The School Readiness of the Children of Immigrants in the United States:

The Role of Families, Childcare and Neighborhoods

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ABSTRACT: At present, little is known about the welfare of very young immigrant children, since the emphasis thus far has been on the integration of school-aged children and youths into host societies. This study seeks to redress this research gap by synthesizing existing research on both the children of immigrants and early childhood development. It asks two questions. First, is there a nativity gap between the second and third-plus generations in their school readiness measured in terms of reading and receptive comprehension skills, during their preschool years? Second, if it exists, which factors account for this nativity gap – family resources, childcare arrangements, or neighborhood contexts? In asking the latter question, this study strives to add a distinct sociological perspective to the study of the second-generation during early childhood.

Based on analysis of Waves 1, 3 and 5 of the Fragile Families Study of Child Well-being, I find mixed evidence for the existence of a nativity gap in cognitive outcomes. In terms of receptive vocabulary skills as measured by the Peabody Picture-Vocabulary Test (PPVT), I find that a significant second-generation disadvantage does exist and it appears to have widened over time between the ages of 3 and 5. However, in terms of word recognition as measured by the Woodcock-Johnson Letter-Word Identification Test (WJ-LWIT), there appears to be no significant difference. Further post-estimation tests show that this is not simply due to a discrepancy in the construction validity of these two instruments; instead, the different results are a function of the tests' different objectives given that the PPVT measures receptive vocabulary skills while the WJ-LWIT measures reading skills. The implication is that the second-generation enter the classroom with a disadvantage but only in terms of certain skills. Given that there is a significant second-generation disadvantage for receptive vocabulary skills, I probe further into the institutional mechanisms through which this disadvantage operates. Net of demographic characteristics, family resources matter a lot in explaining the nativity gap in receptive vocabulary. Compared to the role of family resources, childcare arrangements and neighborhood contexts do not appear to directly reduce the nativity gap, once demographic characteristics and family resources are accounted for. That is not to suggest that they do not matter. Instead, given that these factors are highly correlated with the amount of family resources available to children, it is likely that all these factors operate in tandem to produce a significant nativity gap.

At present, little is known about the welfare of very young immigrant children, since the emphasis thus far has been on the integration of school-aged children and youths into host societies (e.g. Leventhal et al. 2006; Portes and Hao 2004; Zhou and Bankston 1994). However invaluable these studies are in understanding how well the children of immigrants fare, particularly at school, and in predicting their socioeconomic mobility as adults, they cannot ascertain how early the onset of these nativity differences is. Researchers across the disciplines are thus increasingly turning their attention to the early childhood period to better understand how learning gaps between the children of immigrant versus native-born parentage – that is, second- and third-plus generations, respectively – are formed and persist prior to school entry (Fuller et al. 2009; Johnson de Feyter and Winsler 2009; Takanishi, 2004). The recent availability of longitudinal and large-scale birth cohort studies, such as the Fragile Families Study of Child Well-being, facilitates analyses which address early childhood research with a focus on nativity.

This study seeks to redress this research gap by synthesizing existing research on both the children of immigrants and early childhood development. It asks two questions. First, is there a nativity gap between the second and third-plus generations in their cognitive outcomes, measured in terms of reading and receptive comprehension skills, during their preschool years? Second, if it exists, which factors account for this nativity gap – family resources, childcare arrangements, or neighborhood contexts? In particular, this study strives to add a distinct sociological perspective to the study of the second-generation during early childhood because the bulk of research in this area has been conducted by psychologists and educational researchers, who almost exclusively focus on family inputs while neglecting the role of broader structural and institutional arrangements, such as the effects of formal versus informal childcare in addition to neighborhood compositions. Finally, this study leverages the recent releases of birth cohort data by extending the analytical scope from birth to preschool (i.e. ages 0 to 5 years), which improves upon prior research which is limited to the birth-to-toddler age range (i.e. ages 0 to 3 years).

What do we know about the educational performance of the children of immigrants?

Assimilation is a broad concept. A pertinent operationalization of assimilation for studying the children of immigrants is their educational performance. Existing research has primarily focussed on educational achievement (e.g. grades), aspiration (e.g. desire to attend college), and

attainment (e.g. highest level of schooling), indicators which are limited to the purview of studying school-aged children, particularly young adults. The transition from adolescence to adulthood is a pivotal life stage in the pathway of mobility – college entry is a major predictor of labor market success. Educational performance among the second-generation varies tremendously across ethno-national origin groups (Zhou 1997). Ethno-national variations in educational performance are accounted by inter-group differences in resources and constraints. For one, the immigrant population is highly bifurcated by socioeconomic status such that some ethno-national groups are, on average, more highly educated and have higher incomes than others (Oropesa and Lansdale 1998). Living in households of native parentage, these resources are transmitted from immigrant parents to children, which is obviously advantageous for their educational performance. Resources can range from financial to psychological support provided by immigrant families and communities. As Kao and Tienda (1995) find, family optimism about the future, a common attribute of immigrant homes, plays an important role in determining school success. Such optimism is translated into actual behaviors and practices within immigrant households that help children do better at school. Beyond parental resources and familial aspirations, the contextual effects of schools and neighborhoods also matter for the scholastic achievements of the second-generation (Portes and Zhou 1993; Portes and Rumbaut 2001).

There has been substantial research on how the 'new' second-generation compare to the descendants of previous immigrant cohorts as well as to their contemporaries of the third-plus generations. Because the majority of the 'new' second generation, whose parents immigrated not so long ago, is still "coming of age," researchers have taken educational performance as the ultimate indicator of their assimilation, as opposed to income or occupational mobility. However, while the age composition of the 'new' second generation has limited research on adult outcomes, it should not limit research on early life outcomes, which are powerful predictors of life course trajectories. Research on the early childhood of the second-generation should provide invaluable insight for theorizations about their general assimilation –whether these are theories on segmented (Portes and Rumbaut 2001) or linear assimilation (Alba and Nee 2003) – which have, up to this point, relied on empirical evidence starting at the period of early adolescence.

What do we know about the early childhood period?

In his landmark article in *Science*, James Heckman (2006), the Nobel-prize laureate for economics, makes a compelling case for why early childhood is the single most important time period for skills formation. Drawing upon evidence from research in economics, neuroscience and developmental psychology, he argues that early environments have a tremendous impact on the process of neuro-cognitive development and skill formation that extends beyond the early childhood period into adolescent and adult life stages. Heckman's article represents the culmination of research on early childhood, as well as consolidates academic and policymaking interest in targeting early childhood a priority on the research agenda. Just as there is presently a lack of research about early childhood nativity gaps, academics and practitioners have focused most attention on the achievement gap among school-aged children, in spite of overwhelming evidence for the sizeable disparities that already exist by the time children enter kindergarten.

