Published in final edited form as:

Child Youth Serv Rev. 2017 February ; 73: 24–36. doi:10.1016/j.chilgyouth.2016.11.024.

Predictors of Public Early Care and Education Use among Children of Low-Income Immigrants

Anna D. Johnson, Ph.D. [Assistant Professor],

Department of Psychology, Georgetown University, 3700 O Street, Washington, DC 20007,
Anna.Johnson@georgetown.edu, ph. 202-687-5320, fx. 202-687-6050

Christina Padilla, MPP, and

Department of Psychology, Georgetown University, 3700 O Street, Washington, DC 20007,
cp762@georgetown.edu

Elizabeth Votruba-Drzal, Ph.D. [Associate Professor]

Department of Psychology, University of Pittsburgh, 4123 Sennott Square, 210 South Bouquet
Street, Pittsburgh, Pennsylvania 15260, evotruba@pitt.edu, ph. 412-624-8365, fx. 412-624-4428

Abstract

Little is known about predictors of publicly funded early care and education (ECE) use among low-income children of immigrants. Without this knowledge, it is difficult to effectively increase participation in these public programs, which promote school readiness but are underused by children of immigrants. Using nationally representative data from the Early Childhood Longitudinal Study -Birth Cohort (ECLS-B), this study attempts to identify pertinent family, child, maternal ECE preference, broader contextual, and immigrant specific characteristics predictive of ECE use among 4-year old children in a sample of low-income children of immigrants ($N \approx 1,050$). Specifically, we estimate multinomial logistic regression models predicting type of ECE (Head Start, public pre-k, subsidized ECE, unsubsidized ECE, parental care) from these characteristics. Findings suggest that even in a low-income sample, correlates of disadvantage such as low maternal education and prior receipt of public benefits are important predictors of public ECE use, as are maternal preferences for certain features of care and supply-side factors such as ECE availability. Immigrant-specific factors such as English proficiency, citizenship status, availability of non-English speaking caregivers, and generosity of state policies toward immigrants emerged as particularly salient for explaining the public ECE selection patterns of low-income immigrants. Results point to future research areas and potential policy solutions aimed at increasing public ECE use for children who may stand to benefit the most.

Keywords

immigrant; low-income; public preschool; early care and education

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Approximately one-quarter of all U.S. children are children from immigrant families; by 2050, children of immigrants will make up nearly one-third of the U.S. child population (Passel, 2011; Tienda & Haskins, 2011). Concerning recent estimates suggest that almost 50% of young children of immigrants live in low-income households (Jiang, Ekono, & Skinner, 2015; Mather, 2009). At the same time, immigrants tend to underutilize social programs, including programs with income eligibility limits for which many immigrants are eligible (Capps, Fix, & Henderson, 2009; Perreira et al., 2012). This includes underutilization of publicly funded early care and education (ECE) programs. A range of explanations for this possible underutilization have been proposed, including preferences and values stemming from unique cultural origins, stigma and fear of deportation, disenfranchisement and acculturative stress, the high cost of some ECE programs, and perceived cost of program participation even for programs that are no- or low-cost (Brandon, 2004; Fix & Passel, 2002; Karoly & Gonzalez, 2011; Liang, Fuller, & Singer, 2000; Matthews & Ewen, 2006). Whatever the reason, underutilization of public ECE programming is concerning as participation in ECE programs – including those that are publicly funded – has been shown to boost school readiness among young children of immigrants who are at risk for low achievement (Ansari & Winsler, 2013; Bloom & Weiland, 2015; Crosnoe, 2007; Johnson, Han, Ruhm, & Waldfogel, 2014; Magnuson, Lahaie, & Waldfogel, 2006; Gormley, 2008). As such, publicly funded ECE programs might be among the most promising avenues for improving low-income immigrant children's school readiness due to their relative affordability. Access to public ECE programs is also amenable to policy intervention. Yet few studies have explored the predictors of selection into *publicly funded* ECE programs, which leaves policymakers with limited options when thinking about how to increase enrollment.

The current analysis aims to address this important question. Specifically, we examine a comprehensive set of predictors of public ECE selection in a recent and nationally representative sample of low-income children born in the U.S. to at least one immigrant parent. To do this, we include potential predictors of immigrant families' home and community contexts, to help illuminate a wide-ranging set of possible intervention points for increasing enrollment in publicly funded ECE programs.

Background

The public ECE programs available to low-income families in the U.S. – including low-income immigrant families – can be broadly categorized by three funding streams. The first is the federal Head Start program. The oldest public ECE program, Head Start was introduced in 1965 following a compensatory model of early education. Its aim is thus to enhance low-income children's readiness for school by compensating for what they are less likely to receive at home (Phillips & Lowenstein, 2011). As such, Head Start is targeted to families with incomes at or below 100% of the Federal Poverty Line, is typically offered in center-based settings (though home-based ECE providers can receive Head Start funding), and is highly regulated, to increase the likelihood that programs provide high quality services that support child development.

The second funding stream is state-funded public pre-k. Although some states offer universal pre-k programs, nearly half of the states that have pre-k programs prioritize serving low-income children. Like Head Start, public pre-k is typically provided in center- or school-based settings, and was also designed to promote school readiness among children who may otherwise lag behind in academic skills (Barnett, Carolan, Squires, & Clarke Brown, 2013).

The third funding stream for public ECE is the federal child care subsidy program (the Child Care and Development Fund [CCDF]). Unlike both Head Start and public pre-k, the CCDF subsidy program was crafted primarily to support parental employment rather than child development and as such, is somewhat flexible; CCDF subsidizes care in the form of vouchers to parents or direct contracted slots in which children are enrolled (Adams & Rohacek, 2002), though some states place restrictions on where subsidies can be used. Thus while Head Start and public pre-k programs are typically offered in licensed, center-based settings, care funded via child care subsidies can occur in licensed or unlicensed center- or home-based settings with care providers who are unfamiliar or who are friends or relatives, allowing families some degree of choice when selecting an ECE environment.

To summarize broadly, existing public ECE options available to low-income families range from being flexible – CCDF vouchers that can be used to purchase care the family selects, assuming the provider accepts subsidies – to more proscribed – slots located in programs that are often center-based, like Head Start and public pre-k. Additionally, while all 3 public programs are targeted mostly (pre-k) or entirely (Head Start; CCDF subsidies) to families with incomes at or below an income eligibility threshold, only the subsidy program also requires families to meet employment standards: that is, to receive a subsidy, parents must be engaged in approved work, education, or job training activities.¹

Theoretical Framework

Our study is guided by prior theoretical and empirical work on parents' ECE decision-making more generally (Chaudry, Henly, & Meyers, 2010; Kim & Fram, 2009; Lowe & Weisner, 2004; Meyers & Jordan, 2006; Weber, 2011). Specifically, we apply the accommodation model (Meyers & Jordan, 2006; Weber, 2011) and ecocultural theory (Lowe & Weisner, 2004) to the case of parental child care decision-making, with a focus on public ECE use. In brief, the accommodation model suggests that parents do not choose child care so much as they accommodate or integrate decisions about child care alongside interrelated decisions about their roles as caregivers and workers against the backdrop of family, societal, and market constraints. Ecocultural theory in child care implies that mothers – especially those who are low-income – choose care that fits with their daily routines (work; school; caregiving and social responsibilities), which are in turn shaped by cultural (values and beliefs about child-rearing) and ecological (availability of resources) factors. Together, these bodies of literature imply that a thoughtful exploration of predictors of ECE use –including

¹We note that states vary in their income eligibility and work requirement rules for the CCDF subsidy program; detailed information is available in Schulman & Blank, 2015.

publicly funded ECE – should include factors that capture parental and household level variables, parents’ stated preferences for care, and constraints like care availability.

To guide our inclusion of specific predictors into ECE types, we modify and extend an oft-cited model of child care selection (Pungello & Kurtz-Costes, 1999). Pungello and Kurtz-Costes (1999) reviewed literature on child care selection and distilled important factors in explaining parental choice of ECE: (1) maternal characteristics; (2) child characteristics; (3) parental child care preferences; and (4) contextual factors that exist both proximally (i.e., in the home) and more distally (i.e., in the community). Notably, Pungello and Kurtz-Costes’ sought to explain child care selection among a general population of parents, not specifically low-income parents or immigrant parents, and not necessarily selection into public ECE. Thus we modify and extend the model to our population and ECE types of interest. For instance, low-income families face constraints related to care cost and the ecocultural circumstances and daily stresses that come with balancing work and family in the context of limited resources (Lowe & Weisner, 2004), and thus make different tradeoffs than their more affluent counterparts, when selecting care. Likewise, immigrant parents face different barriers and may hold different values than native-born parents that may influence their selection of ECE (Vesely, 2013). For example, sociocultural theories of development would suggest that immigrant parents from different regions of origin may have culturally-specific beliefs about non-parental care and child development that may give rise to differences in ECE use (Bornstein & Cheah, 2006; Bornstein, 1991; LeVine, 1977). Thus, we select predictors along Pungello and Kurtz-Costes’ dimensions that have been theoretically or empirically linked to selection of ECE, especially for preschool-aged children, and extend the model to include broader contextual factors and immigrant-specific characteristics that may be especially salient for low-income immigrant parents.

Because predictors of ECE use among low-income immigrants have not been studied, it is difficult to know *a priori* which factors might be most relevant for ECE selection. Therefore, we turn to prior empirical studies of ECE selection both in the general population as well as among immigrant families and review existing research in the context of these dimensions.

Previous Research

Although we are interested in predictors of selection into public ECE (most of which is center-based; e.g. Head Start and public pre-k) among low-income immigrants, much of the existing empirical literature examines factors associated with selection into center- versus home-based ECE (not necessarily publicly funded) in the general population, so we draw primarily on that work, here. Integrating the accommodation model (Meyers & Jordan, 2006) alongside ecocultural factors important for child care decision-making (Lowe & Weisner, 2004) and the conceptual framework inspired by Pungello and Kurtz-Costes (1999), we organize our review of prior research along four dimensions: (1) maternal characteristics; (2) child characteristics; (3) parental child care preferences; and (4) contextual factors. We include a fifth dimension that encompasses immigrant-specific characteristics that may be salient when considering publicly funded ECE selection for immigrant families.

Maternal characteristics

Prior research suggests highly-educated mothers are more likely than less educated mothers to use center-based ECE (Fuller, Holloway, & Liang, 1996; Fuller, Holloway, Rambaud, & Eggers-Pierola, 1996; Johansen, Leibowitz, & Waite, 1996), perhaps because they perceive it to be more cognitively stimulating (Li-Grining & Coley, 2006). This pattern may extend to immigrant mothers who are anxious for their children to assimilate and begin their education (Becerra & Chi, 1992; Vesely, 2013). Consistent with the accommodation model of ECE selection, low-income children are less likely to experience any non-parental ECE than their upper-income counterparts, but when they do, they are less likely to use center-based ECE (Early & Burchinal, 2001; Fuller, Kagan, Caspary, & Gauthier, 2002). Similarly, families who receive welfare are less likely to use center-based ECE than are working-poor families who do not receive welfare (Fuller et al., 2002). This makes sense, as center-based ECE, even when publicly funded, is typically more expensive than home-based alternatives such as day care operated out of a family's home (Child Care Aware of America, 2015). Other proxies of disadvantage, such as whether the family experienced food insecurity or whether the mother was a teen at the focal child's birth, may also predict selection into publicly funded ECE, although these have not been tested in prior studies. Based on these results and on our theoretical frameworks, we hypothesize that even in a low-income sample mothers with more education and resources (i.e., fewer constraints) will be more likely to select public ECE options designed explicitly to promote school readiness, namely Head Start and public pre-k, over CCDF-subsidized care or parental care.

