Disentangling the associations between Latino mothers’ and fathers’ immigrant and socioeconomic and toddler’s cognitive and social skills

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Abstract

We examined how mothering and fathering behaviors mediated the association between parents’ immigrant and socioeconomic status (i.e. education and income) and their toddlers’ cognitive and social skills at 24 months. The study sample consisted of 500 toddlers of Latino heritage and their biological mothers and fathers who participated in the Early Childhood Longitudinal Study-Birth Cohort. Using structural equation modeling, our findings suggest that the pathways from parents’ immigrant status and SES to children’s cognitive and social skills are different for mothers and fathers and are domain-specific. Toddlers with higher cognitive scores lived with mothers who were native-born and in higher income households than toddlers with lower cognitive scores. These associations were not mediated through parenting behaviors. Toddlers living with higher educated mothers who were native born and in households with higher income had better social skills because their mothers were more responsive. Fathers’ education and immigrant status were not related to toddlers’ outcomes. These findings have implications for how to engage and support Latino mothers and fathers to promote children’s skills.

KEYWORDS: Latino children, immigration, education, income, ECLS-B, Fathers Paper submitted to ECRQ

Disentangling the associations between Latino mothers’ and fathers’ immigrant and socioeconomic status and toddler’s cognitive and social skills

Latino children, who comprise 20% of the total population of children in the U.S., account for approximately 34% of young children living in poverty, putting them at considerable risk for behavior problems and low academic achievement (Hernandez et al., 2007; NICHD Research Network, 2005). Yet, studies also show that many Latino children, even those living in disadvantage, perform well on achievement and cognitive tests and have good social skills (Crosnoe, 2007; Galindo & Fuller, 2010). This variability has been attributed to several factors, including diversity in socioeconomic status (SES), variation in parenting behaviors, and parents’ immigrant status (Grau, Azmitia, & Quattlebaum, 2009; Mistry, Biesanz, Chien, Howes, & Benner, 2008; Palacios, Guttmannova, & Chase-Lansdale, 2008). Although all these factors are implicated in some way, it is unclear how each contributes independently to children’s development. Additionally, what we know about children of Latino heritage is based on research that is focused mostly on older samples and less so on the toddler years, a foundational period for later development (Guo & Harris, 2000; Shonkoff, 2010); does not often consider the unique contributions that fathers, who are likely to live with their children in Latino families, can make to their children’s development (Cabrera, Shannon, & Tamis-LeMonda, 2007; Fry & Passel, 2009); is atheoretical and based on small samples of convenience over representing low-income families (Grau et al., 2009); and, generally confounds immigrant status with parents’ SES (e.g., Parke et al., 2004) or statistically controls out its effects (Magnuson, Lahaie, & Waldfogel, 2006; for exception, see Crosnoe, 2007). We use the Early Childhood Longitudinal Birth Cohort Study (ECLS-B), a nationally representative sample of children born in 2001, to model the simultaneously association between mothers’ *and* fathers’ immigrant status, levels of education and household income and toddler’s cognitive and social skills. We also test whether mothering and fathering behaviors mediate this association.

**Parents’ Socioeconomic Status and Children’s Cognitive and Social Skills**

The most common theoretical framework used to understand how parents’ SES, typically measured as education and income, matter for children’s development is resource theory. Parents with greater resources (e.g., education and income) invest more money and time in their children than parents with fewer resources (Haverman & Wolfe, 1995; Duncan, Magnuson, & Votruba-Drzal, 2014). This perspective is also referred to as the family investment model whereby parents with higher income and education are able to purchase more or higher quality items for the home environment such as educational toys, food, housing, clothing, books or computers that support learning and development (Sanacore & Palumbo, 2010; Brooks-Gunn & Markman, 2005; Haskins, Garfinkel, & McLanahan, 2014). Parents’ education and income (resources or human capital) predict variations in children’s outcomes (Mistry, Biesanz, Chien, Howes, & Benner, 2008). Thus in this model, family process (e.g. parenting) is the mediating mechanism that explains why distal factors such as SES influence developmental outcomes (Conger & Donnellan, 2007). A well established literature has shown that parents with fewer resources have children who score lower on cognitive tests and exhibit limited social skills, and these effects seem to be long-term and consistent across racial and ethnic groups (Conger et al., 2002; Leventhal Xu, & Brooks-Gunn, 2006; Runions & Keating, 2007).

When scholars have disaggregated SES, they find that maternal education, which is the most widely studied indicator, has been found to be the strongest sociodemographic predictor of mother and child behaviors (Bornstein & Bradley, 2003) and for both native-born and U.S. born families (Crosnoe, 2007; Mistry et al., 2008). Higher levels of maternal education have been positively related to a wide array of child outcomes (Duncan & Magnuson, 2005; Raviv, Kessenich, & Morrison, 2004). Although less extensively studied, emerging findings show that fathers’ education is also directly related to children’s outcomes. A study using data from a national sample of Latino babies and their parents found that fathers with at least a high school education had children with higher cognitive scores (Cabrera, Shannon, West, & Brooks-Gunn, 2006). Another study using data from a national sample of low-income parents and their children found that paternal education was associated with children’s cognitive and vocabulary skills at 3 years-of-age and children’s vocabulary and math skills at prekindergarten (Cabrera et al., 2007).