In recent years, there has been a proliferation of new methods and instruments that make it possible to investigate the process of behavioral and cognitive development among infants and young children. Disparities by socioeconomic background, gender, and race – most notably, the black-white achievement gap – have been thoroughly examined. By comparison, research on nativity differences during early childhood is, at present, scant.

Why do nativity gaps in school readiness matter?

As said, little is known about the disadvantages accrued by the children of immigrants during early childhood and given such disadvantages, how prepared they are for school in comparison to children with native-born parents. That said, a few empirical studies have focused on the early childhood outcomes of the children of immigrants (DeFeyter and Winsler 2009; Fuller et al. 2009; Padilla et al. 2006). Outcomes analyzed in these studies include health disparities at birth, neuro-cognitive development, and socio-behavioral problems. Fuller et al. (2009) examine the health and cognitive development of Latino toddlers at ages 9 and 24 months, using the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B) data. This is a comprehensive study which examines the mediating role of various maternal practices and family supports for the healthy development of toddlers who are living in immigrant households. Their findings both confirm and contradict the Hispanic 'immigrant paradox': although the infants and toddlers of Latina mothers – who tend to

be poorer and less educated but paradoxically, more likely to practice healthy prenatal practices than native-born white mothers – continue to exert positive health, they also show signs of lagging behind other children in terms of their cognitive development. The authors argue that this emergent health and cognitive gap between second-generation Latino children and other children is largely due to the lower school attainment of Mexican-American mothers, along with weaker pre-literacy practices and the higher ratio of children to adults in households, compared to white middle-class populations.

Similarly, DeFeyter and Winsler (2009) contend with the issue of the 'immigrant paradox' in their study on the early developmental competencies of immigrant children during their preschool years. Drawing from a sample of low-income children receiving subsidies to attend childcare centers in Miami, they use diagnostic tests and teacher-reports to assess the children's cognitive development. Like Fuller et al., they find that first- and second-generation immigrants lagged behind children in non-immigrant families in their cognitive and language skills, but they also find that the children of immigrants excelled by comparison in socio-emotional skills and behavior, which they deem to be a distinct 'immigrant advantage'.

Although these studies shed light on questions about how the children of immigrants are doing during early childhood, which is still a nascent and underdeveloped area of research, they have their own share of limitations. While Fuller et al. used a nationally-representative dataset, their analysis is limited by the short age span (i.e. ages 9-24 months) covered in the released waves of the ECLS-B. As such, they do not provide information on the health and cognitive development of children in their preschool ages (i.e. ages 36-60 months), a crucial period for grasping their skills formation – specifically, literacy – which are particularly useful for assessing their preparedness for kindergarten entry. On the other hand, while DeFeyter and Winsler capture a sample of preschoolers for their analysis, the generalizeability of their sample to the national population is very limited given that its sampling frame is limited to one city (i.e. Miami). Aside from these methodological issues, the major drawback of these studies is that they account for nativity gaps by solely individualistic factors, such as maternal practices or household resources, without acknowledging contextual factors, such as the role of neighborhoods and communities. Given that the bulk of research on the early childhood of the second-generation has been spearheaded by psychologists and educational experts, the emphasis on parental behaviors,

practices and resources is expected. However, introducing a distinct sociological perspective, which underscores the importance of context, to this area of research could offer an invaluable contribution. This study will seek to do so by asking how key social institutions factor into the creation of an early childhood nativity gap.

Three Sites of Inequality

In the literature on social inequality, three institutions – families, schools and neighborhoods – are commonly identified as prime sites for the production and reproduction of inequality, particularly across generations. Research has documented the myriad ways in which these institutions shape children's life chances, starting at birth. While they perpetuate social inequalities, they can also be targeted sites for reducing disparities, particularly with effective government interventions. For the purposes of this study, which examines *pre*-school aged children, childcare arrangements will substitute schools.

Family. Families are likely the first and most influential social institution with which children come into contact. Parents and extended families are involved in many ways, including the development of children's cognitive skills as well as their socio-emotional capacities, values and aspirations. Socioeconomic differences between households, in terms of income and parental education, and the intergenerational transmission of wealth, whether through allocation or socialization, are the most obvious reasons for why families play a vital role in the reproduction of inequality (Blau and Duncan 1967; Kerckhoff 1976). Other household characteristics, aside from SES, matter as well, including family structure and patterns of family formation (McLanahan and Percheski 2008; Sigle-Rushton and McLanahan 2004). In addition to differential transmissions of wealth and resources from parent(s) to children, parental strategies and practices – literacy activities, disciplinary measures, conversational styles, among others – vary across family structures, with significant impact on the child's development (Laureau 2002).

Schools/Childcare. Schools can perpetuate or even exacerbate existing inequalities among children of different familial backgrounds. The educational system itself is stratified by SES: by virtue of the funding system, schools have vastly unequal resources, whether these are qualified teachers, small classroom ratios or opportunities for extracurricular activities (e.g. Fleischman and Heppen 2009; Murnane and Steele 2007; Portes and Hao 2004; Raudenbush and Bryk 1986). The

notion of school contexts exerting independent effects on child development is pertinent for the study of childcare as well, with a focus on how formal versus informal childcare affects child development in the short and long term, if there are any differences.

Many studies on the achievement gap by SES and minority status recommend increased access to quality childcare among low-income and minority children as a policy solution. However, researchers are uncertain about the actual benefits of early childhood programs, particularly in the long term (Gomby et al. 1995). Among studies which find that children attending early childhood programs have a boost in their cognitive outcomes (e.g. IQ, language development, school achievement), researchers describe two ways for why early childcare experiences could alter the course of their school careers in the long-run. First, preschools can improve children's ability to think and reason as they enter school, enabling them to learn more in the early grades and over time, maintaining a certain level of learning accumulation (Schweinhart et al. 1993). Second, in addition to actual improvements in cognitive ability, children's attendance of early childcare programs can increase their motivation for academic success as well as provide a support network for parents, who are encouraged to develop a working relationship with teachers and school administrators in order to improve their children's learning experiences (Benasich et al. 1992).

In one of the few studies which examine the childcare arrangements of immigrant families, Brandon (2004) finds that children in immigrant families, especially those in low-income immigrant families, were found less likely to use center-based childcare. Mexican, Asian, and other Hispanic children are particularly less likely to use center-based childcare. He concludes that the nativity and ethnic differences in the usage of formal childcare has implications for achievement gaps in schools.

Neighborhoods. Like going to a poorly resourced school, growing up in poor and segregated neighborhoods can have pernicious effects on children's life chances. Wilson's book, *The Truly Disadvantaged* (1987), pioneered much of the recent sociological research on the examination of "neighborhood effects" which argues that, net of family SES, neighborhood conditions can directly affect individual outcomes. Living in areas of concentrated disadvantage not only limits the kinds of resources to which their inhabitants have access, but also leads to increasing social isolation from the mainstream and limited interactions between people of different SES backgrounds, which results in constraints on the opportunity structures and aspirations of children (Duncan et al.