Child characteristics

Relations between type of publicly funded ECE a family selects and child characteristics are often conceptualized as reflecting differences in parental preferences. Regarding child characteristics, older children are more likely to be enrolled in center-based ECE compared to infants (Child Trends Data Bank, 2013); however we are most interested in care selection for 3- and 4-year-old children. Boys are more likely to be enrolled in center-based ECE versus parental care (Fuller et al., 1996), possibly because preschool-aged boys tend to be less well-regulated than girls and may thus be more difficult to keep at home (Matthews, Ponitz, & Morrison, 2009). Nevertheless, this pattern may not replicate in an immigrant sample because immigrant children tend to have fewer behavior problems and better self-control than their native-born peers (Turney & Kao, 2009). Although national estimates in the general population and among all immigrants suggest that children with special needs are more likely to use center-based ECE than are children without special needs (Miller, Votruba-Drzal, Coley, & Koury, 2014; Parish, Cloud, Huh, & Henning, 2005), no work has explored how special needs status might predict selection into public ECE in a low-income sample of immigrants. Finally, although to our knowledge studies have not found links between earlier measures of child cognitive or behavioral skills and later selection of ECE type, given that characteristics that predict type of care may also predict child outcomes (NICHD ECCRN & Duncan, 2003), it is important to include these child skills as predictors of publicly funded ECE among low-income immigrant families.

Child care preferences

As the accommodation model and ecocultural theory suggest, parents' ECE decisions arise from the interplay of ECE preferences and constraints. Yet, only a handful of studies have explicitly examined links between parents' preferences and selection of ECE type. One study found that parents who indicated that quality was their first priority when selecting an ECE setting are more likely to use formal care than informal home-based care (Peyton, Jacobs, O'Brien, & Roy, 2001), although parents' perceptions of quality don't always align with professional definitions (Forry, Simkin, Wheeler, & Bock, 2013). Other studies have linked parental prioritization of academic preparation and time spent with peers to increased use of center-based ECE, and prioritization of care reliability, location, and cost to increased use of home-based care (Chaudry et al., 2010; Fuller et al., 1996; Kim & Fram, 2009; Lowe & Weisner, 2004); such findings have been replicated among Hispanic (native-born and immigrant) and other immigrant families (Miller et al., 2014; Yesil-Dagli, 2011). There is also emerging qualitative evidence that low-income immigrant mothers may prioritize care that meets their scheduling needs – that is, evening or overnight care – if they are working non-traditional hours due to documentation or language barriers (Vesely, 2013). Recent research on Spanish-speaking dual-language learners (DLLs), many of whom are immigrants, has shown that children whose first language is Spanish are more likely to be enrolled in an ECE arrangement that uses Spanish for instruction as opposed to another language (Miller, 2016), suggesting that Spanish-speaking immigrants may prefer ECE with Spanish-speaking caregivers over English-speaking caregivers. Low-income immigrant parents may struggle with conflicting preferences for ECE that is affordable and available during non-standard work hours (as do many low-income workers), versus a setting that promotes acculturation and academic preparation, versus one that features a caregiver who speaks the native language and provides cultural continuity, for example. We anticipate that low-income immigrant mothers who prioritize practical features of care and/or cultural match will select subsidized or unsubsidized ECE which can include care provided during flexible hours by a relative, neighbor or friend (Li-Grining & Coley, 2006) over exclusively center-based options. Among these mothers, those who can pay privately for ECE and/or those who are unable or unwilling to navigate the subsidy application system may use unsubsidized care, whereas those who qualify for and need a subsidy, and are able to navigate the subsidy application process, may select subsidized ECE.

Contextual variables

Our conceptual models underscore the limiting role that parents' – especially low-income parents' – situational and contextual constraints can play. With regard to household-level contextual variables, families with more children and households with two-parents are generally more likely to rely on parental care rather than non-parental ECE, although findings are mixed (Huston, Chang, & Gennetian, 2002; Leibowitz, Waite, & Witsberger, 1988; Liang et al., 2000). Parents with multiple young children may be less inclined to use any kind of non-parental ECE because it is logistically simpler to keep all children home together; they may thus also be unlikely to use Head Start or public pre-k, which serve preschool-age children only. The high cost of enrolling multiple children in center-based ECE in particular – even if that care is publicly funded in some way – may present a major constraint. Mothers with another adult in the home may be less likely to use non-parental

ECE because they are able to share care duties. Conversely, mothers who work full-time are more likely to use non-parental ECE than are mothers who work part-time (Han, 2004). Immigrant mothers, who are less likely to work outside the home and more likely to be married, might thus be more likely to rely on parental care over any of the public or private alternatives (Booth, Crouter, & Landale, 1997; Miller et al., 2014).

Neighborhood-level contextual variables such as the availability of center- or home-based ECE are likely predictive of ECE selection (including publicly funded ECE) because parents can only avail themselves of these options to the extent that they exist in the community. However, few studies have tested measures of local ECE availability as predictors of selection, mostly due to limitations of available data. Existing research suggests that the supply of formal (typically, center-based) ECE may be truncated in low-income and immigrant communities (Gordon & Chase-Lansdale, 2001; Radey & Brewster, 2007), and that mothers in areas with more formal ECE availability (Tang, Coley, & Votruba-Drzal, 2012) or where more neighbors use formal care (Kim & Fram, 2009) are more likely to use formal ECE. Only two studies have tested ECE availability as a predictor of ECE participation among immigrants; using the same data source as the current study – the ECLS-B. Researchers found that across all immigrant households reduced availability of home-based ECE predicted increased use of center-based ECE (Miller, Votruba-Drzal, & Coley, 2013). And, an earlier study found that among non-English speaking parents, those in communities with a greater supply of center-based ECE were more likely to use it (Hirshberg, Huang, & Fuller, 2005).

To date, however, no studies have considered the role of publicly funded ECE supply in explaining patterns of ECE use by low-income immigrants. In light of the accommodation and ecocultural models of child care selection, and given what we know about truncated supply of formal care in low-income communities, inclusion of these predictors in an exploration of the patterns of publicly funded ECE selection among low-income immigrants is crucial. Given past research on availability of care in predicting ECE choice, we expect low-income immigrant families in areas with less available formal center-based care (e.g., Head Start; public pre-k) to choose subsidized or unsubsidized ECE instead, which includes home-based relative and friend providers, and those in areas with less available informal care to choose Head Start or public pre-k.

Immigrant-specific characteristics

Most studies exploring the ECE use of immigrant children have described the kinds of ECE that children of immigrants versus children of native-born parents attend, showing that children of immigrants are typically less likely to experience non-parental ECE, including center-based ECE, and more likely to experience parental care than are children of native-born parents (Brandon, 2004; Capps, Fix, Ost, Reardon-Anderson, & Passel, 2004; Crosnoe, 2007; Kahn & Greenberg, 2010; Karoly & Gonzalez, 2011; Magnuson et al., 2006). Studies examining the ECE use patterns of non-English speaking parents, rather than immigrants per se, have found that non-English speaking parents are less likely to use formal ECE (Hirshberg et al., 2005; Liang et al., 2000).

Far fewer studies have considered immigrant-specific characteristics that might explain enrollment in publicly funded ECE. Recently, parental region of origin has emerged as a key predictor of ECE decisions (Vesely, 2013). Studies examining parental region of origin have generally found that Mexican and other Latino immigrants are less likely to use center-based ECE while Asian (particularly Chinese) immigrants are more likely to use this mode of care (Crosnoe, 2007; Han, Lee, & Waldfogel, 2012; Santhiveeran, 2010). When they do use non-parental ECE, Latino immigrants are more likely to use home-based or publicly funded ECE programs (Santhiveeran, 2010), most likely because these options are lower in cost. For example, recent evidence suggests that Hispanics, and Spanish-speaking DLLs in particular, are as likely as or more likely than Caucasian families to select into Head Start, and if offered a Head Start slot, they are more likely to enroll (Coley, Votruba-Drzal, Collins, & Miller, 2014; Greenfader & Miller, 2014). Given that Head Start and other publicly funded modes of care tend to be low- or no-cost, and that Latino (and particularly Mexican) immigrants tend to be among the most economically disadvantaged group of immigrants (Han et al., 2012), this may reflect an underlying effect of low-income status such that Latino children only utilize center-based ECE, and non-parental ECE more generally, when it is free or low-cost. Indeed, other research suggests that the lower use rate of ECE by Latino families may be driven by socio-economic differences (Hernandez, Denton, & Macartney, 2011) and not necessarily by cultural preferences for home-based care per se, as suggested in earlier work (Obeng, 2007).

Beyond parental region of origin, studies' inclusion of immigrant-specific predictors of ECE have focused on parental English proficiency (Han et al., 2012; Hirshberg et al., 2005; Kahn & Greenberg, 2010; Liang et al., 2000; Miller et al., 2013), citizenship status (Miller et al., 2013; Miller et al., 2014), and age at immigration (Miller et al., 2013) in determining ECE selection. Mothers who are proficient in English, who are citizens, and who immigrated at earlier ages may be more acculturated, which may in turn predict use of formal, center-based ECE – increasingly the norm for preschool-aged children of native-born parents (Cannon, Jackowitz, & Karoly, 2012). English-proficient mothers may have an easier time navigating the enrollment process in formal or center-based ECE arrangements and/or the subsidy application system; they may also be less likely to prefer a caregiver who speaks the family's native-language – caregivers who typically provide informal, home-based care. Studies that have found increased English proficiency to be predictive of selection into formal ECE support this hypothesis (Hirshberg et al., 2005; Liang et al., 2000; Miller et al., 2013; Miller et al., 2014), although one study found no association between maternal language and type of ECE (Kahn & Greenberg, 2010).

With respect to other indicators of acculturation such as citizenship status and age at immigration, researchers using the ECLS-B found that citizenship predicted non-parental ECE use over parental care, while younger age at immigration predicted home- over center-based ECE use (Miller et al., 2013). However, associations between citizenship status and immigration age and ECE type became non-significant in the presence of other parent, child, and contextual factors suggesting that these characteristics may influence ECE selection through their overlap with other factors such as household income. Therefore, there is reason to suspect that these characteristics may operate differently in sample of *low-income* immigrants.

Just as overall availability of public ECE might constrain families' ECE choices, for immigrant families in particular the availability of caregivers who speak languages other than English may be especially important determinants of ECE selection. Indeed, in the ECLS-B reduced availability of non-English speaking ECE was associated with reduced likelihood of immigrant households using any type of non-parental ECE over parental care (Miller et al., 2013). For low-income immigrant families, it remains an empirical question as to whether the supply of non-English speaking caregivers predicts selection of publicly funded ECE setting versus alternatives.