Household income, another indicator of SES, is also associated with many aspects of young children’s well being (Linver, Brooks-Gunn, & Kohen, 2002; Mistry, Biesanz, Taylor, Burchinal, & Cox, 2004; Mistry et al., 2008). As studies have shown, levels of income that place families at the poverty line have detrimental effects on children’s cognitive and social development, especially when experienced during early childhood (e.g., Duncan, Yeung, Brooks-Gunn, & Smith, 1998). Based on this review, we hypothesize that parents with more education and higher incomes will have children who score higher on measures of cognitive and social skills than parents with less education and lower incomes.

**Parents’ Immigrant Status and Children’s Outcomes**

One-in four children in the U.S. live in immigrant families (Hernandez, Denton, & Macartney, 2007), and almost all of these children under 6 years of age are US-born and are of Latino heritage (Capps, Fix, Ost, Reardon-Andreson, & Passel, 2004).Recent immigrants to the U.S. have been disproportionally poor, with low levels of education (Fortuny, Hernandez, & Chaudry, 2010). Yet studies based on immigrant Latino families and their children in the U.S. have produced mixed findings. One set of studies concludes that children with immigrant parents (second generation) tend to enter kindergarten with lower cognitive and language skills than children living with U.S.-born parents (third generation) (Crosnoe, 2007; Defeyter & Winsler, 2009). One potential explanation is that children living with immigrant parents have lower mastery of the English language and thus are not able to learn and perform as well in tests of academic skills as children whose parents speak English (native-born). Another set of studies show different findings. Studies that have followed children into elementary school report that children living with immigrant parents (second generation), many of whom live in economically disadvantaged conditions, exhibit faster academic growth in math and reading in the early grades allowing them to catch up to or surpass levels of performance of children living with U.S.-born parents (third generation; Palacios et al., 2008). These findings sometimes referred to as “the immigrant paradox” suggest that less acculturated children (e.g., immigrant or first generation) show better developmental outcomes than more acculturated children, even after controlling for SES (e.g., second or third generations; Garcia Coll & Kerivan Marks, 2011). Scholars have argued that these might reflect an “immigrant advantage”, that is, immigrant parents are more likely than native-born parents to exhibit certain protective factors (e.g. optimism, ethnic identity) that foster educational outcomes in their children (Tolan, 2014). Others suggest that those who immigrate are a select group that positions them well to succeed in the U.S. (Franzini, Ribble, & Spears, 2001; Markides & Eschbach, 2005).

Scholars have tried to reconcile the inconsistency between these sets of findings by suggesting that the “immigrant paradox” might be domain specific, for example primarily observed in health (Marks, Ejesi, & Garcia Coll, 2014; Markides & Eschbach, 2005). However, another explanation is that by controlling out the effects of SES as most these studies do, they are taking out the effects due to the strongest source of variability, namely education and income, leaving less variance to be explained by immigrant status. Thus effects due to an “immigrant advantage” might be small. However, this is difficult to ascertain because most studies are not clear on what “immigrant advantage” refers to and do not report effect sizes for these associations (e.g., Markides & Esechach, 2005). Nevertheless, findings about the potential “immigrant advantage” have been taken to imply that parents’ education is not as important as the advantage that being immigrant confers on children’s wellbeing. Most of these studies are not very clear regarding what is the “immigrant advantage” and how to measure it and are mostly based on parents’ immigrant status.

A better approach to understanding how *immigrant* parents influence their children’s development is to tease apart the effects of parents’ SES--education and income--from the effects of immigrant status by simultaneously including both in statistical models. This approach would tell us how much of the variance is attributed to parents’ education, which is potentially malleable, and how much is attributed to parents’ immigrant status, which is not. Because parents’ education is the strongest predictor of children’s outcomes and because of compulsory education laws in the U.S., we would expect later generation Latinos, especially those born here, to have higher levels of education (at least higher than 9th grade) than their foreign-born counterparts (who immigrate from countries such as Mexico where compulsory education laws are much different). These group differences in educational levels might translate into benefits for children of later generations, placing them at an advantage compared to children of immigrant parents. Any variance attributed to immigrant status might be a proxy for other things such as parents’ beliefs and values. Studies that have examined the associations between parents’ beliefs and values and children’s outcomes among immigrant Latino families are few and the studies that have done so report very small effects (Cupito, Stein, & Gonzalez, 2014; Zucker & Howes, 2009). Thus we would expect that if “immigrant status” is a proxy for parent’s beliefs, these effects might also be small. Because there is no clear guidance in the literature of how immigrant status is related to children’s outcomes, we do not hypothesize the direction of association but explore how mothers’ and fathers’ immigrant status relates to toddlers’ cognitive and social skills, over and above the independent effects of income and education. We expect that parent’s education will be stronger related to children’s outcomes than immigrant status.