1998; Jencks and Mayer 1990; Sampson 2008). In the child psychology literature, there is ample evidence about the detrimental effects of cumulative exposure to environmental stressors on child development (e.g. Appleyard et al. 2005; Evans and English 2002; Shaw et al. 2001). Such stressors can be physical, such as substandard housing, noise and crowding, and/or psychosocial, such as the lack of social support, poor role models, and high rates of neighborhood violence.

In terms of immigration, there is a well-developed literature on the role of co-ethnic communities and ethnic enclaves on the lives of first- and second-generation children. For one, ethnic communities are a source of financial and social capital, the latter of which immigrants parents can draw upon in order to face the challenges of raising children and youth, who are lured by new lifestyles, media-driven consumption aspirations, and peer influences that are unfamiliar to those not raised in American society (Caplan et al. 1992; Cardak and McDonald 2004; Fernández-Kelly and Schauffler 1994). Furthermore, as previously mentioned, immigrant communities can foster collective norms and expectations about academic success, as a means for upward mobility among the second-generation (Louie 2004; Zhou and Bankston 1994). Less documented, however, are the possible downward-levelling pressures on the development of children living in co-ethnic, highly concentrated immigrant communities.

In synthesizing existing research on the children of immigrants, on early childhood development, and on key social institutions in the study of inequality, this study asks two questions. First, is there a nativity gap between the second, 2.5 and third-plus generations in their school readiness at (approximately) ages 3 and 5 years? Second, if a significant nativity gap exists, which factors account for it – family resources, childcare arrangements, or neighborhood contexts?

Data and Analytical Sample

This study uses data from the Fragile Families and Child Wellbeing Study.[1] The study follows a cohort of approximately 5000 children born in large U.S. cities between 1998 and 2000, the

[1] Aside from the Fragile Families Study (FFS), another large-scale birth cohort data set available for the study of child wellbeing is the Early Childhood Longitudinal Survey, Birth Cohort of 2001 (ECLS-B). Both studies have overlapping but different aims and objectives. Families in the FFS reported lower household incomes and parents reported lower earnings, fewer years of completed education, and were more likely to be African American and less likely to be non-Hispanic white. One important difference between FFS and ECLS-B, particularly for the purposes of this study, is

majority of whom are born to unmarried parents. This is a purposeful selection bias, given the primary interest of the survey. The sample, when weighted, is representative of all non-marital births to parents residing in cities with populations over 200,000.

This analysis uses the baseline interview, the interviews from the core survey and in-home surveys at waves 2 and 3, in addition to the contextual data based on the census tract in which the parent(s) lived at each wave of the interview.[2] The completion and response rates for the core survey at each wave are as follows: For the mothers, they are at 100% and 86%, respectively, at baseline, 86% and 88% at wave 2, and 85% and 87% at wave 3. For the fathers, they are at 79% and 79%, at baseline, 67% and 72% at wave 2, and 65% and 70% at wave 3.[3]

This analysis uses the sample drawn from the core Fragile Families Study for the in-home assessments at waves 2 and 3. Among the 4,789 mothers surveyed in the baseline interview, 3,288 (68.5%) and 3,001 (62.3%) participated in the in-home assessment at waves 2 and 3, respectively. In the following analyses, respondents with missing data on any of the key variables included in

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that ECLS-B does not include important variables about the mother's nativity, including her country of origin and citizenship status (Wagmiller forthcoming). Given the omission of these variables in the ECLS-B, FFS is a more appropriate dataset in this analysis given the research questions stated above.

[2] Baseline interviews with mothers and fathers were conducted shortly after their child's birth. Mothers were interviewed in person in the hospital within 48 hours of the birth, and fathers were interviewed in person as soon as possible thereafter, either in the hospital or wherever they could be located. Follow-up interviews with both mothers and fathers occur at 12 months (wave 1), 36 months (wave 2), 60 months (wave 3), and 108 months (wave 4). At each follow-up interview, data are collected on many topics including child health and development, parents' attitudes and behaviors, parents' socioeconomic status, family environment and use of public programs. Data collection in the Fragile Families Study is staggered across the twenty cities. As of March 2010, interviews from baseline to wave 3 have been completed in all twenty cities, and the wave 4 follow-up survey is in the field. Starting at wave 2, a subset of the core sample is selected to participate in the In-Home Longitudinal Study of Pre-School Aged Children which includes a primary caregiver survey and in-home assessments. The child's primary caregiver (typically the child's mother, unless the child lives with the father or a non-parental caretaker) participates in an additional in-depth interview of about an hour that focuses on parenting, child health, and development. This interview, usually conducted in the child's home, is accompanied by a set of direct assessments of parenting, child health, and development.

[3] Given the low response rates of fathers, the current analysis does not include any variables reported by the father. Multiple imputation techniques typically are reserved for non-response rates that are not greater than 15 per cent. Therefore, characteristics of the father are not included in the analysis, unless they are provided by the mothers, who have a comparatively higher response rate.

this analysis are omitted. With list-wise deletion, the sample sizes are 2,018 respondents in wave 2 and 1,869 respondents in wave 3.[4] In terms of representativeness, since the foci of FFS are not on issues of immigration nor ethnicity, it does not capture all of the ethno-immigrant groups presently residing in the U.S. However, the national weights applied in the descriptive analyses will adjust for racial and ethnic representativeness. On the other hand, the percentage of first-generation immigrant parents in the FFS sample is almost exactly representative of the national population at the time the baseline survey was conducted, at 13% of the entire sample.

Key Variables

Key outcome:

School readiness – Peabody Picture Vocabulary Test and Woodcock Johnson Letter-Word Identification Test. As stated above, gaps in school readiness among preschoolers are increasingly recognized as an important form of inequality among children. School readiness is a multi-faceted concept. Preparedness for school involves both cognitive and non-cognitive (i.e. psychosocial and behavioral) skills. Both sets of skills are arguably equally important for academic success. However, this study will focus solely on the cognitive skills for school readiness. The reasons are twofold. First, there is less conclusive evidence on the exact role of differences in non-cognitive skills in accounting for school readiness gaps, whether by SES, race/ethnicity or nativity. By comparison, disparities in literacy, vocabulary, numeracy, and problem-solving skills are known to be major explanations for why some children lag behind others in school. Second, while cognitive skills are measured using standardized tests on the child, non-cognitive skills are largely measured by the mother's or caretaker's report of the child, which are subject to more biased responses and thus, less reliable data.