To our knowledge, only one study has explored factors that predict ECE use by *low-income* immigrants. Using data from the Study of Income and Program Participation (SIPP), Brandon (2004) predicted center-based ECE use versus all other kinds of care, for all children under age 6. The inclusion of an interaction term of immigrant by low-income status revealed that children in low-income immigrant families are less likely than those in low-income non-immigrant families to use center-based ECE than other ECE options, including parental care. While highly informative, the sample included all children under age 6 (about half of whom were infants and toddlers), tested a limited set of predictors and only one immigrant-specific factor (country of origin), and did not differentiate among different types of publicly funded ECE. Moreover, the data were collected in the mid-1990s, before the substantial expansion of the child care subsidy program (with welfare reform) and state pre-k programs, all of which may influence the publicly funded ECE selection of low-income immigrants. Thus, questions remain regarding the full range of possible predictors into the complete landscape of ECE options available to a contemporary, representative sample of low-income immigrant families.

Current Study

The present study extends prior work in several important ways. First, we draw data from a nationally representative study of a recent cohort (born in 2001) of children; this permits the identification and analysis of a sizeable sub-sample, reflective of the current population of low-income children of immigrants living in the U.S. To be clear, our analysis focuses on children born in the U.S. to at least one immigrant parent. Second, we test a comprehensive set of predictors, organized along five meaningful dimensions suggested by prior theoretical and empirical work. Third, our focus on *low-income* immigrant children in the preschool year allows us to explore predictors of publicly funded ECE use for a particularly vulnerable subgroup; given what we know about the potential of participation in center-based ECE in the year before kindergarten entry to enhance the school readiness of low-income native-born children, understanding predictors of center-based publicly funded ECE use in preschool for *low-income immigrant children* could highlight ways to boost the school readiness of this large and growing subgroup as well. Finally, we disaggregate ECE type to account for the *full* landscape of ECE options available to low-income families: Head Start; public pre-k; subsidized ECE (i.e. subsidized home-based care or subsidized center-based ECE in a non-Head Start, non-pre-k center); unsubsidized ECE (i.e. ECE for which parents pay privately or which is free but not funded via Head Start, public pre-k, or CCDF child care subsidies); and parental care.

Method

Data Source

We use data from the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B), which gathered information from multiple sources, across multiple time-points, on a nationally representative cohort of children born in the U.S. in 2001. Approximately 10,700 children participated in the first wave of data collection in 2001, when they were 9 months old on average (to comply with NCES data security requirements, all *N*s are rounded to the nearest 50). Four subsequent waves of data collection followed: wave 2, when children were approximately 2 years old; wave 3, when children were preschool-aged, and waves 4 and 5, when children were in kindergarten. The current study uses data from the first three waves.

At each wave, the child's primary caregiver (>90% biological mother) was interviewed and the child's development was assessed. These interviews were primarily conducted in English, but were also available in Spanish for Spanish-speakers. An interpreter was used to interview parents who did not speak English or Spanish. At the preschool wave, ECE providers completed phone interviews about their program and the children served. For children in center-based arrangements, center directors completed questionnaires about program characteristics, including funding source and program type and auspice. The provider interview and director questionnaire were conducted with the child's primary care provider, defined as the arrangement in which the child spent the most time per week.

Analytic Sample

We restrict our sample to low-income families in which the mother is an immigrant. Birth certificate data, collected when the sample was drawn, were used to generate an indicator for maternal immigrant status; mothers born outside of the 50 United States and Washington, D.C. were considered immigrants. Data from the parent interview at the preschool wave were used to identify low-income families: those with household incomes at or below 200% of the federal poverty line (FPL). NCES-constructed base and replicate weights were used to account for the study's complex sampling design and survey non-response over time; the application of weights permits generalization to all children born in the U.S. in 2001 whose mothers are low-income immigrants.

Of the approximately 2,500 children of immigrants in the sample, slightly less than half were low-income. Thus, the final analytic sample included approximately 1,050 low-income children born to in the U.S. to immigrant mothers.. There was virtually no missing data on parental report of ECE in the sample. Although the number of cases with missing data on one or more covariates was negligible, missing data on covariates were imputed using the Imputation by Chained Equations (ICE) procedure in Stata Version 13; five data sets were imputed using all variables included in the analytic models and Stata's MIM program was used to combine estimates across the five imputed data sets. Regression models were run with the *subpop* command in Stata so that standard errors would account for cases excluded from our analytic sample because they were not low-income immigrants.

Measures

ECE type at preschool—Our key dependent variable is ECE type in the preschool year. Although our primary focus is on selection into publicly funded ECE settings (i.e. Head Start, public pre-k, and subsidized care), we account for the full landscape of public and non-publicly funded options available to low-income families.

In the current study, ECE type was constructed using both parent and ECE provider report from the preschool wave. Specifically, parents were asked about their child's primary care arrangement (in which they spent 10 or more hours per week, regularly). Children whose parents reported that they did not receive any regular non-parental care, as well as children who received less than 10 hours per week of regular non-parental care, were classified as recipients of parental care. For children who experienced at least 10 hours of non-parental care per week, parent report of primary care arrangement was cross-checked with ECE provider report. For cases missing provider report (due to parents declining to provide information about the care provider, the provider declining to be interviewed, or the arrangement ending between the parent and provider interviews), parent report alone was used; for cases with both sources of data available but in which parents and providers disagreed about care type, provider report was used. Parents reported whether their children experienced relative or non-relative home-based care, center-based care, or Head Start, and whether or not they received public assistance to help with the cost of care. Children were classified as recipients of Head Start if the parent reported that their child's primary arrangement was a Head Start and/or if the provider self-identified as a Head Start center. Children were classified as recipients of public pre-k if the parent reported that their child's primary arrangement was a center and the provider self-identified as a pre-kindergarten program located in a public school. Unfortunately, parents were not asked to differentiate public school pre-k from other center-based programs so only children whose providers identified themselves as public school pre-k programs were coded as such. Subsidy recipients were those who did not attend Head Start or pre-k programs, but rather received care partially or fully publicly funded in a community-based center or formal (licensed or regulated) or informal (not licensed or regulated) child care home. Children in unsubsidized ECE were those who used non-parental ECE that was not Head Start, public pre-k, or subsidies; that is, it was either free from another source, or privately funded.

In regression analyses, dummy variables for the 5 mutually-exclusive categories as described above (Head Start, public pre-k, subsidized ECE, and unsubsidized ECE) were used; parental care was the reference group for our main analyses. According to this classification scheme, approximately 200 children were in Head Start, 100 were in public pre-k, 100 were in subsidized ECE, 300 were in unsubsidized ECE, and 300 were in parental care.

Supplementary regression analyses were also performed with ECE type variables that separated subsidized and unsubsidized ECE according to where the subsidy was used (in a center or home-based setting), yielding 7 mutually-exclusive categories: Head Start, public pre k, subsidized center ($N \approx 50$), unsubsidized center ($N \approx 150$), subsidized home ($N \approx 50$), unsubsidized home ($N \approx 150$), with parental care as the reference group. Because of

very small cell sizes for subsidized center- and home-based care, separately, estimates were unstable and are not reported (but are available upon request).

Maternal characteristics—Our first cluster of predictors was a set of maternal characteristics theoretically or empirically connected to low-income immigrant families' selection of ECE for their preschool-aged children. To ensure that maternal characteristics and ECE selection were not simultaneously determined, all maternal background variables were drawn from either the baseline (9-month) or 2-year wave. Maternal report of whether she was a teen at the focal child's birth was drawn from the 9-month wave because it is time-invariant. We drew the remaining covariates from the 2-year wave: maternal education (less than high school, high school diploma/GED, some college, or BA or higher), public benefits use (Medicaid, food stamps, WIC, or welfare) in the last year, and whether the family experienced food insecurity in the last year.

Child characteristics—Several child-specific characteristics that may be associated with selection of ECE type were also included as predictors. As with the maternal characteristics, child-level characteristics were drawn from the 9-month or 2-year wave to reduce simultaneity bias. From the 2-year wave, we included child special needs diagnosis, as well as a measure of cognitive skills. Mothers reported on whether a doctor had ever diagnosed the focal child with a disability or special need; mothers who endorsed any item were considered to have a child with a special need. Cognitive skills were assessed using the Mental Development Index on the Bayley Short Form Research Edition (BSF-R), a shortened version of the Bayley Scales of Infant Development. We used continuous score data from this assessment (*range*: 92.6–160.0). From the 9-month wave, we also drew a measure of child gender (1=male).

Child care preferences—Parents' preferences for specific features of ECE were measured at the preschool wave with several questions that asked mothers to rate whether a series of ECE characteristics were very important, somewhat important, or not very important when they chose their child's primary ECE arrangement. Mothers were asked about the importance of factors related to selecting a setting based on preferences for the following aspects of ECE: quality (a setting that helps prepare the child for kindergarten); a setting that meets the scheduling or logistical needs of low-income working parents (a provider who will care for the child if the child is sick; a setting that is located close to home); and a series of care features that might be especially salient for an immigrant parent (a caregiver who speaks English with the child; a caregiver who shares the family's beliefs; a caregiver of the same race or ethnicity; a caregiver who speaks the child's native language; a caregiver the family already knew; a caregiver affiliated with the family's religion). For each preference, the "somewhat important" and "not very important" categories were collapsed (0= somewhat or not very important; 1=very important).

Contextual variables—Contextual variables included proximal (i.e., household-level) as well as more distal (i.e., community-level) factors that might influence parent selection of ECE for their preschool-aged child. From the 2-year wave, an indicator for whether the mother was single (versus married or cohabiting) was included, as well as continuous

measures for the number of children in the home aged 6 and younger and number of children in the home aged 7 and older. Maternal employment at the 2-year wave was measured with a series of dummy variables (worked full-time, worked part-time, was looking for work or in an education or training program, or was not in the labor force). From the preschool wave, we included an indicator for whether the family lived in an urban area and an indicator for whether the mother felt she had good options for care (to assess maternal *perception* of care availability). Finally, we used Census data to create measures of center-and home-based care availability in each family's community. Following Gordon and Chase-Lansdale (2001), we calculated the number of children under age 6 living in each ZIP code in the U.S., as well as the number of child care center workers and family day care workers employed in each ZIP code, from a special tabulation of the 2000 Decennial Census. For each variable, we aggregated data across all ZIP codes falling within a 20-mile radius of the centroid of each individual ZIP code in the U.S. using Geographic Information Systems software. These data were then matched to children's preschool-wave ZIP codes of residence in the ECLS-B sample. Next, we divided the number of children under 6 in a 20-mile radius of the study child's ZIP code by the number of care providers (center; home) in a 20-mile radius of the study child's ZIP code; to correct for non-normality, we took the natural log of each ratio. Accordingly, larger numbers on our availability measures indicate greater children per care provider, or, in other words, *less* availability of care.

Immigrant-specific characteristics—Information on maternal region of origin was drawn from maternal report of her country of birth for all mothers who indicated in the child's birth certificate records that she was born outside of the 50 United States and Washington, D.C. Analysis by each individual country of origin was not possible because the high number of distinct countries/territories/islands represented did not yield sufficient cell sizes. Instead, we classified children of immigrants into categories based on prior research suggesting that children of Hispanic immigrants, many of whom are Mexican (of all economic backgrounds), are least likely to use center-based care whereas children of Asian immigrants are among the most likely (Han, 2008). It should be noted that in most prior research and in the current paper, the term "Asian" refers to all Asian subgroups despite the largest Asian subgroup being of East Asian (and most commonly, Chinese) descent. Thus, the immigrant groups used in analysis were Hispanic (families emigrating from Mexico, Latin-America, or the Caribbean); Asian (families emigrating from East Asia, South Asia or Southeast Asia); or other (a U.S. Territory, Europe, Africa, or the Middle East). An indicator for each of the three regions was created. We recognize that these groupings, and in particular the latter cluster, should not be viewed as homogeneous but that we are limited by the available data.