**Parenting Behaviors as Mediators**

Resource theory suggests that parents’ resources –education and income--are channeled through aspects of the home environment, such as parenting behaviors, to influence children’s early cognitive and language development (Cabrera et al., 2006; Iruka, LaForett, & Odom, 2012; Mistry et al., 2008). Mothers with higher levels of income are more invested—spend more time with their children in enriching and stimulating activities --than their low-income counterparts (Duncan & Magnuson, 2005; Votruba-Drzal, 2003). Father involvement also varies by levels of education; more educated fathers engage in more high quality interactions than less educated fathers (Malin, Karberg, Cabrera, Rowe, Cristofaro, & Tamis-LeMonda, 2012).

A growing literature shows that mothering behaviors mediate the association between parents’ education and children’s outcomes (Cabrera et al., 2006; Chase-Landale, D’Angelo, & Palacios, 2007; Guo & Harris, 2000; Von Figueroa et al., 2006). This investment pathway has also been tested with immigrant families (Iruka et al., 2012; Mistry et al., 2008). Mistry and colleagues (2008) found that language/literacy stimulation and maternal supportiveness mediated the associations between SES and children’s cognitive outcomes among both immigrant and native families. Iruka and colleagues (2012) reported similar findings across racial/ethnic groups finding mediation through more positive and less negative parenting (observed) and mother report of engagement in activities. Finally, using the ECLS-B, Glick and colleagues (2009) found that mothering practices and the home environment partially mediated the association between immigrant mothers’ immigrant status (assessed as age of arrival in the U.S.) and their children’s cognitive scores (Glick, Bates, & Yakibu, 2009).

However, to date no study has tested whether the investment pathway also works through fathering behaviors and not just through mothering. In other words, is SES also channeled through fathering? This neglect may reflect measurement issues (few studies collect father-child or father engagement data) as well as the assumption that because fathers are mostly breadwinners and spend less time interacting with children their contribution is mostly financial. However, recent research has found that Latino fathers are more likely than other minority fathers to live with their children and spend time with them (Child Trends, 2014) and that fathers of young children, including Latinos, are highly involved in their caregiving (Cabrera, Hofferth, & Schae, 2011). Thus, it is plausible that SES also works through improving fathering behaviors. We test whether the association between mothers’ and fathers’ education and income and children’s skills is mediated through both mothering and fathering behaviors.

**Control Variables**

To isolate the independent contribution of mothers’ and fathers’ resources (education and income) and immigrant status on children’s cognitive and social skills, we control for child gender (Leaper, 2000; Maccoby, 1998) and child age at the first wave of data collection when children were approximately 9 months old because there was variation in the timing of the ECLS-B across different families and not every child was the same age at assessment. We also control for parents’ ethnicity, English proficiency, and for early parenting (for both mothers and fathers) because it has been linked to later parenting and child outcomes (Belsky, 1984).

**Current Study**

The current study tested the family investment model of the associations between Latino parents’ SES (education and income) and immigrant status and toddlers’ cognitive and social skills at 24 months in a national sample of Latino children and their parents (see Figure 1). We also tested whether mothers and fathers engagement in cognitive stimulating activities mediate this association. Our hypotheses were: (1) Mothers and fathers with more education and income will have children with higher cognitive and social skills; (2) Mothers and fathers with more education and income will have children with higher cognitive and social skills because of increased maternal supportiveness and father engagement in cognitive stimulating activities. We also explore whether the association between parents’ immigrant status and children’s outcomes is also mediated by increased parenting behaviors. By disentangling the effects of immigrant status from parents’ SES, the current study sheds light on the relative importance of these factors as they pertain to toddler’s cognitive and social skills. Testing the direct and indirect effects of father engagement is a notable contribution because despite research showing that fathers make a unique contribution to their children’s development, they are rarely included in studies of immigrant parents with young children (Cabrera & Garcia Coll, 2004; Grau et al. 2009).

**Method**

**Participants**

This study used data from the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B), which is a nationally representative study of children born in the United States in 2001. The ECLS-B sample was designed to represent the nearly four million children born in the United States in 2001. The initial sample was selected using a clustered list frame approach and the sampling frame included registered births in the National Center for Health Statistics’ vital statistics system. The primary sampling units (PSU) were counties or groups of counties. Children were sampled by occurrence of birth within these PSUs. The initial sample excluded children who had died or who had been adopted after the issuance of the birth certificate and infants whose birth mothers were younger than 15 years at the time of their child’s birth (NCES, 2005a). The children in the ECLS-B are being followed longitudinally at 9-months, 24 months, 48 months, and kindergarten; the present study used data from the 9- and 24-month surveys.

The baseline year consists of 10,688 infants and includes 2,193 children whose mothers identified them as Latino (67% were identified by their mothers as Mexican American and 33% were identified as members of different Latino groups, including Puerto Rican, Central American, and Dominican). Nearly all children who participated in the ECLS-B lived with their biological mothers at 9 months of age and most lived with their biological fathers (78%). Approximately 74 percent of all mothers and 72 percent of Latino children’s mothers who were screened for the study completed a parent computer-assisted interview. Among the total sample of children with a completed mother interview, 96 percent completed the child assessments while 95 percent of Latino children with a mother interview did so.

The 24-months data collection consists of 9,850 toddlers (Nord, Edwards, Andreassen, Green, & Wallner-Allen, 2006). The unweighted 2-year response rate for the parent interview was 93 percent (Nord et al., 2006). The unweighted response rate for resident fathers was 76 percent (Nord et al., 2006). Results from preliminary analysis comparing respondents present at the 9-month survey (N=10,688) to those who were present at the 24 months data collection (N=9,850) suggest that the two samples did not differ dramatically in their basic demographic characteristics measured at 9 months (see Appendix Table 1).