[4] Children, who were assessed by the interviewer to have extreme difficulty in English comprehension at wave 2 and thus, administered with the Spanish version of the PPVT, were omitted from the analytical sample. This disproportionately reduces the second-generation sub-sample from approximately 14% to 10% of the sample at both waves. In addition, not all children were administered with the PPVT during the in-home assessments. At wave 2, 72% of the focal children in the in-home sample took the PPVT, excluding the TVIP; at wave 3, 78% of the focal children took the PPVT but net of those who took the TVIP at wave 2, 75% of the in-home sample is included in the analytical sample.

To measure cognitive skills, this study uses the Peabody Picture Vocabulary Test (PPVT) and the Woodcock-Johnson Letter-Word Identification Test (WJ-LWIT). Both tests provide a quick estimate of verbal ability and scholastic aptitude. However, they measure slightly different skills. The PPVT assesses the *receptive (hearing) vocabulary* for Standard American English, or the ability to recognize a word upon hearing it. When FFS is administered, the interviewer read aloud a word and the focal child either pointed to the picture representing the word or identified the corresponding number of the picture. By comparison, the WJ-LWIT measures the ability of *reading decoding*, or the ability of the child to visually recognize printed letters and words. The test is administered by two portions. In the first portion, the focal child matched a pictorial representation of a word with a picture of the object; in the second portion he/she was shown letters and words in large type on a tabletop easel and prompted to say them out loud.

Both the PPVT and WJ-LWIT were administered to the focal child for the in-home component of the FFS. The PPVT was administered at waves 2 and 3, when the child is approximately 3 and 5 years-old, respectively, while the WJ-LWIT is only administered at wave 3, when the child is approximately 5-years-old. For children who appeared to have difficulties understanding English at wave 2, they were administered with the Test de Vocabulario en Imagenes Peabody (TVIP), which is a Spanish version of the PPVT, in lieu of the PPVT. However, the two tests are not entirely comparable. At wave 3, all children were only given the PPVT, including those who took the TVIP in the previous wave. In the following analysis, only children who took the PPVT at wave 2 are included; those who took the TVIP at wave 3 are omitted from the analytical sample at waves 2 and 3. As such, vocabulary gaps between native English versus Spanish speakers are conservatively estimated in the following analysis since those who had the most difficulties with English are omitted.

For children age three to six, the PPVT demonstrates high internal reliability ($\alpha = .94$) and validity (Williams and Wang 1997). For the WJ-LWIT, internal reliability for preschool age children is comparatively high as well ($\alpha = .92$) (Woodcock and Mather 1989).

Key Predictor:

Child's Nativity. The child's nativity status is the key predictor in the following analyses. It is constructed based on the mother's and father's place of birth (i.e. U.S. versus abroad).

In the paragraphs above, I have used the terms children of immigrants and the second-generation interchangeably. For analytical purposes though, I will employ a strict definition of nativity status with the following classifications. The first-generation refers to the foreign-born population. The second-generation refers to the native-born population whose parents are both foreign-born. The third-plus generation refers the majority population whose parents, grandparents, and preceding generations are all native-born. A further distinction is made for those with one parent who is native-born and the other who is foreign-born – this is known as the 2.5 generation.

Others have argued that this is a limited conceptualization of immigrant generation. Instead, given the constant replenishment of the immigrant population with more recent arrivals, some argue that the concept of immigrant generation should consider a mix of age, cohort, and nativity based on ancestry (Waters and Jiminez 2005). However, given the limitations with statistical modeling such a multi-faceted conceptualization of immigrant generation, I will use conventional categories of nativity status in this study.

Key Mechanisms:

Demographic Characteristics. The following demographic characteristics of the child and his/her mother were included in the analysis:

- Mother's race/ethnicity, as a proxy for the child's race/ethnicity, is categorized into: non-Hispanic Whites, non-Hispanic Blacks, Mexicans, non-Mexican Hispanics, Asians, and American Indians.[5]
- The mother's age in years at the time of the interview
- The child's age in months at the time of the interview
- The child's sex (i.e. male or female)
- The child's low-birth weight status (i.e. babies born under 2.5 kg or 5.5 pounds are considered to be low-birth weight babies)

[5] To presuppose the possibility of measurement error in the mother's race/ethnicity, separate regression models are run with the inclusion of the father's race/ethnicity as a sensitivity analysis. However, given the limited response rates for father-reported variables, the results for these sensitivity analyses are not be presented because results using the father's race/ethnicity are nearly identical to those for the mother's race/ethnicity.

In a separate regression analysis for foreign-born mothers only, the mother's age at arrival (in years) to the U.S. and her citizenship status (i.e. U.S. citizen or not) are included.

Family Resources. The familial resources available to the child clearly impact his/her cognitive development (e.g. Lugo-Gil and Tamis-LeMonda 2005). Family resources are determined by the family structure, socioeconomic capital in the household, and the home environment. Each of these measures is operationalized using the following indicators:

- *Family structure* is measured by the status of the relationship between the child's biological parents (i.e. no relationship, married, romantically involved, divorced/separated, just friends) and the household composition (i.e. the total number of adults, including the parents, and the total number of children under age 18 years living in the household). Both are measured at the time of the interview.
- *Socioeconomic capital in the household* is measured by the following: the mother's highest level of schooling (i.e. less than grade 8, some high school, high school or GED completion, some college, whether 2-years or 4-years, and college graduate or above, including BA, BSc, MA, PhD); logged annual household income in US dollars, and the child's main health care provider (i.e. private clinic/HMO, hospital outpatient, other kinds of clinic, and miscellaneous health care providers including the ER and homeopathy).
- *Home environment* is measured by the following at wave 2: someone in the household reads to the child (i.e. yes or no) and the number of children's books in the home (i.e. none, one to two, three to four, five and more). It is measured by the following at wave 3: the frequency of reading to the child (i.e. once a month or less, a couple of times a week or less, everyday); the frequency of encouraging the child to read (i.e. once a month or less, a couple of times a week or less, everyday); and, the number of toys that help the child learn the alphabet in the home (i.e. none, one to two, three to four, five or more); the number of children's books in the home (i.e. none, one to ten, eleven to twenty, twenty or more). In addition, the mother's language of assessment at the baseline interview (i.e. Spanish versus English) is considered in both the waves 2 and 3 analyses.

Childcare arrangements. At waves 2 and 3, the mother was asked about the multiple childcare arrangements for the focal child. In this analysis, only the primary childcare arrangement is considered. If multiple childcare arrangements are used, the first type listed is considered. At wave 2, the possible types of primary childcare arrangement include: only parent(s), relatives (e.g. maternal or paternal grandmother), daycare, Head Start or Early Head Start, and other type (e.g. mother's or father's current partner). At wave 3, the possible types of primary childcare arrangements include: only parent(s), relatives, daycare, Head Start or Early Head Start, preschool, kindergarten, and other types.

