between zip code female employment rates and utilization of parent care versus early childhood education for children in white families, there was a positive association for children in Mexican-origin and black families, with a total odds of 1.03 ($e^{\wedge -.001 + .034}$) and 1.05 ($e^{\wedge -.001 + .049}$), respectively. Children in Mexican origin and black families were thus more likely to be in types of informal care, including relative or non-relative and parent care, than in early childhood education as demand for child care in their zip codes increased.

Notably, after controlling for covariates and state fixed effects, the association between the county number of child care centers and selection of informal versus formal care options was not significantly moderated by race/ethnicity (Model 2 in Table 4). Holding constant several individual, household, community, and state characteristics, children of all racial/ethnic backgrounds were not more or less likely to be in informal versus formal care arrangements if they lived in counties with an increased supply of child care centers.

Conclusion

Understanding the ways in which employed parents arrange early child care and education for their young children is important for supporting families in general and for ameliorating disparities in school readiness more specifically. The accommodations framework situates the selection of children into early care and education settings within parents' needs for child care and broader community contexts in which child care and early education decisions take place. This study has addressed two sets of factors highlighted by the accommodations framework: Maternal employment and community child care context. We examined associations among maternal employment, community child care context, and early childhood care and education and also whether these associations differed across population groups that vary in their household resources, immigration histories, and obstacles to early childhood education.

The results of our analyses of ECLS-B show that, regardless of racial/ethnic background, maternal employment was significantly associated with children being in informal types of non-parental care (relative or non-relative care) versus formal types of care that involved educational components (preschool, center care, Head Start). Consonant with the accommodations framework (Meyers & Jordan, 2006), families with employed mothers relied on informal non-parental care arrangements, which tend to be more flexible and affordable, rather than formal center-based options with educational components.

Although we hypothesized that community context would moderate the association between maternal employment and early care and education options, and that this multiplicative relationship would be further moderated by racial/ethnic background, these anticipated associations were not borne out in the results. This lack of moderation of the maternal employment association with early care and education by community context runs counter to previous work showing that employed mothers were more likely to use center-based care as this type of care became available in their communities (Gordon & Chase-Lansdale, 2001). We also failed to find any association between child care center supply and early care and education, which conflicts with prior research (Coley et al., 2014; Pungello & Kurtz-Costes, 1999).

Local female employment rates did emerge, however, as significant predictors of early care and education choices for some population subgroups. For example, in zip codes where there were higher female employment rates, children of Mexican-origin parents were more likely to be in relative or non-relative care versus early childhood education, and children of Mexican-origin and black parents were more likely to be in parent care versus early childhood education, net of background covariates and differences in state contexts. This

result suggests that vulnerable and disadvantaged segments of the population may be more sensitive to factors related to child care demand in community care contexts than other groups when arranging early child care and education for their children.

From these complex set of results, we have drawn out several patterns that are especially important to family studies, population research, and educational science. First, broad descriptive patterns showed that overall need for child care based on maternal employment, as well as community child care contexts, varied noticeably across the three population groups of interest. Relative to other groups, Mexican-origin families had the lowest need for non-parental child care based on maternal employment, and they also lived in communities with a lower demand for non-parental child care based on female employment and a lower supply of child care options. Black families, in contrast, had levels of maternal employment that mirrored those of white families and also lived in communities with a greater supply of formal child care options. Policy interventions seeking to boost enrollment in early childhood education across diverse populations must recognize the ways in which families diverge both in household child care needs and options within their communities.

Second, maternal employment mattered for children's exposure to early childhood education, as children from all backgrounds were more likely to be in informal non-parental care arrangements than in early childhood education when their mothers were employed. In these circumstances, parents needed help with care, but they met that need using informal options that are associated with fewer opportunities to develop children's school readiness. Families with employed mothers, therefore, had to face tradeoffs between child care options that were flexible and affordable versus those that were the most likely to provide educational activities.