This study focuses on two-parent families because the main purpose of this study is to examine the effect of mothers’ and fathers’ parenting on toddler’s outcomes at 24 months. Also, we excluded nonresident fathers because of their low levels of participation at 9 months and high levels of attrition at 24 months. Of N=9,850, 1,900 mothers identified their children as Latino (1,300 Mexican American and 650 other Latino). Of these, we restricted the sample to two-parent biological families (N=1,500), to cases with no missing data on children’s outcomes (N=1001), to cases with resident father data at 24 months (N=933), and to cases with no missing weights (N=500). The final analytical sample consists of 500[[1]](#footnote-1) Latino children who had at least one parent of Latino origin, who lived with both biological parents at 9-months and whose parents remained in a co-residential union by 24-months, whose mothers completed a parent interview at both waves of data collection, and whose children completed a cognitive and social behavior assessment at approximately 24 months of age.

Procedure

The ECLS–B collected data on mothers, fathers, and children. During home visits, trained field staff conducted a computer-assisted interview with mothers, assessed infants’ mental development, and videotaped mother-infant interactions. At 9 months, mother-infant interactions were videotaped for 45 seconds to five and a half minutes during a semi-structured teaching task. Following the Nursing Child Assessment Teaching Scale protocol (NCATS; Sumner & Spietz, 1994), mothers were asked to select and teach their infants a new activity from a list of age-appropriate activities (e.g., banging two blocks together, turning pages in a book). At 24-months, mother-child interaction was videotaped while the parent-child dyad was asked to complete the Two Bags Task.

**Measures**

The measures used in the ECLS-B were adapted from other federal surveys of young children and their families; or, developed specifically for use in the ECLS-B and are available in Spanish and English (National Center for Education Statistics, 2005a, 2005b). A multi-step procedure was used to translate the ECLS-B instruments into Spanish: (1) Instruments were translated from English to Spanish. Translator were given copies of any previously translated items that had been used in prior national studies as a point of reference; (2) Initial Spanish and English versions were given to a second translator for review. This second translator created a second draft of the Spanish instrument; and, (3) A third person compared the second draft Spanish to the English version.

**Measures of Dependent Variables**

***Toddlers’ cognitive ability****.* We use the *Bayley Short Form–Research Mental Scale (BSF-R)*, which is a shortened version of the Bayley Scales of Infant Development-Second Edition (BSID-II; Bayley, 1993), a standardized assessment of mental and motor development for children from birth to 42 months of age, to assess children’s cognitive ability at 9 and 24 months. The BSF-R was especially designed for the ECLS-B and includes mental and motor scales, but only the mental scale was used in this analysis. The BSF-R mental scale includes items designed to assess children’s cognitive and language ability such as memory, means-end behavior, problem-solving, and vocalizations and gestures through standardized tasks (e.g. naming pictures, verbalizing, compare sizes; Flanagan & West, 2004). Children were assessed in their homes by trained field staff. Standardized toys, verbal prompts and modeling were used to administer a range of tasks just like they are in the full BSID-II. The core set of items for the 2-year BSF-R mental scale has 19 items, including three language items scored by observation. The overall measure of the mental scale is designed to assess toddler’s cognitive development including memory, means-end behavior, exploratory competence, object permanence, expressive communication, and receptive communication.

***Toddlers’ social skills****.* Children’s social behavior at 24 months was measured using the Two Bags children’s behavior scales (e.g., joint book reading and pretend play with a set of dishes), which is a modified version of the Three Bags Tasks used in the Early Head Start Research and Evaluation Project. It is a semi-structured task that asks the mother and the child to play for 10 minutes with different sets of toys from two bags (Owen, Barfoot, Vaughn, Dominguez, & Ware, 1996). The only restriction was that they had to play with the toy in bag number 1 first. The sessions were videotaped and analyzed by trained researchers who coded the behavior of the parent and the child on global scales that range from 1 = *very low* to 7 = *very high,* whichcorrespond to behavior domains known to be important to children’s socioemotional development (Nord et al., 2006). Inter-rater reliability was established at 95% (Andreassen & Fletcher, 2007).

The videotaped data were coded on three global child behaviors (i.e., child engagement of mother, child quality of play, and child negativity toward mother). We used the three global measures of child behaviors to construct an overall measure of children’s social behavior. *Children’s Engagement of Parent* reflects the extent to which the child shows, initiates, and maintains interaction with the mother, and the extent to which the child communicates positive regard or positive affect to the parent. At the higher end of the scale, the child expresses sustained positive affect toward the parent (through smiling, and laughter) and frequently looks at and attempts to interact with the mother. At the lower end of the scale, the child displays no affect with the parent or ignores or overtly rejects the parent. *Children’s Quality of Play* assesses the child’s ability to sustain attention to and involvement with objects. A child low on sustained attention could seem apathetic, bored, distracted, distressed, or aimless, while a child high on sustained attention is able to focus attention when playing with an object and appears involved in what he/she is doing. *Child Negativity* measures the degree to which the child shows anger, hostility, or dislike toward the parent. At the high end, the child is repeatedly and overtly angry with the parent. This scale was reverse-coded so that higher scores indicate less child negativity.