Neighborhood contexts. The neighborhood context in which the child resides at wave 3 is measured using three aggregated variables based on census tract data:

- The percentage of co-racial or co-ethnic neighbors, as determined by the mother's race/ethnicity (i.e. non-Hispanic Whites, non-Hispanic Blacks, Hispanics, Asians, and American Indians).[6]
- The percentage of foreign-born neighbors.
- The percentage of neighbors on public assistance.

These aggregated measures are used to capture the racial, immigrant and socioeconomic compositions of the neighborhoods in which the focal child and his/her parent(s) reside.

Method

For the multivariate analysis, I used ordinary least squares (OLS) regressions to predict the child's standardized PPVT and WJ-LWIT scores (i.e. Z-scores) from the child's nativity status and the various mechanisms stated above, as provided in the core and in-home interviews. Where the standardized PPVT score is the outcome of interest, results are shown for waves 2 and 3, when the child is approximately 3 and 5 years old, respectively. Where the standardized WJ-LWIT score is

[6] Given the broad aggregations of these racial/ethnic categories, they cannot be considered as perfectly valid operationalizations to test the effect of co-ethnic communities on intergenerational mobility, as proposed by segmented assimilation theory (Portes and Zhou 1993; Portes and Rumbaut 2001). Instead, the inclusion of this variable is to understand, more generally, the relationship between the child's cognitive development and the demographic composition of the neighborhood in which he/she lives.

the outcome of interest, results are shown for only wave 3, when the child is approximately 5 years old. The following analysis is presented as a series of nested regression models.

To obtain generalizable results, the pre-constructed *national weights* are applied to descriptive results so that they are representative births occurring in large U.S. cities (i.e. the 77 cities with populations over 200,000 in 1994) between 1998 and 2000. The descriptive results are presented both as weighted frequencies for categorical variables and weighted means for continuous variables, in addition to their standard errors. Weights are applied to the descriptive analyses with a jackknife estimator, as recommended by the Fragile Families Study User Guide (2008). Because of FFS's complex sample design, specialized techniques (e.g. Taylor Series approach and replication procedures) are used to calculate the variance of estimates arising from the data. Jackknife estimation, a replication technique, will allow for the estimation of sampling errors.

The regression analyses are clustered by the primary sampling unit at the national level.[7] Clustered regressions are used to allow for the possibility of distinct between- and within-cluster exposure (i.e. by the city) on the effects on the outcome measure (i.e. the child's PPVT score). While the coefficients are quite similar in clustered versus non-clustered regression, there can be differences in the variance/standard errors due to arbitrary intra-group correlation. Missing responses on any of the key variables are omitted from the analysis using list-wise deletion.

Descriptive Analysis

Table 1 provides the descriptive results of the key variables in this analysis. Weighted proportions or means by the child's nativity and the entire analytical sample, using the pre-constructed survey weights for the national sample, are provided. While the third-plus generations constitute the overwhelming majority of the FFS sample, focal children who are of second- and 2.5 generation are adequately represented in the sample. For categorical variables, the proportions of each category for a given variable by the child's nativity status and across all nativity statuses are provided. For continuous variables, the mean values of the given variable by the child's nativity status are provided (but the mean values across all nativity statuses are not provided). All results are weighted using jackknife estimators.

[7] There are 30 primary sampling units at the national level.

Several bivariate associations are worthy of mention. The PPVT scores are highest among the 2.5 generation, then for the third-plus generation and finally, the lowest scores are for the second-generation at both waves. By contrast, the conspicuous second- versus third-plus generation performance gap in the PPVT scores is not apparent for the WJ-LWIT; in fact, both the second- and 2.5 generation appear to have slightly higher test scores than the third-plus generations. (See figure 1 for the box plot of the PPVT scores at waves 2 and 3 and the WJ-LWIT scores at wave 3 by the child's nativity.) Whether or not these are significant nativity differences are tested in the multivariate regression analyses below.

Insert Figure 1 about here

There are also substantial variations across the nativity groups for several other variables. The majority of children of the third-plus generation are non-Hispanic whites and non-Hispanic blacks, while those of the second-generation are mostly Mexicans, other Hispanics and Asians. In terms of the biological parents' relationship status, the overwhelming majority (at 75%) of the second-generation have married parents, while only about half of those in the third-plus generation have married parents at wave 3. Interestingly, however, at wave 3, there is a substantial decrease of children among the second-generation who have married parents (at 59%), while those with separated or divorced parents increase dramatically. In terms of socioeconomic capital available in the household, the mothers of the second-generation have either low levels of education (less than grade 8) or high levels of education (i.e. some college or graduates), while those of the 2.5 and third-plus generations are comparatively more highly educated. Average annual household incomes are substantially lower among immigrant families than those of 'native' families at both waves. There are interesting nativity variations in the child's primary healthcare provider. Compared to the 2.5 and third-plus generations, the second-generation are much less likely to visit private clinics or be part of the HMO networks, while they are much more likely to seek medical care at the hospital or other kinds of clinics. In terms of the home environment, the second-generation are much more likely to have mothers whose first-language is Spanish (as indicated by the language in which the survey interview is conducted). There are some variations across the nativity groups in terms of the literacy activities between parents and children. Immigrant mothers are slightly less likely to read to their child on a daily basis and they generally

encourage their child to read less frequently than native-born mothers. Immigrant homes have books and toys that help children learn the alphabet but, on average, they have fewer of them than non-immigrant homes.

Turning to childcare, higher proportions of the second-generation are cared for by solely their parent(s), while higher proportions of the 2.5 and third-plus generations are in daycare or other forms of childcare, such as family daycare or care by non-relatives at wave 2. By wave 3, the majority of the second-generation are either in kindergarten or still cared by their parents, while the majority of the 2.5 and third-plus generations are either in kindergarten or pre-school.

Finally, in terms of neighborhood characteristics, the third-plus generation generally live in neighborhoods with slightly higher percentages of co-racial or co-ethnic neighbors. However, as the bivariate distributions of the percentage of co-racial/co-ethnic neigbhors by the mother's race/ethnicity among the child's nativity status (not shown) indicate, this is largely a function of whites, who are disproportionately concentrated in the third-plus generations, living in majority-white neighborhoods. By comparison, the second-generation generally live in neighborhoods with much higher percentages of the foreign-born and slightly higher percentages of neighbors on public assistance.

Insert Table 1 about here

Multivariate Regression Analysis

PPVT as Outcome: Results from Wave 2 (i.e. child at approximately 3-years-old)

Table 2 shows a series of regression models which predict the effect of child's nativity status, in addition to the various explanatory variables, on the child's standardized PPVT score using the core and in-home survey data at wave 2, when the child is approximately 36-months-old.