Third, these findings affirm the importance of community contexts in shaping patterns of selection into early care and education for diverse population groups. For the children of Mexican-origin and black parents, higher demand in the local child care market associated with female employment rates predicted greater utilization of informal care options over formal early childhood education options. Disadvantaged groups, therefore, appeared to be more sensitive to demand forces in local child care markets than advantaged groups. Even though this finding is not causal, it suggests that providing more supports for early childhood education in communities with greater demand for care—especially affordable and flexible options—could go a long way to boosting early childhood education enrollment in populations often targeted by policies aiming to reduce racial/ethnic disparities in school readiness and early achievement gaps (Bridges, Fuller, Rumberger, & Tran, 2004; Crosnoe, 2007; Gormley, 2008; Magnuson, Lahaie, & Waldfogel, 2006; Votruba-Drzal, Coley, Collins, & Miller, 2015).

This work has limitations that must be acknowledged, and also suggests several potential avenues for future research. We used the ECLS-B, which holds several advantages for examining processes of selection into early care and education but has the disadvantage of being somewhat dated for understanding recent trends in preschool attendance. Changes in the availability of universal and targeted preschool programs, for example, could shift family decision-making processes about care options in light of maternal employment and

contextual constraints. Future studies should attempt to validate these findings using cross-sectional nationally representative datasets, such as the National Household Education Survey- Early Childhood Program Participation survey. This study also took a broad approach, looking at any exposure to formal early childhood education options rather than differences in exposure to programs of varying quality. Given evidence that high-quality early childhood education has the greatest potential to increase children's school readiness (Duncan & Magnuson, 2013; NICHD Early Child Care Research Network, 2005), future work should examine linkages between maternal employment, community contexts, and enrollment in high-quality preschool programs.

The analysis examined zip code female employment rates and county supply of child care centers as potential moderators of the maternal employment-child care linkage, as well as interactions between maternal employment, child care contexts, and race/ethnicity, and found little empirical support for these linkages. Low statistical power may be one reason for the lack of support for the hypothesized associations between contextual factors, maternal employment, and selection into early care and education options, especially for the Mexican-origin subgroup. Another reason could be that other contextual factors associated with child care markets are more salient influences on the decision-making processes of families with employed mothers, especially those with disadvantaged backgrounds. Future work could look more extensively at the nuances of local child care markets and differences in care arrangements by maternal employment status among diverse groups, including the quality of child care center options and provision of child-care subsidies or affordable care options at the local level.

Given that families are not randomly distributed across communities, our study cannot provide a causal assessment of how communities influence child care and education decisions. Future work could use experimental or quasi-experimental designs to measure the causal effect of supply and demand features on selection into different types of care. Finally, as a quantitative study, this work can only speculate about parental decision-making processes regarding selection into child care and education options. Qualitative work is necessary to shed further light on how diverse groups of families navigate needs for child care across community child care contexts.

There is mounting evidence that high-quality early childhood education can increase school readiness and reduce achievement gaps (Dodge, Bai, Ladd, & Muschkin, 2016; Duncan & Magnuson, 2013; Gormley, 2008; Heckman, 2011; Magnuson & Waldfogel, 2005; Magnuson et al., 2006). Children with employed mothers, however, are less likely to be exposed to child care environments that involve educational components. Amidst debates over the expansion of early childhood education and work-family facilitation, paying attention to diversity in both household child care needs and the ways in which these needs translate into child care choices among families across communities is significant. In order to increase early learning experiences across the socioeconomic and demographic spectrum, families with employed mothers would benefit from the means to access affordable, flexible, and educational care options.