We also included a dummy variable for maternal English proficiency. At the 9-month wave, mothers were asked how well they read, wrote, spoke, and understood English; responses were scored on a 4-point scale (1 = *not well at all* to 4 = *very well*). After summing responses across the 4 items, and assigning native-English speaking mothers who skipped these questions a 4 on each item, mothers who achieved a 12 or higher on the composite were deemed proficient in English; results were unchanged when a continuous (ranging from 1–16) measure of maternal English proficiency was used. From the 2-year parent

interview, we drew an indicator of maternal U.S. citizenship status and mother age at immigration.

We included a measure of how much non-English-speaking non-parental care was available in a 20-mile radius of the focal child's preschool-wave ZIP code of residence, again using Census data from the 2000 Decennial Census. As with the other availability measures, the availability of non-English-speaking caregivers was constructed by dividing the number of children age 6 and younger by the number of non-English speaking care providers employed within the 20-mile radius. The natural log of each ratio was used in our analyses; larger numbers on the availability measure indicate lower availability of care.

Finally, we included a dummy variable to indicate whether the family resided in a state, in the preschool year, with generous policies toward immigrants. Based on an index of "welfare generosity" that ranks states from most (4) to least (1) generous with respect to the availability of state assistance for immigrants (Zimmerman & Tumlin, 1999), we generated an indicator variable for state generosity toward immigrants (1=very generous; 0=somewhat or not generous). According to this scheme, 19 states were deemed "generous".

Table 1 presents descriptive statistics for our sample on all variables discussed above.

Analytic Plan

To address our main question, we estimated a multinomial logistic regression model predicting type of ECE from the maternal, child, ECE preference, contextual, and immigrant-specific characteristics discussed above. Table 2 presents results in which selection into each ECE type is compared to parental care only (the reference group). In subsequent analyses (see Table 3), we repeated this multinomial logistic regression model multiple times, rotating the reference group so that all pairwise comparisons among ECE types could be examined. Coefficients presented are relative risk ratios (RRRs), which can be interpreted like odds ratios in that less than one indicates reduced likelihood and greater than one indicates increased likelihood of being in the given category, versus parental care. Because RRRs convey magnitude of association, they can be considered a kind of effect size (Ferguson, 2009).

Results

In general we found that in our sample of low-income immigrant families, a number of maternal and contextual characteristics historically associated with disadvantage predicted ECE selection. Child care preferences of particular interest with regard to low-income immigrants, such as preference for a provider that helps prepare the child for kindergarten or for one that speaks English, also predicted ECE selection. Similarly, a number of characteristics specific to immigrants, such as maternal English proficiency and citizenship status, availability of non-English-speaking care, and state generosity towards immigrants, predicted selection of publicly funded ECE. Below we discuss the most important patterns of associations that were statically significant at conventional ($p < .05$) alpha levels.

Overall, mothers with traditional indicators of economic disadvantage (both maternal and contextual) were more likely to choose Head Start or subsidized ECE compared to parental care. For example, single mothers were more likely to choose Head Start or subsidized ECE ($RRR=2.74$, $SE=1.08$; $RRR=5.20$, $SE=2.37$), and those who received any public benefits were more likely to choose Head Start compared to parental care ($RRR=2.45$, $SE=0.86$). Mothers with some college, compared to those with college degrees, were also more likely to choose Head Start compared to parental care. Unemployed mothers were less likely to choose both subsidized ECE ($RRR=0.34$, $SE=0.13$) and unsubsidized ECE ($RRR=0.33$, $SE=0.11$) than parental care only, and were not significantly more likely to choose Head Start or public pre-k than parental care; indicating that unemployed mothers tend to keep their children at home (see Table 2 for the full set of results).

With regard to child care preferences, mothers who prioritized kindergarten preparedness were much more likely to use Head Start ($RRR=3.10$, $SE=1.29$) or subsidized ECE ($RRR=7.12$, $SE=6.78$), and slightly more likely to select unsubsidized ECE than parental care; mothers who prioritized the provision of care for a sick child were slightly less likely to use unsubsidized ECE compared to parental care, while mothers who desired a care setting that was located close to home were more likely to use public pre-k ($RRR=2.67$, $SE=1.15$) or unsubsidized ECE ($RRR=2.16$, $SE=0.76$) over parental care. Mothers who prioritized having an ECE provider of the same race or ethnicity were more likely to select Head Start than parental care ($RRR=1.90$, $SE=0.53$). Mothers who prioritized having an ECE provider they already knew were more likely to use unsubsidized ECE than parental care ($RRR=2.82$, $SE=0.82$).

As for availability of care, mothers in areas with less home-based care available were more likely to use unsubsidized ECE ($RRR=0.19$, $SE=0.83$), while mothers in areas with less center-based care available were less likely to use public pre-k than parental care ($RRR=0.19$, $SE=0.12$).

Finally, with respect to our cluster of immigrant-specific characteristics, no pattern of differential selection into ECE type by maternal region of origin emerged. Regarding other immigrant-specific characteristics, mothers who were proficient in English were more likely to use Head Start, compared to parental care ($RRR=2.13$, $SE=0.60$). Mothers who were U.S. citizens were more likely to use unsubsidized ECE than parental care ($RRR=2.13$, $SE=0.64$). Mothers who lived in areas with less non-English speaking care available were less likely to use Head Start, public pre-k, or unsubsidized ECE than parental care. Finally, mothers in states with generous policies toward immigrants were more likely to use Head Start than parental care ($RRR=1.87$, $SE=0.53$).

Comparisons Among Other ECE Types

As mentioned above, exclusive parental care served as the reference group in our main multinomial regression analyses. This decision was both in line with prior research (Crosnoe, 2007; Kahn & Greenberg, 2010; Turney & Kao, 2009) and also empirically driven, as the largest proportion of low-income immigrant families in our sample were in exclusive parental care. Nevertheless, it was of interest to explore patterns of selection into different ECE settings compared to each of the four other ECE settings rather than just to

parental care. To this end, we estimated the same multinomial logistic regression that generated Table 2, but with a different reference group each time so that all pairwise comparisons of ECE type could be analyzed (Table 3). Several interesting patterns emerged from these additional analyses, most of which lent support to our main findings.

With regard to economic disadvantage, maternal education continued to be predictive of selection into alternatives to Head Start. Lower-educated mothers, compared to those with a college degree, were less likely to choose unsubsidized ECE than Head Start; mothers with some college were less likely than those with college degrees to use public pre-k or unsubsidized ECE than Head Start. Mothers who were teens when the focal child was born were less likely to use unsubsidized ECE than Head Start, as were mothers who received any public benefits. Single mothers were more likely to choose subsidized ECE over public pre-k ($RRR=5.27$, $SE=3.24$) and less likely to select unsubsidized ECE than subsidized ECE. The additional analyses did reveal more associations between maternal employment and ECE choices than did the main analyses. Specifically, compared to mothers who were employed full time, mothers who were looking for work were less likely to choose subsidized ECE compared to Head Start, and unemployed mothers were substantially less likely to use subsidized or unsubsidized ECE than Head Start ($RRR=0.30$, $SE=0.12$ for subsidized vs. Head Start and $RRR=0.29$, $SE=0.09$ for unsubsidized vs. Head Start) or public pre-k (see Table 3 for the full set of results).

In terms of child care preferences most pertinent to low-income immigrants, mothers who prioritized kindergarten preparedness were less likely to choose unsubsidized ECE than Head Start. Mothers who prioritized having a caregiver who spoke English with the child were less likely to choose unsubsidized ECE than Head Start or public pre-k.

With regard to immigrant-specific characteristics, mothers who were English-proficient were less likely to use public pre-k than Head Start ($RRR=0.33$, $SE=0.12$) and mothers who were U.S. citizens were more likely to use unsubsidized ECE compared to Head Start. Mothers who lived in states with generous policies toward immigrants were substantially more likely to use unsubsidized ECE over public pre-k ($RRR=2.26$, $SE=0.67$).

Discussion

Grounded in the accommodations framework and ecocultural theories of child care selection, and using nationally representative data from the ECLS-B, this study sought to illuminate predictors and patterns of publicly funded ECE use by a rapidly-growing and potentially vulnerable subgroup: young children from low-income immigrant families. Consistent with the notion that preferences and choices are constrained by situational and contextual factors, significant links emerged between each of the four key dimensions of Pungello and Kurtz-Costes' model and ECE selection, including maternal characteristics, child characteristics, parental child care preferences, and contextual factors that exist both proximally (i.e., in the home) and more distally (i.e., in the community). Moreover, this study extended these models by highlighting the importance of considering a set of factors that seem to be especially salient for understanding the ECE decisions of low-income immigrant families, particularly for publicly funded ECE settings, which immigrant families

tend to underutilize. We mainly focus our discussion on these factors, as the findings related to the association between these immigrant-specific characteristics and ECE selection choices are the main contribution of this study.

In line with prior studies (Chaudry et al., 2010; Early & Burchinal, 2001; Fuller et al., 1996; Han, 2004; Kim & Fram, 2009; Miller et al., 2013; Miller, 2014; Tang et al., 2012), we found some associations between maternal, child, and child care preference variables and ECE type, although these links were limited. In general, even among low-income families, maternal and contextual factors related to socio-economic disadvantage predicted decreased likelihood of selecting unsubsidized ECE and increased likelihood of selecting Head Start or subsidized ECE. Unsubsidized ECE is among the most expensive ECE options for low-income families; without a child care subsidy, parents must privately pay the full cost of center or home-based care, whereas other programs like Head Start are free for poor families (Magnuson & Shager, 2010), and child care subsidies reduce the financial burden placed on parents. Therefore it makes sense that the most disadvantaged mothers would be least likely to use unsubsidized ECE but may still select Head Start or subsidized ECE; this intuition is supported by results from our descriptive analyses (not shown) that parents paid more for unsubsidized center care than for other alternatives (authors' calculations). Thus, it seems plausible that the most disadvantaged families were less likely to use non-Head Start or non-subsidized ECE programs because they are unaffordable for them.

One departure from this pattern was that unemployed mothers were more likely to select Head Start, public pre-k, or parent care compared to subsidized or unsubsidized ECE. It could be that unemployed mothers have the least financial means to pay for care; again, without a subsidy both center- and home-based care options (which make up the unsubsidized ECE group), unless the latter are provided for low or no cost by a relative or friend, require parents to privately pay for services. And, receipt of a child care subsidy is conditional on mothers meeting work requirements, so it makes sense that unemployed mothers would be less likely to choose subsidized ECE if they are ineligible. Therefore, low-income unemployed mothers may seek the lowest-cost care option for which their child is eligible, or keep their children at home. Head Start, which is targeted to poor families but has no parental work requirements, may best fit the needs of these unemployed mothers who seek non-maternal care.