We summed each of these three scales, which we refer to as *positive affect*, *sustained attention*, and *negative affect*, to construct an overall measure of children’s social behavior, which ranges from 6 to 21 with an average score of 15.2 (Cronbach alpha of .76).

**Measures of Independent Variables**

***Immigrant status****.* Immigrant status was based on parents’ reports of where they were born. We created a dichotomous variable where 1 indicates U.S. born status and 0 indicates foreign-born status. Parents born outside the United States were considered foreign-born while parents born in the U.S. were considered native-born. A majority of the foreign-born parents arrived in the United States after age 6 (62 % of foreign-born mothers and 56 % of foreign-born fathers); 7 % of mothers and 6 5 of fathers arrived before the age of 6. Parents who arrived before age of 6 were included in the U.S.-born category because they were schooled and socialized in the U.S. and are no different in terms of demographics of interest to U.S.-born citizens (Glick et al., 2010).

***Parents’ education and household income.*** We use three dichotomous variables to capture parents’ educational attainment: 1) less than high school degree (omitted category); 2) high school degree, no more; 3) some college or more. Mothers’ and fathers’ education is included separately and is based on the educational attainment at baseline. Annual household income at baseline is available in categories ranging from 1 ($5,000 or less) to 13 ($200,001 or more).

***Mothers’ parenting at 24 months.***To assess mothers’ parenting at 24 monthswe use the quality of the mother-child interaction observed during the Two Bags task to capture mother supportiveness at 24 months. The six parenting rating subscales of the Two Bags assess global mother behaviors: Parental Sensitivity, Parental Intrusiveness, Parental Stimulation of Cognitive Development, Parental Positive Regard, Parental Negative Regard, and Parental Detachment. Each subscale is rated on a 7-point Likert-type scale ranging from very low to very high. We include only positive dimensions of mothering because there is little variability on the negative dimensions. The scale for the overall score of mother supportiveness (weighted average of cognitive stimulation, positive regard, and sensitivity) ranges from 1 to 7.

***Fathers’ parenting at 24 months.***At 24 months, we use a measure of fathers’ engagement in cognitively stimulating activities to capture his parenting behaviors when the child was 9 months old. This measure is based on how often in the last month the father reports reading to the child, telling stories, and singing songs. Responses range from 1 = *not at all* to 4 = *every day* with higher scores indicating more involvement. Responses to these three items were summed to create an overall score of father engagement in cognitive stimulating activities which ranges from 1 to 12. The Cronbach’s alpha for scores on fathers’ cognitive stimulation at 9 months was .66.

**Control Variables**

We control for variables at the individual level (child cognitive ability, gender, and age). To assess children’s ability at 9 months, we use theBSF-R (BSID-II; Bayley, 1993). The core set of items at 9 months included 11 items. Depending on the child’s performance on this core set, he or she was administered nine basal or nine ceiling items. The mental core item set ranged in age from 5 to 13 months, while the basal items reached down to four months and the ceiling items to 19 months. Item response theory (IRT) calibration and scoring were used to develop a mental scale score. IRT true-score equating was used to put the BSF-R results on the same 0-to-178-point scale used by the BSID-II. The BSF-R mental scale score is an estimate of the number of items a child would have answered correctly had the full BSID-II been administered. The reliability of the BSF-R mental scale score was .79. Child’s gender is derived from his/her birth certificate. Boys are coded one and girls are coded zero. Child’s age in months at the time of 24-month assessment is collected from parent interview.

Because of the number of Latino ethnic groups in the ECLS-B (e.g. Puerto Rican (PR), Cuban, other) we ran a series of ANOVAs on the variables in the models and conducted multiple comparisons to determine which groups were significantly different from each other (results not shown). These analyses revealed that (1) PR children have higher cognition scores at 24 months than Mexican American children, (2) mothers and fathers from PR have been in the U.S. longer than mothers and fathers from Mexico, (3) Mexican mothers' and fathers' education levels are lower than all other Latino groups. Based on these findings, we included one dummy variable to denote Mexican American families versus other Latinos (PR, Cuban, other).

We also control for mothers’ and fathers’ English proficiency, which is based on their responses to four items assessing how well s/he speaks, reads, writes, and understands English (1 = *not very we*ll to 4 = *very well*). Mothers and fathers reporting that English was the primary language spoken in the home were assigned a 4 across all four items. The four items were recoded so that 1 = *very well* and 0 = *pretty well to not very well at all* and then summed to create an index of proficiency for each parent (a score of 0 represented low proficiency and a score of 4 represented high proficiency). A frequency distribution indicated that the proficiency score was bimodal with a large portion of the mothers and fathers having either a 0 or a 4. Therefore, we recoded this variable into a dichotomous variable where one indicates more English proficient (scores of 3 or 4) and zero indicates less proficient (scores of 0–2).