Model 1 is a bivariate regression of child's nativity on his/her PPVT score. While the second-generation, on average, have *significantly* lower PPVT scores than the third-plus generation, the 2.5 generation do not have significantly different scores than the third-plus generation. Model 2 adds a set of demographic characteristics for the mother and child. Note that the coefficient for the second-generation, which represents the average difference between the second- and third-plus generations on their PPVT scores, *decreases* from model 1 to model 2. This

is largely due to the suppression of the nativity gap by race and ethnicity: because the third-plus generations is comprised of mostly non-Hispanic whites and non-Hispanic blacks, between which there is a large and significant test score gap, the nativity gap becomes far more pronounced once third-plus generation, non-Hispanic whites become the primary reference group. For Hispanics, their significantly large test score gap is comparable to that for non-Hispanic blacks. Evidence for the construct validity of the PPVT is mixed. There are studies which show that revisions of the test have rectified the cultural biases of its previous versions, which tended to devalue the vocabulary skills of African-American preschoolers from low-income families (e.g. Halpin et al. 1990; Washington and Craig 1999). Moreover, it appears that the test scores of racial minorities, particularly those with at-risk backgrounds, have actually *increased* with each successive version of the PPVT. Unless this sample has actually become more adept at taking the test over time, this result suggests that the PPVT itself has become less culturally biased as a testing instrument (Stockman 2000). However, there are a handful of studies which argue that the latest version of the PPVT (which is the one used in FFS) remains culturally biased (e.g. Restrepo et al. 2006). Aside from the mother's race/ethnicity, note that several of the demographic variables yield significant coefficients – the mother's age is positively correlated with the child's PPVT score, while children born with lower weights and boys on average, have lower scores.

Models 3a-c adds the indicators for family resources into regression. In model 3a, which considers the role of family structure on the nativity gap, only children with married biological parents are significantly different from those whose biological parents who currently have no relationship. However, this relationship appears fully due to the fact that married couples have more resources because in subsequent models, the cognitive advantage accrued to children with married biological parents disappear once SES and home environment variables are accounted for. Again, like the suppression effect of race/ethnicity on the nativity gap, family structure also suppresses the second-generation disadvantage. Because second-generation children are more likely to live in families with married parents and because the children of married parents tend to have higher PPVT scores, having married parents buffers against the disadvantage of having immigrant parents. While the number of adults living in the household is insignificant, the number of *children* (i.e. those under age 18 years) living in the household is *negatively* correlated with the focal child's PPVT score. Model 3b adds indicators of socioeconomic capital available in the

household, including maternal education, household income, and the child's primary healthcare provider which is a proxy measure for the degree of insurance coverage and thus, the strength of the security net which the household members have access to in the face of emergencies. Only children with mothers who graduated from college have significantly higher PPVT scores than those who have mothers with less than a grade 8 education. Household income is positively associated with the child's PPVT scores, and children who do not go to private clinic or are not covered by an HMO generally have lower test scores. The latter is a particular cause for concern because immigrant families are less likely to have health insurance and even if they do, they tend to have more limited coverage. The association between the child's heath care provider and his/her test scores most likely captures other factors at play, one of which is the stability of the family's financial situation which can affect the child's neuro-cognitive development. Model 3c includes indicators of the home environment into the analysis. Of the indicators, which includes the mother's first language (as measured by the language, English or Spanish, which the FFS interview was administered) and literacy activities in the home, such as reading to the child and the number of children's books in the home, only reading stories to the child yields significant results, by predicting an increase in the child's PPVT scores.

Model 4 includes the primary type of childcare arrangement for the focal child, net of demographic characteristics. Using children who are looked after by solely their biological parent(s) as the reference group, children who are in daycare and other types of childcare (such as family daycares in the neighborhood or care by non-relatives) have generally higher PPVT scores, net of demographic characteristics and family resources. Children under the care of relatives and those in (Early) Head Start, most possibly because of the small numbers in the sample in the latter category, do not have significantly different PPVT scores than those solely cared for by their parent(s).The implications of the higher on-average scores of children in group-based childcare, whether formal or informal than children under the care of non-relatives or relatives are unclear. One possibility is that group-based childcare underlines the importance of social supports and networks for childcare and child development. Another possibility is that group settings simply socialize children to be better at taking standardized tests. Similar results for the regression models where WJ-LWIT is the key outcome (see below) attest to both possibilities.

Model 5 predicts the child's PPVT score using the characteristics of the neighborhood in which he/she lives, net of demographic characteristics. Of the three neighborhood aggregate variables considered – the co-racial/co-ethnic, foreign-born and SES compositions of the neighborhood – only the percentage of those on public assistance in the neighborhood significantly predicts test scores. Here, the coefficient can be interpreted as, for every one percent increase of those on public assistance in the census tract in which the focal child resides, his/her standardized PPVT test score decreases by .004. This suggests that even if second-generation children are more likely to live in neighborhoods with higher proportions of co-ethnics or the foreign-born, the racial, ethnic and immigrant compositions of the neighborhood do not matter once the SES characteristics of the neighborhood is accounted for. Note also that neighborhood-level SES appears to have predictive power, independent of the household's SES, which suggests living in poorly-resourced neighborhoods of concentrated disadvantage can depreciate child development. Since the significant differences on test scores between children with and without private health insurance disappears when neighborhood characteristics are considered, this suggests that the primary healthcare provision is a proxy measure for the level of resources embedded in the neighborhoods. Poor neighborhoods are also likely to be deprived of high quality medical care which can in turn, inadvertently depreciate child development. However, neighborhood-level SES is less than predictive than household SES as the coefficients for the second-generation disadvantage on test scores show: adding the neighborhood-level variables only reduces the coefficient by .002 (i.e. model 3c versus model 5).

Results from the full model which combines all of the key variables into the analysis are similar to those in the preceding model. The combination of family resources, childcare arrangements and neighborhood contexts reduces the nativity test score gap in terms of the second-generation coefficient by approximately .14, from .50 in model 2 (which teases out the suppression effect of race/ethnicity on the nativity gap) to .36. in the full model. However, a significant 'nativity effect' remains which point to the importance of other mechanisms unaccounted for in this analysis.

Insert Table 2 about here

PPVT as Outcome: Results from Wave 3 (i.e. child at approximately 5-years-old)

Table 3 shows a series of regression models which predicts the child's nativity status, in addition to the various explanatory variables, on the child's standardized PPVT score using the core and in-home survey data at wave 3, when the child is approximately 60-months-old. The series of regression models progresses in the same manner as those conducted for the wave 2 analysis, starting with the bivariate regression of the child's nativity on PPVT scores and then the addition of demographic characteristics, family-level variables, childcare type and neighborhood-level variables.