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Appendix Table A1

Care Type by Race/Ethnicity, Maternal Employment, and Child Care Context

	Early Childhood Education	Relative or Non-Relative Care	Parent Care	Total
White (Total):	2,800	350	700	3,850
Mother employed (age 4)	1,800	300	200	2,300
Mother not employed (age 4)	950	50	450	1,450
ZIP employed females (%, age 4)- At or below median	1,050	150	300	1,500
ZIP employed females (%, age 4)- Above median	1,700	200	350	2,250
County number of child care centers per 1,000 children- At or below median	1,150	150	300	1,600

	Early Childhood Education	Relative or Non-Relative Care	Parent Care	Total
County number of child care centers per 1,000 children- Above median	1,500	200	350	2,000
Mexican Origin (Total):	600	150	300	1,050
Mother employed age 4	300	100	100	500
Mother not employed age 4	250	50	250	500
ZIP female employment (%)- At or below median	400	100	200	700
ZIP female employment (%)- Above median	150	50	100	300
County number of child care centers per 1,000 children- At or below median	450	150	250	800
County number of child care centers per 1,000 children- Above median	100	50	50	200
Black (Total):	1,000	150	200	1,350
Mother employed age 4	650	100	50	850
Mother not employed age 4	300	50	150	500
ZIP female employment (%)- At or below median	650	100	150	850
ZIP female employment (%)- Above median	350	50	50	500
County number of child care centers per 1,000 children- At or below median	400	50	100	550
County number of child care centers per 1,000 children- Above median	550	100	100	750

Note. Cell sizes have been rounded to the nearest 50 to comply with NCES/IES restricted-use data regulations. The median ZIP female employment rate was 55.0%, and the median number of child care centers per 1,000 children was 3.8.

Table 1

Weighted Descriptive Statistics for Study Variables

Variable	Mean	SE
Early Childhood Care and Education (age 4)		
Early childhood education program	0.683	0.010
Relative or non-relative care only	0.115	0.005
Parental care only	0.202	0.008
Early care and education missing	0.001	0.000
Race/Ethnicity		
Mexican origin	0.184	0.013
Black	0.164	0.011
White	0.652	0.018
Maternal Employment (age 4)		
Mother employed (full-time or part-time)	0.581	0.008
Community Child Care Context (age 4)		
ZIP employed females (16 yrs. or older, %)	54.4	0.4
County number of child care centers per 1,000 children ages 5 and under	3.92	0.09
County number of child care centers- missing	0.052	0.017
Covariates		
Gender (Female)	0.488	0.008
Low birth weight	0.079	0.002
Mother’s age at child’s birth (years)	27.4	0.1
Family’s socioeconomic status index (age 2)	−0.080	0.023
Resident father employed (full-time or part time; age 2)	0.735	0.008
Non-resident father (age 2)	0.200	0.007
Father work and non-resident status missing	0.012	0.002
Number of siblings (age 2)	1.13	0.02
Three or more adults in home (age 2)	0.149	0.007
Immigrant household	0.183	0.010
Parent migrated as an adult	0.098	0.006
Parent migrated as a minor	0.059	0.005
Parent migration status missing	0.001	0.001
Language other than English spoken in home	0.228	0.013
Moved between ages 2 and 4 within county	0.337	0.008
Moved between ages 2 and 4 to new county	0.133	0.006
Moved between ages 2 and 4 destination missing	0.003	0.001
Moved between ages 2 and 4 missing	0.002	0.001
Preference for affordable and flexible care (index; age 4)	2.5	0.0
Preference for familiar care provider (index; age 4)	1.5	0.0
ZIP Mexican Latino/a (%, age 4)	8.8	0.8
ZIP foreign born (%, age 4)	10.3	0.4
ZIP per capita income (1999, in $1,000s, age 4)	20.8	0.3

Variable	Mean	SE
ZIP total population (age 4)	26,300	617
ZIP (age 4)- missing information	0.023	0.003
County total population (age 4)	1,000,087	36,880
n	6,250	

Note. Means estimated using survey weights.