Maternal child care preferences also emerged as important predictors of ECE type. Mothers who prioritized having a care setting that would prepare their child for school were more likely to choose Head Start, subsidized ECE, or unsubsidized ECE than parental care and also more likely to choose Head Start compared to unsubsidized ECE. Those who prioritized having a caregiver who would speak English with the child were more likely to select Head Start or public pre-k compared to unsubsidized ECE. It is not surprising that low-income families who prioritize school readiness are more likely to choose Head Start settings, given prior research showing that, compared to other types of settings used by low-income families, Head Start settings tend to score higher when it comes to developmental quality of care provided (Johnson, Ryan, & Brooks-Gunn, 2012). Perhaps mothers with these preferences who chose subsidized or unsubsidized ECE did so because they believed these programs offered similar benefits. One unexpected association, though, was that between a

stated preference for a caregiver of the same race/ethnicity, and selection into Head Start. A possible explanation for this link is that teachers in Head Start classrooms tend to look more like the families they serve, owing to the Head Start program's emphasis on parent classroom involvement (Schumacher, 2003). It is important to interpret all findings related to mothers' preferences with caution because mothers were asked about preferences at the same wave as ECE type was measured. Therefore, the directionality of the association between preferences and ECE selection is unclear.

This study provides additional evidence to suggest that community-level ECE availability is an important context that may influence ECE decision making (Gordon & Chase-Lansdale, 2001). Reduced availability of center-based care lessened the likelihood that a family would select public pre-k – a public center-based option – over parental care. This particularly interesting finding, in light of the role of contextual constraints suggested by Meyers and Jordan (2006), shines light on an area for further research as well as policy intervention. Future studies should include measures of local ECE availability and if findings are replicated, policymakers and ECE program administrators may want to target poor communities with large immigrant populations when seeking to increase enrollment of low-income immigrant children in center-based ECE. The association between reduced availability of home-based care and increased likelihood of choosing unsubsidized ECE is less clear; in our data, approximately half of unsubsidized settings were home-based. One possible explanation is that our availability measure, which assessed availability of formal home-based providers, was not capturing the drivers of selection into the mostly informal home-based options included in our unsubsidized ECE group. Further research is needed to understand the overlap of both formal and informal home-based ECE availability and low-income immigrant parents' selection into and away from unsubsidized home (and center-based) ECE.

Immigrant-Specific Factors

A major contribution of this study was to highlight a set of factors that seem to be particularly salient to ECE selection for low-income, immigrant families. Several of these were important predictors, including maternal region of origin, English proficiency, and citizenship status, as well as the availability of non-English speaking caregivers and the generosity of state policy toward immigrants. The fact that these factors significantly predicted ECE selection even in the context of other important maternal, child, child care preference, and contextual characteristics is noteworthy and points to a unique experience of low-income immigrant parents in the U.S. when it comes to choosing an ECE setting. In line with prior studies (Crosnoe, 2007; Santhiveeran, 2010), when compared to unsubsidized ECE, Hispanic immigrant families accessed Head Start at higher rates than did Asian immigrant families, perhaps because Hispanic families are generally more disadvantaged than Asians (Han et al., 2012) and are thus less likely to choose the most expensive care types (unsubsidized center- or home-based care).

Along with parental region of origin, maternal English proficiency was important in predicting Head Start enrollment, such that more proficient mothers were more likely to use Head Start in comparison to parent care and public pre-k. English proficiency may be a

proxy for a family's level of acculturation; as such, more acculturated mothers with greater English proficiency also might be more able to access information about their ECE options and thus might be more aware of availability or eligibility for Head Start. English proficiency also predicted selection of Head Start over pre-k, which could be explained by intimidation over enrollment processes: Head Start is perceived by non-English speaking families as welcoming (Greenfader & Miller, 2014), whereas enrollment in public pre-k invokes the formal school enrollment process and may trigger fears of deportation among undocumented immigrants.

Findings related to parental English proficiency and the reduced use of Head Start and public pre-k are of concern, as these types of publicly funded center-based ECE settings may provide these children and their families with more extensive immersion and exposure to the English language as well as greater opportunities to practice their oral English language skills as they interact with peers and teachers in the classroom. Prior research has suggested that these oral language skills are an important precursor for learning to read and write in English (Hoff, 2013). The expressive language benefits of center-based pre-k settings for children from non-English-speaking immigrant home environments may be important for directing these children toward a more positive developmental trajectory as they transition to school and move through the early elementary school years. Prior research has shown that stronger English language proficiency before kindergarten is linked to steeper growth in English language acquisition and academic achievement (Burns & Helman, 2009; National Clearinghouse for English Language Acquisition [NCELA], 2010), as well as enhanced social-emotional and behavioral outcomes (Chang et al., 2007; Han et al., 2012). Thus, it is important to identify and address barriers in accessing public center-based care setting by families with limited English proficiency.

One strategy for reducing these barriers might be increasing the supply of non-English-speaking care providers in the communities in which immigrants tend to live. Indeed, the current study found that families living in communities characterized by fewer non-English-speaking care providers had a lower propensity to select Head Start, public pre-k, and unsubsidized ECE than parent care. It stands to reason, then, that perhaps increasing the supply of bilingual caregivers in Head Start, public pre-k, and unsubsidized settings might induce non-English-proficient parents to enroll their children in these ECE modes.

Finally, state generosity of policies toward immigrants predicted greater use of Head Start when compared to parent care and of unsubsidized ECE when compared to public pre-k. States barring immigrant families from public programs may be characterized by a more pervasive anti-immigrant culture in the media and politics, which may contribute to misunderstandings of eligibility for benefits among immigrant families as well as a high level of fear of mistreatment and distrust of the government. Indeed, Perreira and colleagues (2012) found that low-income immigrant families often do not apply for public benefits when they are eligible because they are confused about rules of eligibility or they fear that unauthorized family members may be deported if they live in a mixed-status household. We did not see that state generosity of policies toward immigrants increased use of subsidized ECE, however, suggesting that all states still might do more to increase immigrant awareness of their access to public services, including child care subsidies.

Limitations

Although this study addresses an important policy-relevant question for the first time, it is not without its limitations. Notably, our study is correlational and thus causal conclusions cannot be inferred. Next, although the current study used much more refined ECE categories than prior studies, which have not typically distinguished beyond simple center- versus other distinctions nor among public ECE types, there is still substantial heterogeneity within these ECE types. Importantly, both the subsidized and unsubsidized categories in this study include both center- and home-based options, which could themselves be a mix of for- and non-profit (centers) and formal and informal (home-based) settings. Future studies with larger samples should consider the differential predictors of attending for- vs. non-profit and formal versus informal public and private ECE for low-income immigrant children.

Additionally, when considering links between parental country of origin and ECE selection, sample size constraints required us to collapse immigrant families into groups based on broad region of origin classifications. Though care was taken in making decisions about how to group countries into larger regions of origin, some regions were quite heterogeneous. In particular, parents in our “other” group, who emigrated from Africa, the Middle East, and Europe, come from countries that differ widely on economic development, language, literacy, religion, and child rearing philosophies. With such heterogeneity, it is difficult to make sense of ECE selection patterns for this group. Still, these families were included in the sample in an effort to counterbalance the heavy reliance of prior studies on children of Mexican or Asian immigrants because of their substantial representation in the U.S. (Crosnoe, 2007; Lahaie, 2008; Magnuson et al., 2006; Turney & Kao, 2009; Winsler et al., 2008). While Mexico and East Asia account for approximately half of all children of immigrants in the U.S., sizable numbers of children are born to immigrants from other countries, such as the Philippines, India, El Salvador, and the Dominican Republic (Capps et al., 2004; Fortuny, Capps, Simms, & Chaudry, 2009). To address this limitation in the literature, the current study sought to maintain the largest possible sample of children from immigrant families.

It is also important to recognize that the findings from the current study are only generalizable to children born to immigrant parents and not to foreign-born children who, as mentioned earlier, are not represented in the ECLS-B. This distinction is important because one might expect even greater differences in patterns of ECE use based on several of the immigrant specific characteristics in our sample if immigrant children, who may not be U.S. citizens, were included in the sample. As U.S. citizens, children of immigrants are eligible for federal and state child care subsidies and Head Start that noncitizen immigrant children are ineligible to receive (Capps et al., 2004).

Finally, the ECLS-B is a nationally representative cohort of children born in the U.S. in 2001; as such results of this study may not be applicable to children born in the U.S. today. Changes in the ECE landscape as well as in patterns of immigration to the U.S. since 2001 may mean that the associations reported in the present study might be different if studied today. More specifically, the availability of publicly funded ECE has grown in the last decade with the growing number of states offering universal pre-k or pre-k targeted to low-income families (Atchison & Workman, 2015), and immigrant children have become the

fastest growing group of American children (Tienda & Haskins, 2011). Public attitudes towards providing benefits for children of immigrants vary by state, however, making predictions about these patterns today difficult to estimate, as availability of publicly funded ECE for immigrants today might be more widespread due to increases in publicly funded ECE generally, or more limited if state generosity towards immigrants has not increased with the growing population of immigrant children living in the U.S. This limitation points to the need for replication with newer nationally representative data that can more accurately depict these associations as they exist today.

Policy Implications and Next Steps for Research

Results from the current study highlight the importance of considering a comprehensive, theoretically and empirically motivated set of characteristics – chief among them, immigrant-specific factors – in understanding the patterns of publicly funded ECE use by low-income immigrant families, families who tend to underutilize social programs, even when they are eligible to receive them (Capps et al., 2009; Perreira et al., 2012). This study also reveals variation in selection into the different kinds of ECE available to low-income families: publicly funded programs versus programs that may be less affordable for poor families, particularly without child care assistance. If findings are replicated, they point to areas amenable to policy intervention that could boost the enrollment of low-income children of immigrants in the kinds of center-based ECE that may best prepare them for kindergarten entry and school success.

One of the clearest ‘themes’ to emerge from the current study was that correlates of disadvantage – both in general, and also those that are specific to immigrants, such as English proficiency – were predictive of underuse of even publicly funded center-based ECE (aside from Head Start). At the same time, residence in states with more generous public policies for immigrants, and in communities with more center-based care and more non-English speaking care available, predicted increased use of certain ECE types including Head Start and public pre-k. This is encouraging, because increasing funding for and availability of public center-based ECE programming is responsive to policy intervention. One set of policy prescriptions, then, might be to increase the affordability of center-based ECE settings by elevating the generosity and availability of child care subsidies, and increasing funding for Head Start and public pre-k so these programs can serve more children of immigrants. Another recommendation might be that center-based ECE programs should also seek to hire and train bilingual teachers and caregivers, and to reduce the complications associated with application and enrollment procedures by providing information in multiple non-English languages. This latter recommendation might also ease enrollment for children of non-English proficient mothers, and for children whose mothers prioritize ECE settings that seem culturally or socially “familiar.” Of course, center-based ECE is not the best fit for all families, low-income immigrant or otherwise, and thus professional development and technical assistance strategies to elevate immigrants’ awareness of their eligibility for as well as their use of subsidies to help with costs associated with home-based ECE is another important future direction for ECE research in general.