As model 1 shows, the second-generation generally have lower test scores than the third-plus generation, while the 2.5 generation does not, which is the same as the previous wave. Again, there is the suppression of the nativity test score gap by race and ethnicity, with the substantial decrease of the second-generation coefficient from model 1 to model 2 by .20 points (i.e. from -.30 to -.50). Among the different racial/ethnic groups, non-Hispanic blacks, Mexicans and other Hispanics have significantly lower PPVT scores than non-Hispanic whites, as they did at wave 2. Boys continue to have significantly lower test scores than girls. While the child's low birth weight status and the mother's age have significant coefficients in model 2, but their significance disappears in subsequent models with the addition of other variables into the analysis.

Models 3a-c adds the indicators for family resources into regression. In model 3a, which considers the role of family structure on the nativity gap, only children with married biological parents are significantly different from those whose biological parents who currently have no relationship. Again, children with married biological parents do better on the PPVT. Unlike wave 2, however, the advantage accrued to children with married parents remains significant, even when household SES and home environments are accounted for. In terms of the household composition, while the number of adults living in the same household does not significantly predict the child's PPVT score, the number of children significantly decreases test scores. This relationship appears strong as its coefficient remains significant across the subsequent models. Model 3b adds indicators of socioeconomic capital available in the household. In terms of maternal education, children with mothers who have *any* college education, regardless of whether they graduated or not, have significantly higher test scores than those with mothers who have less than a grade 8 education. This is unlike the previous wave, in which only children with mothers who graduated

from college having significantly higher scores. Again, household income is positively associated with the child's PPVT scores, and children who do not go to private clinic or are not covered by an HMO generally have lower test scores. Model 3c includes indicators of the home environment into the analysis. Children with mothers whose first language appears to be Spanish (given that their interviews were administered in Spanish rather than English) have significantly lower test scores than those whose first language is not Spanish (most likely, English). More detailed variables on the literacy activities performed at home for the child are included in wave 3. *Encouraging* the child to read is more important than reading to the child, given that only the coefficients for the latter are significant. The number of children's books in the home only matters if there are many of them (i.e. more than twenty), while the number of toys that teach the alphabet does not appear to matter at all, regardless of how many of them there are in the home.

Model 4 adds the type of primary childcare to previous models. Compared to care by only the parent(s), children in *any* kind of *formal* childcare – daycare, Head Start, preschool or kindergarten – have generally have higher test scores, net of their demographic characteristics and family resources. In wave 2, children who are placed in family daycares or cared by non-relatives have significantly higher scores than those solely cared for by parents. In wave 3, however, this advantage disappears. This suggests that formal childcare arrangements with certified early childhood educators and teachers, in addition to curricula, give test scores a boost. Model 5 adds neighborhood level variables to the prediction of child's nativity on test scores. In wave 2, only the percentage on public assistance is significantly associated with the child's test scores; in wave 3, all three neighborhood-level variables are significant. The percent of co-racial/co-ethnic neighbors significantly *increases* the child's PPVT score, while the percent of foreign-born neighbors and those on public assistance are *negatively* correlated with test scores. The positive relationship between racially concentrated neighborhoods and test scores most likely masks tremendous variations between racial/ethnic groups – those living in areas with high percentages of non-Hispanic whites are likely to have higher test scores while those segregated into predominantly black or Hispanic neighborhoods are likely to have lower test scores. The interaction models in the following regression analysis further probes these variations. Comparing model 4 (i.e. primary childcare) and model 5 (i.e. neighborhood context), they appear to reduce the nativity gap at comparable levels, net of demographic characteristics only. In the full model, the combined

inclusion of family resources, childcare arrangements and neighborhood context reduces the nativity gap by approximately .20, from .67 in model 2 (which teases out the suppression effect of race/ethnicity on the nativity gap) to .47 in the full model. While these mechanisms account for a substantial amount of the differences between the second- and third-plus generations, there remains a significant nativity gap that is independent of these observed factors.

Insert Table 3 about here

PPVT as Outcome: Comparing waves 2 and 3

The significant second-generation disadvantage on the test scores remain across waves and across regression models, even though there are variations with its magnitude. Across the models, the nativity gap appears to have widened between wave 2 and wave 3, when the children are approximately ages 3 and 5 years, respectively. The results for other key variables have changed across waves in terms of their significance and magnitude. In wave 3, children whose biological parents are married have generally higher scores than those whose parents have no relationship, net of the other mechanisms; however, in wave 2, the significant test score advantage of having married parents disappears once household SES are accounted for. Another important difference between waves 2 and 3 is the significance of the neighborhood variables. The percent of neighbors on public assistance is the only significant contextual variable at wave 2, but by wave 2, the percent of co-racial/co-ethnic and foreign-born neighbors become significant as well.

It is important to keep in mind, however, that the difference in the nativity gap between the two waves cannot easily be interpreted as the worsening of the nativity gap as the children grow older. The same goes for the interpretation of the differences between the coefficients of other key variables in the models across waves – they cannot necessarily be attributed to changes across time. A major confounder is attrition bias. Respondents and their children who stay across waves are likely different from those who drop out of the survey, and such heterogeneity between them are unobservable. There are two conceivable scenarios that might account for the selectivity in survey attrition. First, the more disadvantaged respondents of third-plus generation children dropped out between waves 2 and 3 at a rate that is disproportionate to their more advantaged counterparts. As such, the average PPVT score among the third-plus generation increased

between the two waves since those with the lowest scores are omitted. Second, in the reverse scenario, the more advantaged respondents of the second-generation dropped out between the waves at rate that is disproportionate to their more advantaged counterparts. As such, the average PPVT score among the second-generation decreased between the two waves since those with the highest scores are omitted. Looking at the raw PPVT scores by the child's nativity at both waves (Table 1), it seems the first scenario is more plausible since the average test scores of the third-plus generation increases substantially between the two waves, while those of the second-generation remain the same. There are likely other reasons for why the nativity gap widens between the two waves so the main point is that one must be hesitant about attributing the widening of this gap to an actual lag in the second-generation's cognitive development behind the third-plus generation.

WJ-LWIT as Outcome: Results from Wave 3 (i.e. child at approximately 5-years-old)

Where the WJ-LWIT is the outcome for the analysis, there are *no* significant differences in test performances between neither the second- and third-plus generations, nor the 2.5 and third-plus generations, across all of the regressions models. Coefficients for the additional variables largely have a similar significance level, direction and magnitude in these models as they do where PPVT is the outcome of interest at waves 2 and 3. A noticeable difference between the models where PPVT versus WJ-LWIT are the key outcomes is the prediction of the effect of mother's race/ethnicity on the child's WJ-LWIT score. Where PPVT is the outcome, the coefficients for children with mothers who are non-Hispanic Black, Mexican and non-Mexican Hispanic are significantly negative. However, where WJ-LWIT is the outcome, the coefficients for children with Hispanic mothers, Mexican or another national origin, are not statistically significant, while the coefficients for non-Hispanic Black and Asian mothers are significantly positive.