Table 2

Weighted Descriptive Statistics for Focal Variables, by Race/Ethnicity

	Mexican Origin		Black		White	
	Mean	**SE**	**Mean**	**SE**	**Mean**	**SE**
Early Childhood Care and Education (Child age 4)						
Early childhood education program	0.5203	0.0203	0.724	0.019	0.719	0.012
Relative or non-relative care only	0.1601	0.0147	0.126	0.011	0.099	0.007
Parental care only	0.3196	0.0211	0.148	0.012	0.182	0.009
Maternal Employment (Child age 4)						
Mother employed (full-time or part-time)	0.463	0.019	0.624	0.015	0.604	0.010
Community Child Care Context (Child age 4)						
ZIP employed females (%)	50.4	0.7	52.0	0.5	56.2	0.4
County number of child care centers per 1,000 children ages 5 and under	3.0	0.1	4.1	0.1	4.1	0.1
n	1,050		1,350		3,900	

Note. Means estimated using survey weights.

Table 3

Results from Multinomial Logistic Regressions Predicting Early Child Care and Education

	vs. Early Childhood Education	
	Relative or Non-Relative Care	**Parent Care**
Race/Ethnicity (Ref. White)		
Mexican immigrant	0.358	0.322
	(0.249)	(0.205)
Black	−0.127	−0.557***
	(0.169)	(0.148)
Maternal Employment (age 4; Ref. Mother Not Employed)		
Mother employed	1.265***	−1.232***
	(0.162)	(0.103)
Child Care Context (age 4)		
ZIP female employment (%, centered)	0.017*	0.014
	(0.008)	(0.008)
County number of child care centers per 1,000 children	0.040	−0.020
	(0.046)	(0.035)
Observations	6,250	

Note.

* $p<.05$,

** $p<.01$,

*** $p<.001$.

Standard errors in parentheses. Models estimated using survey weights and multiple imputation. All models controlled for child gender, low birth weight, mother's age at child's birth, family SES (age 2), father employment (age 2), non-resident father (age 2), number of siblings (age 2), three or more adults in household (age 2), immigrant household, adult or minor migrant, language other than English spoken at home, mobility (within or between counties between ages 2 and 4), child care preferences index (cost and flexibility), child care preferences index (familiarity), ZIP percent Mexican Latino/a (age 4), ZIP percent foreign born (age 4), ZIP per capita income (age 4, centered), county population total (age 4, log), and state (age 4) fixed effects.

Table 4

Results from Multinomial Logistic Regressions Predicting Early Child Care and Education, Moderation of Community Child Care Context by Race/Ethnicity

	Model 1 (vs. Early Childhood Education)		Model 2 (vs. Early Childhood Education)	
	Relative or Non-Relative Care	Parent Care	Relative or Non-Relative Care	Parent Care
Race/Ethnicity (Ref. White)				
Mexican immigrant	0.328	0.333	0.658	0.661
	(0.253)	(0.203)	(0.519)	(0.343)
Black	−0.143	−0.499**	0.358	−0.103
	(0.162)	(0.148)	(0.429)	(0.331)
Maternal Employment (age 4; Ref. Mother Not Employed)				
Mother employed	1.256***	−1.235***	1.262***	−1.235***
	(0.160)	(0.102)	(0.162)	(0.103)
Child Care Context (age 4)				
ZIP female employment (%, centered)	0.001	−0.001	0.018*	0.015
	(0.010)	(0.008)	(0.008)	(0.008)
County number of child care centers per 1,000 children	0.043	−0.016	0.062	0.004
	(0.045)	(0.035)	(0.049)	(0.031)
Interactions				
ZIP female employment x Mexican origin	0.052**	0.034*		
	(0.019)	(0.013)		
ZIP female employment x Black	0.030	0.049***		
	(0.019)	(0.014)		
County child care centers x Mexican origin			−0.082	−0.099
			(0.113)	(0.084)
County child care centers x Black			−0.118	−0.111
			(0.088)	(0.073)
Observations	6,250		6,250	

Note.

*$p < .05$,

**$p < .01$,

***$p < .001$.

Standard errors in parentheses. Models estimated using survey weights and multiple imputation. Model controls for the same covariates as the model displayed in Table 3.