Finally, we control for early parenting. To measure mothering behaviors at 9 months, we use the quality of mother-infant interactions assessed from 5 minute videotape using the Nursing Child Assessment Teaching Scale (NCATS), which is a binary scale of 50 parent items assessing parent-child interaction (sensitivity to cues, response to child’s distress, cognitive growth fostering, and socioemotional growth fostering) where 1 = *observed* and 0 = *not observed*. Possible scores range from 0 to 50 with higher scored indicating more positive and responsive maternal interactions (alpha = .67). At 9 months, fathers’ engagement in cognitive stimulating activities was the sum of three items: how often in the last month he read to the child, told stories, and sang songs. The Cronbach’s alpha for scores on fathers’ cognitive stimulation at 24 months was .69.

**Results**

**Preliminary Analyses**

Structural equation modeling (SEM) was used to examine the hypothesized associations among parents’ immigrant status, education, household income, parenting behaviors at 24 months, and children’s cognitive and social skills at 24 months. An advantage of SEM over more traditional multiple regression techniques is that it is confirmatory enabling researchers to specify a theoretical model *a priori,* estimate it, and evaluate how well the data fit the model (Kline, 2005). Furthermore, recent research suggests that SEM effectively controls for measurement error when estimating both direct and indirect effects and provides unbiased estimates of mediation effects (Cheung & Lau, 2008). We use the root mean square error of approximation (RMSEA) and the comparative fit index (CFI) to evaluate goodness of fit. Fit is considered good if the value of the CFI is close to one and the RMSEA is less than or equal to .05. (The minimum threshold for acceptable fit is at .90 for the CFI and ≤ .08 for the RMSEA; Kline 2005).

Analyses were conducted using Mplus version 7.2. In only a few cases we found measures with missing information (e.g., fathers’ English proficiency). However, the amount of missing information was small, ranging from about 5–10 percent. Full information maximum likelihood estimation in Mplus was used to handle all missing data. Research shows this method offers several advantages over more traditional approaches (Acock, 2005). All data were weighted using the appropriate 24-month longitudinal weights for analyses that utilize father information at both the 9- and 24-month surveys—either alone or in combination with data collected through the parent interview and/or birth certificate (Nord et al., 2006). Because we weighted the multivariate regressions, we used the MLR estimator in Mplus, which produces maximum likelihood parameter estimates with standard errors and a chi-square test statistic that are robust to non-normality and non-independence of observations (Muthén & Muthén, 2007).

**Descriptive and Bivariate Analyses**

Table 1 shows means and percentages for the main variables in our analysis. Approximately 40% of mothers and fathers were U.S.-born. The educational attainment of mothers was about equally distributed: 33% have less than a high school (HS) degree, 34% have a HS diploma, but no more, and 32% have some college or more. Fathers appeared to be slightly less educated than mothers: nearly 37% have less than a HS degree, 35% have no more than a HS degree, and 29% have some college or more. A majority (63.8%) had an annual household income between $15,001 and $50,000 while 17 percent reported incomes above $50,000. Overall, US-born mothers and fathers had higher levels of education across the three categories than foreign-born (FB) counterparts (findings not shown). Of the FB sample, a third of mothers and almost two thirds of fathers report less than 8th grade education compared to 3% of native-born mothers and 15% of native-born fathers. Of the native-born sample, almost one fifth of mothers and fathers had a college degree; this proportion was less than 10% for FB mothers and fathers.

Twenty four month old children in this sample scored between 95.2 and 149.1 on the BSF-R with an average cognitive assessment of 124.2, which was slightly lower than the average reported for all children sampled at 24 months (127.1; Nord et al., 2006). Children’s social skills score based on their Two-Bags assessment ranged from 6 to 21 with an average score of 15.2, which was similar to the average score reported for all 24-month old children (15.6).

Mothers in this sample, on average, received a supportiveness score at 24 months of 4.1 (*SD*= .9) and NCATS scores of 33.6 (*SD*=4.4). Fathers in this sample, on average, reported engaging in a moderate amount of cognitive stimulation with their children at both 9 months (*M*=6.5, *SD*=2.1) and 24 months (*M*=6.9, *SD*=2.0).

Table 2 shows the correlation matrix for the analysis variables. The correlations provide preliminary support for our model. Children’s cognitive and social skills at 9 and 24 months are correlated with both mother supportiveness and father engagement at 9 and 24 months. The results also show significant correlations among measures of parents’ immigrant status, education, income, and children’s skills.

**Structural Equation Models**

Table 3 presents unstandardized and standardized parameter estimates from the model predicting child’s cognitive and social skills. Betas with values less than .10 are considered small effects, values around .30 are medium effects, and values greater than .50 are large effects (Cohen, 1988). Both hypothesized models produced a good fit. The cognitive development model had a CFI = .93 and a RMSEA = .04. (With approximately 90% confidence, the RMSEA was between .02 and .06.) The social development model had a CFI = .95 and a RMSEA =.04. (With approximately 90% confidence, the RMSEA was between .02 and .06.).