Our findings also point to areas ripe for future research. One promising direction is an exploration of trajectories of public ECE use over time by low-income immigrant families. Knowing whether there is stability or change in the types of ECE these families use across the early childhood years could point to avenues for increasing enrollment in the kinds of care that best meet families' needs as well as the kinds that are most amenable to policy intervention. Information regarding the quality of ECE used by low-income immigrant families is needed. The ECLS-B collected observational data on the quality of care for a subsample of study children ($N \approx 1,800$). In our analytic sample of low-income children of immigrants, there were too few cases with child care quality observation data to predict variations in quality. Descriptively, though, we note that as hypothesized and consistent with prior literature, Head Start and public pre-k programs provided the highest quality of care. It will be important for future studies to collect child care quality data on immigrant families, so that these associations can be formally tested on a subsample of low-income immigrants. An obvious next step then is to estimate associations between care type and quality, and child outcomes among low-income children of immigrants. Together, this and future studies can highlight potential avenues for increasing participation in publicly funded ECE and ultimately elevating public service use in a rapidly-growing subgroup of our youngest children.

Acknowledgments

The authors would like to thank Portia Miller, Amanda Koury, and Jenna Finch for help with data and manuscript preparation. This research was supported by grant # F32 HD068083 to the first author from the National Institute of Child Health and Human Development (NICHD), and by a Foundation for Child Development Young Scholars Program research grant to the third author.

References

- Adams G, Rohacek M. More than a work support? Issues around integrating child development goals into the child care subsidy system. *Early Childhood Research Quarterly*. 2002; 17:418–440.
- Ansari A, Winsler A. Stability and sequence of center-based and family childcare: Links with low-income children's school readiness. *Children and Youth Services Review*. 2013; 35(2):358–366.
- Atchison, B., Workman, E. State pre-k funding: 2014–2015 fiscal year. Denver, CO: Education Commission of the States; 2015. Retrieved from <http://www.ecs.org/clearinghouse/01/16/97/11697.pdf>
- Barnett, WS., Carolan, ME., Squires, JH., Clarke Brown, K. The state of preschool 2013: State preschool yearbook. New Brunswick, NJ: National Institute for Early Education Research; 2013.
- Becerra RM, Chi I. Child care preferences among low-income minority families. *International Social Work*. 1992; 35(1):35–47.
- Bloom, HS., Weiland, C. Quantifying variation in Head Start effects on young children's cognitive and socio-emotional skills using data from the National Head Start Impact Study. New York, NY: MDRC; 2015. Retrieved from http://www.mdrc.org/sites/default/files/quantifying_variation_in_head_start.pdf
- Booth, A.Crouter, AC., Landale, N., editors. Immigration and the family: research and policy on U.S. immigrants. Mahwah, N.J: Lawrence Erlbaum Associates; 1997.
- Bornstein, MH., editor. Cultural approaches to parenting. Hillsdale, N.J: L. Erlbaum Associates; 1991.
- Bornstein, MH., Cheah, C. The place of "culture and parenting" in the ecological contextual perspective on developmental science. In: Rubin, KH., Chung, OB., editors. Parenting beliefs, behaviors, and parent-child relations: a cross-cultural perspective. New York: Psychology Press; 2006.

- Brandon PD. The child care arrangements of preschool-age children in immigrant families in the United States. *International Migration*. 2004; 42(1):65–87.
- Burns MK, Helman LA. Relationship between language skills and acquisition rate of sight words among English Language Learners. *Literacy Research and Instruction*. 2009; 48(3):221–232.
- Cannon, J., Jacknowitz, A., Karoly, LA. *Preschool and school readiness: Experiences of children with non-English speaking parents*. San Francisco, CA: Public Policy Institute of California; 2012.
- Capps, R., Fix, M., Henderson, E. Trends in immigrants' use of public assistance after welfare reform. In: Fix, M., editor. *Immigrants and Welfare*. Russell Sage Foundation; 2009. p. 123-152.
- Capps, Ra, Fix, M., Ost, J., Reardon-Anderson, J., Passel, JS. *The health and well-being of young children of immigrants*. Washington, DC: The Urban Institute; 2004.
- Chang F, Crawford G, Early D, Bryant D, Howes C, Burchinal M, Pianta R. Spanish-speaking children's social and language development in pre-kindergarten classrooms. *Early Education & Development*. 2007; 18(2):243–269.
- Chaudry, A., Henly, J., Meyers, M. *Conceptual frameworks for child care decision-making (ACF-OPRE White Paper)*. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services; 2010.
- Child Care Aware of America. *Parents and the high cost of childcare: 2015 report*. 2015. Retrieved from <http://usa.childcareaware.org/wp-content/uploads/2016/03/Parents-and-the-High-Cost-of-Child-Care-2015-FINAL.pdf>
- Child Trends Data Bank. *Child care: Indicators on children and youth*. 2013. Retrieved from http://www.childtrends.org/wp-content/uploads/2012/07/21_Child_Care.pdf
- Coley RL, Votruba-Drzal E, Collins MA, Miller P. Selection into early education and care settings: Differences by developmental period. *Early Childhood Research Quarterly*. 2014; 29:319–332.
- Crosby DA, Gennetian L, Huston AC. Child care assistance policies can affect the use of center-based care for children in low-income families. *Applied Developmental Science*. 2005; 9(2):86–106.
- Crosnoe R. Early child care and the school readiness of children from Mexican immigrant families. *International Migration Review*. 2007; 41(1):152–181.
- Early DM, Burchinal MR. Early childhood care: relations with family characteristics and preferred care characteristics. *Early Childhood Research Quarterly*. 2001; 16(4):475–497.
- Ferguson CJ. An effect size primer: A guide for clinicians and researchers. *Professional Psychology: Research and Practice*. 2009; 40(5):532–538.
- Fix, M., Passel, J. *The scope and impact of welfare reform's immigrant provisions*. Washington, DC: The Urban Institute; 2002.
- Forry ND, Simkin S, Wheeler EJ, Bock A. "You know how it makes you feel" Low-income parents' childcare priorities and definitions of ideal high-quality childcare. *Journal of Children and Poverty*. 2013; 19(2):107–126.
- Fortuny, K., Capps, R., Simms, M., Chaudry, A. *Children of immigrants: National and state characteristics*. Washington, DC: The Urban Institute; 2009.
- Fuller B, Holloway SD, Liang X. Family selection of child-care centers: The influence of household support, ethnicity, and parental practices. *Child Development*. 1996; 67(6):3320–3337.
- Fuller B, Holloway SD, Rambaud M, Eggers-Pierola C. How do mothers choose child care? Alternative cultural models in poor neighborhoods. *Sociology of Education*. 1996; 69(2):83.
- Fuller B, Kagan SL, Caspary GL, Gauthier CA. Welfare reform and child care options for low-income families. *The Future of Children*. 2002; 12(1):97–119.
- Geva E. *Second-language oral proficiency and second-grade language literacy*. 2006
- Gordon R, Chase-Lansdale PL. Availability of child care in the United States: A description and analysis of data sources. *Demography*. 2001; 38(2):299–316. [PubMed: 11392914]
- Gormley WT. The effects of Oklahoma's pre-K program on Hispanic children*. *Social Science Quarterly*. 2008; 89(4):916–936.
- Government Accountability Office. *More information sharing and program review by HHS could enhance access for families with limited English proficiency (Report to Congressional Requestors)*. Washington, DC: 2006.

- Greenfader CM, Miller EB. The role of access to Head Start and quality ratings for Spanish-speaking dual language learners' (DLLs') participation in early childhood education. *Early Childhood Research Quarterly*. 2014; 29:378–388. [PubMed: 25018585]
- Halgunsest LC, Ispa JM, Rudy D. Parental control in Latino families: An integrated review of the literature. *Child Development*. 2006; 77(5):1282–1297. [PubMed: 16999798]
- Han W-J. Nonstandard work schedules and child care decisions: Evidence from the NICHD Study of Early Child Care. *Early Childhood Research Quarterly*. 2004; 19(2):231–256.
- Han W-J. The academic trajectories of children of immigrants and their school environments. *Developmental Psychology*. 2008; 44(6):1572–1590. [PubMed: 18999323]
- Han W-J, Lee R, Waldfogel J. School readiness among children of immigrants in the US: Evidence from a large national birth cohort study. *Children and Youth Services Review*. 2012; 34(4):771–782. [PubMed: 22711952]
- Hernandez, DJ., Denton, NA., Macartney, SE. Early childhood education programs: Accounting for low enrollment in newcomer and native families. In: Alba, RD., Waters, MC., editors. *The next generation: Immigrants in Europe and North America*. New York, NY: New York University Press; 2011. p. 2007–2011.
- Hirshberg D, Huang DS-C, Fuller B. Which low-income parents select child-care? *Children and Youth Services Review*. 2005; 27(10):1119–1148.
- Huston AC, Chang YE, Gennetian L. Family and individual predictors of child care use by low-income families in different policy contexts. *Early Childhood Research Quarterly*. 2002; 17(4):441–469.
- Jiang, Y., Ekono, M., Skinner, C. Basic facts about low-income children: Children under 18 years, 2013. New York, NY: National Center for Children in Poverty; 2015.
- Johansen AS, Leibowitz A, Waite LJ. The importance of child-care characteristics to choice of care. *Journal of Marriage and Family*. 1996; 58(3):759–772.
- Johnson AD, Han W-J, Ruhm C, Waldfogel J. Child care subsidies and the school readiness of children of immigrants. *Child Development*. 2014; 85:2140–2150. [PubMed: 25156308]
- Johnson AD, Ryan RM, Brooks-Gunn J. Child-care subsidies: Do they impact the quality of care children experience? *Child Development*. 2012; 83(4):1444–1461. [PubMed: 22694173]
- Johnson AD, Martin A, Brooks-Gunn J. Who uses child care subsidies? Comparing recipients to eligible non-recipients on family background characteristics and child care preferences. *Children and Youth Services Review*. 2011; 33:1072–1083.
- Jung S, Fuller B, Galindo C. Family functioning and early learning practices in immigrant homes: Family functioning in immigrant homes. *Child Development*. 2012; 83(5):1510–1526. [PubMed: 22966920]
- Kahn JM, Greenberg JP. Factors predicting early childhood education and care use by immigrant families. *Social Science Research*. 2010; 39(4):642–651.
- Karoly LA, Gonzalez GC. Early care and education for children in immigrant families. *The Future of Children*. 2011; 21(1):71–101. [PubMed: 21465856]
- Kim J, Fram MS. Profiles of choice: Parents' patterns of priority in child care decision-making. *Early Childhood Research Quarterly*. 2009; 24(1):77–91.
- Koury AS, Votruba-Drzal E. School readiness of children from immigrant families: Contributions of region of origin, home, and childcare. *Journal of Educational Psychology*. 2014; 106(1):268–288.
- Lahaie C. School readiness of children of immigrants: Does parental involvement play a role? *Social Science Quarterly*. 2008; 89(3):684–705.
- Leibowitz A, Waite L, Witsberger C. Child care for preschoolers: Differences by child's age. *Demography*. 1988; 25(2):205–220. [PubMed: 3396747]
- LeVine, RA. Child rearing as cultural adaptation. In: Leiderman, S.Tulkin, R., Rosenfeld, A., editors. *Culture and infancy: Variations in the human experience*. New York, NY: Academic Press; 1977. p. 15–29.
- Li-Grining CP, Coley RL. Child care experiences in low-income communities: Developmental quality and maternal views. *Early Childhood Research Quarterly*. 2006; 21(2):125–141.