The results in Table 3 suggest that the direct association between parents’ immigrant status, education, and income were identical in both the cognitive and social skills models. To minimize redundancy, these findings are summarized together here. Controlling for maternal supportiveness (i.e., cognitive stimulating, positive regard, and sensitivity) at 9 months, U.S.-born mothers, exhibited more supportiveness at 24 months (β =0.13 p < .05) than FB mothers. This association was not found for fathers. Father engagement (i.e., engaging in cognitive stimulating activities such as reading, telling stories, singing song) was not associated with immigrant status. Maternal education (i.e. at least some college; β = .19, p< .05) was significantly associated with mothers’ supportiveness at 24 months, after accounting for mothering at 9 months.

**Children’s cognitive skills at 24 months***.* When we examined how parents’ immigrant status, education, and income were related to children’s cognition at 24 months, we found different pathways of influence for both mothers and fathers (see Figure 2). Neither mothers’ or father’s education measured at 9 months was directly related to toddlers’ cognitive skills at 24 months. However, household income was (β = .12, *p*< .05). Moreover, U.S.-born mothers had children with higher cognition scores at 24 months (β = .14, *p*< .05) relative to FB mothers. This association was not found for fathers. We found no mediation effect of mother supportiveness of father engagement at 24 months on the association between parents’ education, income, and immigrant status on children’s cognition scores. Although there was a statistically significant and positive indirect effect of maternal education (some college) on children’s cognition, none of the specific indirect effects were significant rendering the mediation uninterpretable.

**Children’s social skills at 24 months.** The influence of parents’ immigrant status, education, and income on children’s social skills (assessed as the degree to which the child showed, initiated, and maintained interaction with the mother, the child’s ability to sustain attention to and involvement with objects) was mostly indirect and only for mothers (see Figure 3). The influence of our variables at 9 months on children’s social skills was mediated through mothers’ supportiveness at 24 months, controlling for 9 months maternal responsiveness. Mothers with at least some college when their infants were 9 months and mothers reporting higher incomes had children with higher social skills because they were more supportive at 24 months, accounting for mothering at 9 months. For education and income both the total (β = .16, p < .001 and .08, p< .05, respectively) and specific indirect (β = .14 and .13, p<. 05, respectively) were statistically significant. The link between mothers’ immigrant status and children’s social skills was also mediated by mothers’ supportiveness at 24 months. Children whose mothers were U.S.-born exhibited more positive social behaviors because mothers were more supportive at 24 months of age. Both the total indirect effect (β = .11, *p*< .05) and specific indirect effect through 24 months parenting (β =.09, p< .05; data are not shown) were statistically significant. The total indirect effect of having a father with some college on children’s social behavior through parenting behaviors was positive and statistically significant, but no specific indirect effects were found.

**Discussion**

The main goal of this study was to disentangle the effects of parents’ immigrant status from the effects of education and income on children’s skills and to test whether this association was mediated by parenting behaviors. In doing so, we drew from resource theory and extended the family investment model by examining the half-longitudinal mediational effects of parents’ SES and children’s outcomes (Cole & Maxwell, 2003) trough fathering behaviors and not just maternal behaviors as typically assessed in the literature (Mistry et al., 2008; Iruku et al., 2012). We focused on toddlerhood because this is a foundational period for language and social skills and there is very little information on the early environments of Latino toddlers. Our national sample was very diverse in terms of immigrant status (almost 60% of the children had mothers and fathers who were foreign-born), income, and educational attainment. Because all children in the ECLS-B were born in the U.S., our study compares second generation (i.e. U.S. born children of foreign-born parents) to third generation (i.e. parents and children born in the U.S.).

Given the national focus on the wellbeing of children living with immigrant parents, we briefly highlight important descriptive information on our sample of Latino children and their families. On average, U.S.-born Latino toddlers’ cognitive scores (Mean=124) are slightly lower than the average reported for the entire sample (Mean=127). However, the range is quite large (95.2 and 149.1) suggesting that there are *many* Latino toddlers who are scoring more than 2 SD above the mean and highlights the tremendous variability in this population. In contrast and consistent with other studies with older children (Galindo & Fuller, 2010), Latino toddlers are not behind their peers in social competence skills. This finding suggests that their early experiences in the home may be characterized by strong social orientation and cultural values such as familism that emphasize interpersonal relationships and getting along with others (De Von Figueroa-Moseley, Ramey, Keltner, & Lanzi, 2006). In terms of their immigration status, almost two thirds of Latino parents in our sample were FB and we found significant differences between them and their US-born counterparts. The most notable difference is that among FB Latinos, between one-third and two thirds report less than an 8th grade education (compared to less than 3% to 15% of US-born mothers and fathers, respectively). The difference is reversed at the end of the education spectrum, with almost two thirds of US-Born Latinos reporting some college or a college degree (compared to one-fifth of FB). These differences in parents’ educational levels create dramatically different learning experiences for children, which can drive within and across group disparities. Future studies need to have more nuanced measures of education and go beyond the HS vs. less than HS dichotomy to get a better understanding of the variability in this population.

In contrast to past studies, we tested the family investment model with two different domains of development and through parenting behaviors of both mothers and fathers of toddlers. We hypothesized that parents with more education and income would have toddlers with higher cognitive and social skills because of increased maternal supportiveness (observed cognitive stimulation and responsiveness) and father engagement (reports of cognitive stimulation). We found partial support for our hypotheses. For cognitive skills, neither mothers’ or fathers’ education was significantly related over time to toddler’s cognition, but household income was in the expected direction, although the effect was small. These findings are puzzling at first, but they are consistent with studies that have not found mediation through parenting with minority mothers of kindergarten children (e.g., Iruku et al., 2012) and with other studies showing that income is important, especially in the early years (Duncan & Brooks-Gunn, 1997). The lack of support for mediation through our parenting variables suggests that the parenting behaviors measured in this study, with a heavy emphasis on cognitive stimulation activities such as reading and telling stories, may not be common for some parents of toddlers. Indeed, in our study only parents with some college engaged frequently in cognitive stimulating activities with their infants or toddlers. Engaging in cognitive stimulating activities with infants or toddlers is even more rare among fathers (Cabrera, Hofferth, & Schae, 2011). Our findings further show that education and income work through different channels and thus have different implications for policies and interventions. This differential pathway is difficult to see when studies model SES as one construct (e.g., Guo & Harris, 2000).

How do Latino parents promote their toddlers’ social skills? As hypothesized, we fund that maternal education and household income were linked to toddlers’ social skills through increased maternal responsiveness at 24 months, although the effect size was small. Toddlers were more socially competent when they lived with mothers who had at least some college and in households with higher incomes because their mothers were more responsive to them during parent-child interactions. But we found no support for our direct effects or for father effects hypotheses. Although the indirect effect through maternal responsiveness was small, the concurrent association between maternal supportiveness at 24 months and toddlers social skills was large. This suggests that accounting for children’s characteristics (cognitive ability, age, and gender), which were stronger related to children’s skills than parents’ resources, maternal responsiveness is central for the development of social competence.

Because of lack of clarity in the literature we did not specify the direction regarding of the link between immigrant status and children’s outcomes. We found that U.S.-born Latino mothers had toddlers with higher cognitive scores (third generation) than FB Latino mothers (second generation toddlers) and higher social skills because they engaged in more responsive mothering at 24 months. These findings do not support the immigrant paradox that later generations perform worse than earlier generations (Garcia Coll & Kerivan Marks, 2011). Net of the effects of education and income, third generation toddlers in our sample appeared to have better cognitive and social skills than their second-generation counterparts. One explanation might be that U.S.-born mothers have internalized child rearing practices that emphasize literacy (such as reading, story telling) and high quality parent-child interactions (i.e., supportiveness) in the early childhood years, even at infancy, and may then provide more cognitive stimulating activities to their young children and are more responsive than their FB born counterparts. However, we did not find these associations for fathers. Fathers’ immigrant status (and their education) was not significantly related to parenting behaviors or their children’s outcomes. This finding calls for more research in understanding the timing of father effects but it is generally consistent with the view that father engagement is less dependent on context than mothers’ behaviors (Doherty et al., 1998).

In summary, our findings make a contribution on several levels. First, we include both mothers and fathers and offer a more ecological valid way for understanding how the resources of both parents as well as their immigrant status matter for Latino toddlers’ cognitive and social skills. Second, we disentangle the effects of immigrant status, education, and income and show that these variables have a unique and direct or indirect association with children’s skills depending on the developmental domain and the and gender of the parent. Although the effect sizes of all variables in our model are small, (largest effect sizes were due to child characteristics) the findings are promising in showing sources of variability and pathways of influence. We also found no support for the “immigrant advantage” instead, we found that third generation Latino children have higher cognitive and social skills than second generation, after controlling for SES variables. This finding reflects the fact that U.S-born Latino parents have on average more education and income than FB-Latino parents.

*Limitations.* The findings of this study need to be considered in the context of the following limitations. First, we do not have comparable observational measures of father-child interactions. Unfortunately, the ECLS-B does not include observed father-child interaction data. Future studies should explore the family investment pathway through observed father-child interactions, which is a better measure of the quality of parenting than are self-report measures.

Second, a bias analysis showed that our analytic sample was more educated and employed than those Latino families not included. Although our findings are generalizable to Latino children in the U.S., they are representative of children who live with parents who have more education and are employed.

Despite these limitations, this study makes an important contribution. First we point out that as a group, Latino toddlers do not lag behind their peers in social competence skills. This is a strength that policies, schools and programs can build on. Second, contrary to the view that acculturation might be a developmental risk factor for children of immigrants; we find support for the opposite view. By examining these associations longitudinally, we learn that U.S.-born Latino mothers have toddlers who might be more prepared (higher cognitive and social skills) to succeed in school than children living with immigrant parents. Third, although the effect sizes are small, our findings highlight the differential importance of levels of maternal education and household income for different domains of development during the early years. These findings move us closer to understanding the causal association between children’s early environments and later functioning and highlight the sources of variability within Latinos. In our study, almost two thirds of FB Latino parents had less than 8th grade education. This might be the largest source of within-group variation and underscores the view that one size-fit-all strategies cannot be effective at promoting the wellbeing of all Latino children; they may be particularly ineffective at helping children living in very disadvantaged environments. Yet, as we have shown here even toddlers living with very poor parents exhibit the social skills they need to succeed at school. Thus, programs and policies need to approach these families not as empty-handed but as bringing something important to the table.

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1. NCES policy on the use and dissemination of results requests that users report unweighted sample sizes rounded to the nearest fifty. [↑](#footnote-ref-1)