- Liang X, Fuller B, Singer JD. Ethnic differences in child care selection: The influence of family structure, parental practices, and home language. *Early Childhood Research Quarterly*. 2000; 15(3):357–384.
- Lowe ED, Weisner TS. “You have to push it—Who’s gonna raise your kids?”: Situating child care and child care subsidy use in the daily routines of lower income families. *Children and Youth Services Review*. 2004; 26(2):143–171.
- Magnuson K, Lahaie C, Waldfogel J. Preschool and school readiness of children of immigrants. *Social Science Quarterly*. 2006; 87(s1):1241–1262.
- Magnuson K, Shager H. Early education: Progress and promise for children from low-income families. *Children and Youth Services Review*. 2010; 32(9):1186–1198.
- Mather, M. Children in immigrant families chart new path. Washington, DC: Population Reference Bureau; 2009.
- Matthews, H., Ewen, D. Reaching all children? Understanding early care and education participation among immigrant families. Washington, DC: Center for Law and Social Policy; 2006.
- Matthews JS, Ponitz CC, Morrison FJ. Early gender differences in self-regulation and academic achievement. *Journal of Educational Psychology*. 2009; 101(3):689–704.
- Meyers MK, Jordan LP. Choice and accommodation in parental child care decisions. *Community Development*. 2006; 37(2):53–70.
- Miller E. Child care enrollment decisions among dual language learner families: The role of Spanish language instruction in the child care setting. *Early Childhood Research Quarterly*. 2016; 36:223–232. [PubMed: 26900255]
- Miller P, Votruba-Drzal E, Coley RL. Predictors of early care and education type among preschool-aged children in immigrant families: The role of region of origin and characteristics of the immigrant experience. *Children and Youth Services Review*. 2013; 35(9):1342–1355.
- Miller P, Votruba-Drzal E, Coley RL, Koury AS. Immigrant families’ use of early childcare: Predictors of care type. *Early Childhood Research Quarterly*. 2014; 29:484–498.
- National Clearinghouse for English Language Acquisition. The growing numbers of English learner students 1998/99–2008/09. Washington, DC: 2010. Retrieved from http://www.ncela.gwu.edu/files/uploads/9/growingLEP_0708.pdf
- NICHD ECCRN, Duncan GJ. Modeling the impacts of child care quality on children’s preschool cognitive development. *Child Development*. 2003; 74(5):1454–1475. [PubMed: 14552408]
- Obeng CS. Immigrants families and childcare preferences: Do immigrants’ cultures influence their childcare decisions? *Early Childhood Education Journal*. 2007; 34(4):259–264.
- Parish SL, Cloud JM, Huh J, Henning AN. Child care, disability, and family structure: Use and quality in a population-based sample of low-income preschool children. *Children and Youth Services Review*. 2005; 27(8):905–919.
- Passel JS. Demography of immigrant youth: Past, present, and future. *The Future of Children*. 2011; 21(1):19–41. [PubMed: 21465854]
- Perreira, KM., Crosnoe, R., Fortuny, K., Pedroza, J., Ulvestad, K., Weiland, C., Chaudry, A. Barriers to immigrants’ access to health and human services programs (ASPE Issue Brief). Washington, DC: Office of the Assistant Secretary for Planning and Evaluation; 2012.
- Phillips DA, Lowenstein AE. Early care, education, and child development. *Annual Review of Psychology*. 2011; 62:483–500.
- Peyton V, Jacobs A, O’Brien M, Roy C. Reasons for choosing child care: associations with family factors, quality, and satisfaction. *Early Childhood Research Quarterly*. 2001; 16(2):191–208.
- Pungello E, Kurtz-Costes B. Why and how working women choose child care: A review with a focus on infancy. *Developmental Review*. 1999; 19(1):31–96.
- Radey M, Brewster KL. The influence of race/ethnicity on disadvantaged mothers’ child care arrangements. *Early Childhood Research Quarterly*. 2007; 22(3):379–393.
- Ryan RM, Johnson A, Rigby E, Brooks-Gunn J. The impact of child care subsidy use on child care quality. *Early Childhood Research Quarterly*. 2011; 26(3):320–331. [PubMed: 21874092]
- Santhiveeran J. Child care preferences of foreign-born immigrant groups in California. *Journal of Family Social Work*. 2010; 13(1):45–55.

- Schulman, K., Black, H. Building Blocks: State child care assistance policies 2015. Washington, DC: National Women's Law Center; 2015. Retrieved from https://nwlc.org/wp-content/uploads/2015/11/CC_RP_Building_Blocks_Assistance_Policies_2015.pdf
- Schumacher, R. Family support and parental involvement in Head Start: What do Head Start performance standards require?. Washington, DC: Center for Law and Social Policy; 2003. Retrieved from <http://www.clasp.org/resources-and-publications/publication-1/0127.pdf>
- Tang S, Coley RL, Votruba-Drzal E. Low-income families' selection of child care for their young children. *Children and Youth Services Review*. 2012; 34(10):2002–2011.
- Tienda M, Haskins R. Immigrant children: Introducing the issue. *The Future of Children*. 2011; 21(1): 3–18.
- Turney K, Kao G. Pre-kindergarten child care and behavioral outcomes among children of immigrants. *Early Childhood Research Quarterly*. 2009; 24(4):432–444.
- U.S. Department of Health and Human Services, Administration for Children and Families. Head Start Impact Study (Final Report). Washington, DC: 2010.
- Vesely CK. Low-income African and Latina immigrant mothers' selection of early childhood care and education (ECCE): Considering the complexity of cultural and structural influences. *Early Childhood Research Quarterly*. 2013; 28(3):470–486.
- Weber, R. Understanding parents' child care decision-making: A foundation for child care policy making. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services; 2011. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/parents_childcare.pdf
- Weiland C, Yoshikawa H. Impacts of a prekindergarten program on children's mathematics, language, literacy, executive function, and emotional skills. *Child Development*. 2013; 84:2112–2130. [PubMed: 23534487]
- Winsler A, Tran H, Hartman SC, Madigan AL, Manfra L, Bleiker C. School readiness gains made by ethnically diverse children in poverty attending center-based childcare and public school pre-kindergarten programs. *Early Childhood Research Quarterly*. 2008; 23(3):314–329.
- Yesil-Dagli U. Center-based childcare use by Hispanic families: Reasons and predictors. *Children and Youth Services Review*. 2011; 33(7):1298–1308.
- Zimmerman, W., Tumlin, KC. Patchwork policies: State assistance for immigrants under welfare reform. Washington, DC: The Urban Institute; 1999.

Research Highlights

- We identified predictors of publicly funded early care and education (ECE) use in a sample of low-income children of immigrants
- Correlates of disadvantage are important predictors of public ECE use among this sample
- Immigrant-specific characteristics are particularly salient for explaining public ECE selection patterns

Table 1

Descriptive statistics: Low-income children of immigrants

	<i>M (SD) / %</i>	<i>Range</i>
<i>Maternal characteristics</i>		
Mother has < HS education	50.0	0–1
Mother has HS or GED	32.3	0–1
Mother has some college	13.8	0–1
Mother has BA or more	4.0	0–1
Mother < 20 years old at child's birth	10.3	0–1
Mother received any public benefits	82.6	0–1
Family experienced food insecurity	30.5	0–1
<i>Child characteristics</i>		
		0–1
Child has diagnosed special need	6.5	0–1
Child cognitive ability, age 2	121.7 (9.6)	93.1–160.0
Child is male	53.5	0–1
<i>Child care preferences</i>		
		0–1
Helps prepare child for kindergarten	88.4	0–1
Will provide care for sick child	77.6	0–1
Located close to home	81.4	0–1
Caregiver speaks English with child	77.3	0–1
Caregiver shares family's beliefs	77.7	0–1
Caregiver is same race or ethnicity	29.8	0–1
Caregiver speaks child's native language	46.7	0–1
Caregiver you already know	38.2	0–1
Caregiver is affiliated with family's religion	26.1	0–1
<i>Contextual variables</i>		
		0–1
Mother is single	14.4	0–1
# children age 6 and younger	0.8 (0.8)	0–6
# children age 7 and older	0.8 (0.8)	0–7
Mother works full-time	23.7	0–1
Mother works part-time	12.2	0–1
Mother is looking for work	12.0	0–1
Mother is unemployed	52.1	0–1
Family lives in an urban area	89.6	0–1
Less availability of home-based care	4.3 (0.4)	2.4–6.0
Less availability of center-based care	3.5 (0.3)	2.2–4.5
Mother feels there are good options for care	73.7	0–1
<i>Immigrant-specific characteristics</i>		
		0–1
Mother is Hispanic immigrant	80.6	0–1
Mother is Asian immigrant	6.3	0–1
Mother is other immigrant	13.1	0–1
Mother is proficient in English	33.6	0–1

	<i>M (SD) / %</i>	Range
Mother is U.S. citizen	21.5	0–1
Mother age at immigration	18.6 (8.7)	0–53
Less availability of non-English-speaking care	4.9 (0.8)	3.1–9.4
State has generous policies toward immigrants	63.3	0–1
<i>ECE type in preschool</i>		0–1
Head Start	22.7	0–1
Public pre-k	9.9	0–1
Subsidized ECE	7.5	0–1
Unsubsidized ECE	27.4	0–1
Parental care	32.5	0–1
<i>N</i>	1,050	

Source: ECLS-B 9-month Kindergarten Restricted Use Data File.

All estimates are weighted by NCES replicate weights W3R1–90.

All Ns rounded to nearest 50 per NCES requirements.

Table 2

Predicting preschool ECE selection among low-income children of immigrants

	Head Start		Public Pre-k		Subsidized ECE		Unsubsidized ECE	
	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)
<i>N</i>	200		100		100		300	
<i>Maternal characteristics</i>								
Mother has < HS education	1.53	(0.99)	0.70	(0.44)	0.96	(0.70)	0.56	(0.34)
Mother has HS or GED	2.00	(1.31)	0.61	(0.42)	0.80	(0.61)	0.61	(0.36)
Mother has some college	3.51 *	(2.09)	0.82	(0.58)	0.82	(0.69)	0.83	(0.53)
Mother < 20 years old at child's birth	1.12	(0.42)	0.45	(0.23)	1.17	(0.83)	0.41 *	(0.16)
Mother received any public benefits	2.45 *	(0.86)	1.40	(0.55)	2.48	(1.56)	1.00	(0.34)
Family experienced food insecurity	0.70	(0.19)	0.64	(0.21)	0.53	(0.23)	0.64	(0.16)
<i>Child characteristics</i>								
Child has diagnosed special need	0.69	(0.39)	1.87	(0.78)	1.99	(1.42)	0.50	(0.29)
Child cognitive ability, age 2	1.00	(0.01)	0.98	(0.02)	1.00	(0.02)	1.00	(0.01)
Child is male	1.42	(0.33)	1.63	(0.45)	1.58	(0.53)	1.69 *	(0.38)
<i>Child care preferences</i>								
Helps prepare child for kindergarten	3.10 **	(1.29)	2.10	(1.21)	7.12 *	(6.78)	1.15 **	(0.41)
Will provide care for sick child	0.89	(0.27)	0.58	(0.17)	0.48	(0.25)	0.48 *	(0.12)
Located close to home	0.85	(0.28)	2.67 *	(1.15)	0.62	(0.29)	2.16 *	(0.76)
Caregiver speaks English with child	0.95	(0.36)	1.04	(0.50)	0.97	(0.53)	0.46	(0.16)
Caregiver shares family's beliefs	1.55	(0.47)	0.74	(0.30)	1.62	(0.83)	1.45	(0.43)
Caregiver is same race or ethnicity	1.90 *	(0.53)	0.82	(0.33)	1.43	(0.58)	1.65	(0.51)
Caregiver speaks child's native language	0.67	(0.19)	0.85	(0.29)	1.14	(0.46)	0.81	(0.21)
Caregiver you already know	1.57	(0.48)	1.63	(0.57)	2.35	(1.06)	2.82 **	(0.82)
Caregiver is affiliated with family's religion	0.93	(0.33)	0.87	(0.37)	1.04	(0.48)	1.28	(0.38)
<i>Contextual variables</i>								
Mother is single	2.74 *	(1.08)	0.99	(0.58)	5.20 ***	(2.37)	2.05	(0.80)
# children age 6 and younger	1.24	(0.15)	1.16	(0.18)	0.79	(0.17)	1.03	(0.15)

	Head Start		Public Pre-k		Subsidized ECE		Unsubsidized ECE	
	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)
# children age 7 and older	1.11	(0.12)	1.16	(0.14)	0.85	(0.13)	0.89	(0.12)
Mother works part-time	1.65	(0.80)	1.19	(0.64)	0.67	(0.38)	0.87	(0.39)
Mother is looking for work	1.09	(0.50)	0.42	(0.26)	0.29 [*]	(0.15)	0.55	(0.24)
Mother is unemployed	1.16	(0.37)	0.84	(0.31)	0.34 ^{**}	(0.13)	0.33 ^{**}	(0.11)
Family lives in an urban area	0.51 [*]	(0.15)	0.75	(0.33)	1.77	(1.51)	0.56	(0.18)
Less availability of home-based care	1.73	(0.62)	2.31	(1.05)	0.94	(0.70)	2.25 [*]	(0.83)
Less availability of center-based care	0.37	(0.19)	0.19 [*]	(0.12)	0.81	(0.83)	0.53	(0.27)
Mother feels there are good options for care	1.35	(0.41)	1.70	(0.71)	1.85	(0.81)	1.15	(0.32)
<i>Immigrant-specific characteristics</i>								
Mother is Hispanic immigrant	0.52	(0.23)	0.51	(0.24)	0.54	(0.46)	0.28	(0.09)
Mother is Asian immigrant	0.43	(0.20)	0.72	(0.44)	1.15	(0.94)	0.53	(0.21)
Mother is proficient in English	2.13 ^{**}	(0.60)	0.70	(0.23)	2.07	(1.11)	1.42	(0.53)
Mother is U.S. citizen	1.16	(0.37)	1.14	(0.54)	1.85	(0.74)	2.13 [*]	(0.64)
Mother age at immigration	0.99	(0.01)	1.00	(0.02)	0.99	(0.03)	1.00	(0.01)
Less availability of non-English-speaking care	0.65 ^{**}	(0.10)	0.59 [*]	(0.12)	0.74	(0.23)	0.78 ^{**}	(0.14)
State has generous policies toward immigrants	1.87 [*]	(0.53)	1.12	(0.37)	2.90	(1.67)	2.53	(0.75)
<i>Post-estimation comparisons</i>								
Hispanic versus Asian	<i>ns</i>		<i>ns</i>		<i>ns</i>		<i>ns</i>	

Source: ECLS-B 9-month through Kindergarten Restricted Use Data File.

Standard errors are jackknife standard errors; all estimates are weighted by replicate weights W3R1–90.

*** $p < .001$,

** $p < .01$,

* $p < .05$

All Ns rounded to nearest 50 per NCES requirements; N = 300 in parental care (the base category).

Table 3

Predicting preschool ECE selection among low-income children of immigrants, all pairwise comparisons among ECE types

	Public Pre-k vs. Head Start		Subsidized ECE vs. Head Start		Unsubsidized ECE vs. Head Start		Subsidized ECE vs. Public Pre-k		Unsubsidized ECE vs. Public Pre-k		Unsubsidized ECE vs. Subsidized ECE	
	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)
<i>Maternal characteristics</i>												
Mother has < HS education	0.46	(0.30)	0.63	(0.46)	0.36	(0.19)	1.37	(1.10)	0.79	(0.50)	0.58	(0.45)
Mother has HS or GED	0.31	(0.22)	0.40	(0.30)	0.30*	(0.18)	1.29	(1.07)	0.99	(0.57)	0.77	(0.58)
Mother has some college	0.23*	(0.17)	0.23	(0.20)	0.24*	(0.14)	1.00	(0.90)	1.01	(0.71)	1.01	(1.00)
Mother < 20 years old at child's birth	0.41	(0.19)	1.05	(0.73)	0.36*	(0.15)	2.59	(2.07)	0.89	(0.47)	0.35	(0.27)
Mother received any public benefits	0.57	(0.27)	1.01	(0.67)	0.41*	(0.16)	1.78	(1.32)	0.71	(0.31)	0.40	(0.31)
Family experienced food insecurity	0.92	(0.34)	0.76	(0.32)	0.92	(0.24)	0.82	(0.44)	1.00	(0.34)	1.21	(0.55)
<i>Child characteristics</i>												
Child has diagnosed special need	2.70	(1.74)	2.88	(2.42)	0.73	(0.43)	1.07	(0.71)	0.27*	(0.16)	0.25	(0.19)
Child cognitive ability, age 2	0.98	(0.02)	1.00	(0.02)	1.01	(0.02)	1.02	(0.03)	1.02	(0.02)	1.00	(0.02)
Child is male	1.15	(0.34)	1.11	(0.40)	1.19	(0.26)	0.97	(0.42)	1.04	(0.31)	1.07	(0.39)
<i>Child care preferences</i>												
Helps prepare child for kindergarten	0.68	(0.40)	2.30	(2.00)	0.37*	(0.17)	3.39	(3.63)	0.55	(0.35)	0.16	(0.16)
Will provide care for sick child	0.65	(0.20)	0.55	(0.26)	0.54*	(0.15)	0.83	(0.46)	0.83	(0.27)	0.99	(0.48)
Located close to home	3.15**	(1.31)	0.73	(0.40)	2.55*	(0.96)	0.23**	(0.13)	0.81	(0.40)	3.49**	(1.59)
Caregiver speaks English with child	1.09	(0.44)	1.02	(0.45)	0.49*	(0.15)	0.93	(0.50)	0.45*	(0.17)	0.48	(0.23)
Caregiver shares family's beliefs	0.48	(0.19)	1.05	(0.46)	0.93	(0.26)	2.18	(1.22)	1.94	(0.75)	0.89	(0.48)
Caregiver is same race or ethnicity	0.43	(0.19)	0.75	(0.31)	0.87	(0.27)	1.73	(0.88)	2.01	(0.90)	1.16	(0.47)
Caregiver speaks child's native language	1.28	(0.54)	1.70	(0.72)	1.21	(0.38)	1.33	(0.58)	0.95	(0.34)	0.71	(0.27)
Caregiver you already know	1.03	(0.39)	1.49	(0.65)	1.79	(0.56)	1.44	(0.71)	1.73	(0.58)	1.20	(0.51)
Caregiver is affiliated with family's religion	0.93	(0.52)	1.11	(0.53)	1.37	(0.46)	1.19	(0.67)	1.47	(0.74)	1.23	(0.59)
<i>Contextual variables</i>												
Mother is single	0.36	(0.19)	1.90	(0.68)	0.75	(0.22)	5.27**	(3.24)	2.08	(1.22)	0.39*	(0.14)
# children age 6 and younger	0.93	(0.15)	0.64	(0.15)	0.83	(0.13)	0.68	(0.18)	0.89	(0.16)	1.30	(0.31)
# children age 7 and older	1.04	(0.14)	0.76	(0.12)	0.81	(0.12)	0.73	(0.13)	0.77	(0.11)	1.06	(0.18)

	Public Pre-k vs. Head Start		Subsidized ECE vs. Head Start		Unsubsidized ECE vs. Head Start		Subsidized ECE vs. Public Pre-k		Unsubsidized ECE vs. Public Pre-k		Unsubsidized ECE vs. Subsidized ECE	
	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)
Mother works part-time	0.72	(0.45)	0.41	(0.26)	0.53	(0.23)	0.56	(0.38)	0.74	(0.42)	1.31	(0.74)
Mother is looking for work	0.39	(0.27)	0.27*	(0.15)	0.50	(0.26)	0.69	(0.44)	1.30	(0.75)	1.88	(1.14)
Mother is unemployed	0.72	(0.30)	0.30**	(0.12)	0.29***	(0.09)	0.40*	(0.18)	0.40*	(0.15)	0.99	(0.39)
Family lives in an urban area	1.48	(0.67)	3.48	(2.80)	1.11	(0.37)	2.36	(2.01)	0.75	(0.35)	0.32	(0.22)
Less availability of home-based care	1.34	(0.56)	0.55	(0.38)	1.30	(0.41)	0.41	(0.30)	0.97	(0.37)	2.38	(1.62)
Less availability of center-based care	0.50	(0.27)	2.17	(2.13)	1.44	(0.61)	4.32	(4.20)	2.86	(1.53)	0.66	(0.60)
Mother feels there are good options for care	1.26	(0.58)	1.37	(0.55)	0.85	(0.24)	1.09	(0.61)	0.67	(0.31)	0.62	(0.27)
<i>Immigrant-specific characteristics</i>												
Mother is Hispanic immigrant	1.00	(0.51)	1.04	(0.88)	0.53	(0.22)	1.04	(0.99)	0.54	(0.23)	0.51	(0.44)
Mother is Asian immigrant	1.69	(0.87)	2.69	(2.16)	1.23	(0.51)	1.59	(1.37)	0.73	(0.37)	0.46	(0.37)
Mother is proficient in English	0.33**	(0.12)	0.97	(0.51)	0.67	(0.21)	2.94	(1.69)	2.01	(0.77)	0.69	(0.34)
Mother is U.S. citizen	0.98	(0.45)	1.60	(0.75)	1.84*	(0.52)	1.63	(0.85)	1.87	(0.81)	1.15	(0.50)
Mother age at immigration	1.00	(0.03)	0.99	(0.03)	1.00	(0.01)	0.99	(0.03)	1.00	(0.03)	1.01	(0.03)
Less availability of non-English-speaking care	0.91	(0.19)	1.14	(0.32)	1.20	(0.19)	1.25	(0.39)	1.32	(0.28)	1.06	(0.27)
State has generous policies toward immigrants	0.60	(0.21)	1.55	(0.78)	1.36	(0.38)	2.59	(1.32)	2.26**	(0.67)	0.87	(0.44)
<i>Post-estimation comparisons</i>												
Hispanic versus Asian	ns		ns		*		ns		ns		ns	

Source: ECLS-B 9-month through Kindergarten Restricted Use Data File.

Standard errors are jackknife standard errors; all estimates are weighted by replicate weights W3R1-90.

*** $p < .001$,

** $p < .01$,

* $p < .05$

N= 200 in Head Start; N= 100 in Public Pre-k; N= 100 in Subsidized ECE; N= 300 in Unsubsidized ECE; N= 300 in parental care.

All Ns rounded to the nearest 50 per NCES requirements.