The implications for these different regression results where the PPVT versus the WJ-LWIT is the outcome are interesting. One interpretation is that the WJ-LWIT is a more valid measure of cognitive skills than the PPVT, or vice versa. In the brief discussion of these two tests above, the ongoing debate over the construct validity of each is highlighted. At present, there is no clear evidence that one is necessarily a 'better' test than the other. Another interpretation is that the two tests are measuring fundamentally distinct yet nevertheless interrelated cognitive skills. Recall that the PPVT assesses the *receptive (hearing) vocabulary* for Standard American English, or the

ability to recognize a word upon hearing it, whereas the WJ-LWIT measures the ability of *reading decoding*, or the ability of the child to visually recognize printed letters and words. The lack of significant nativity differences in test performance on the WJ-LWIT, while there exists a significant second-generation disadvantage on the PPVT, suggests that the second-generation are generally more adept at reading decoding than receptive vocabulary. However, in measuring the inter-correlation of the two tests per the child's nativity, it becomes clear that the levels of performance on both tests among the second-generation is, on average, more comparable than the third-plus generation, whose performance across both tests varies substantially.[8] This finding is confirmed by the substantial black-white differences on the tests – which apply largely to the third-plus generation which disproportionately comprises of children with non-Hispanic black and white mothers – showing a significant black disadvantage on the PPVT and a significant black advantage on the WJ-LWIT, net of the control variables. Therefore, the lack of significant nativity differences on the WJ-LWIT point not so much to the better performance of the second-generation, as compared to their collective performance on the PPVT, but instead, the more varied performances of the third-plus generation across the two tests.

Insert Table 4 about here

Multivariate Regression Analysis for Sample with Foreign-Born Mothers Only

There are two variables of interest which are specific to samples of the second and 2.5 generations with foreign-born mothers – the duration of their time in the U.S. and their citizenship status. Table 5 highlights the coefficients for these two variables, in addition to those for the child's nativity status, net of the additional variables included for the series of nested regression models where the PPVT score is the key outcome (at waves 2 and 3) and where the WJ-LWIT score is the key outcome (at wave 3). For the most part, few of the coefficients are statistically significant. There are, however, exceptions. At wave 2, where the PPVT score is the key outcome, the mother's citizenship status is positively related to the child's score. However, once household

[8] The scale reliability coefficient s(i.e. Cronbach's alpha) between PPVT and WJ-LWIT at wave 3 by the child's nativity are as follows: α= .740 for the second-generation, α= .605 for the 2.5 generation, and α= .615 for the third-plus generation.

capital, childcare arraignments or neighborhood characteristics are accounted for, the significant relationship disappears Note also the non-significant coefficient for the child's nativity across most of the models. This does not discount the significant nativity gap found in previous analyses for the entire analytical sample for two reasons: first, the reference category here is the 2.5 and not the third-plus generation; second, the addition of the mother's citizenship status, years since arrival to the U.S. and the child's nativity status are highly collinear and their effects are likely to cancel out each other.

At wave 3, where the PPVT score is the key outcome, the second-generation disadvantage remains significantly negative across models, except the full model. This is likely due to the significantly positive relationship between the mother's years since arrival to the U.S. and the child's test scores, in addition to the marginally negative relationship between the mother's citizenship status and the child's test score. Likewise, where the WJ-LWIT is the key outcome, the coefficient for the mother's citizenship status is also negative at marginal significance. This result is curious because it is logically inconsistent with the presumption that mothers with permanent legal status in the U.S. is a proxy for a more stable home environment that would promote healthy child development. However, given the marginal significance of the coefficient ($p<.10$) and the small sample of foreign-born mothers for this particular analysis, these results can simply be an artefact of the data.

Insert Table 5 about here

Interaction Results

Several interaction terms were included in the regression analysis including: the child's nativity by the type of primary childcare arrangement, the mother's race/ethnicity by the percentage of co-racial/co-ethnic neighbors, and the child's nativity by the percentage of foreign-born neighbors. Only results from the first two analyses are presented because the latter analysis yields non-significant results.

Table 6 shows the regression coefficients and predicted standardized PPVT scores of the interaction between the child's nativity and the type of childcare arrangement on the child's PPVT score, net of the variables included in the regression analyses for the entire analytical sample. Two

models are presented – the first which uses the childcare arrangement at wave 3 and the second which uses the childcare arrangement at wave 2. The reason for running these regressions both ways is because the timing of kindergarten entry and the measure of school readiness are collinear, which makes the results for childcare at wave 3 difficult to interpret. Using the childcare arrangement at wave 3, most of the interaction terms for the third-plus generation are significant, while among the second-generation, only those in kindergarten and other forms of childcare have statistically different results, where the third-plus generation cared by solely their parent(s) is the reference group. Among the third-plus generation, those in center-based childcare tend to have higher predicted standardized PPVT scores than their counterparts in non-center based childcare. Particularly glaring is the substantially lower score of the second-generation who are in kindergarten. A possible explanation is that children who have been identified as developmentally-challenged or in need of language remedial programs are more likely to be placed into kindergarten or Head Start, given that they are eligible for "early intervention programs" as mandated by Congress since the mid-1980s, so there is a selection bias in terms of who are in these programs among the second-generation. However, the lack of significant results when the childcare arrangement at wave 2 (i.e. the lagged model) contradicts this hypothesis because one would expect second-generation children in Head Start to also have significantly lower PPVT scores. Note the significantly lower scores of the second-generation who are solely cared by their parent(s). This perhaps suggests that the second-generation who are cared for by their parent(s) when they are toddlers have more limited receptive vocabulary skills upon entering kindergarten.

Insert Table 6 about here

Table 7 shows the regression coefficients and predicted standardized PPVT scores of the interaction between the mother's race/ethnicity and the percent of co-racial/co-ethnic neighbors on the child's PPVT score, net of the variables included in the regression analyses for the entire analytical sample. In terms of the main effects, the significant test score disadvantage of the second-generation persists, even after accounting for variations among the different racial and ethnic groups. In terms of results for the main effects' coefficients, the children of non-Hispanic black mothers retain a significantly lower test score than their counterparts of non-Hispanic white

mothers, net of the racial/ethnic composition of their neighborhoods whereas the children of Asian mothers retain a significantly higher test score. However, looking at the interaction terms, only the coefficient for the second-generation of Asian descent is significantly negative which suggests that children who live in neighborhoods with increasingly higher concentrations of co-Asians are likely to have declining test scores.[9]

Insert Table 7 about here

Discussion/Conclusion

This study asks whether or not a nativity gap exists in the school readiness of children. In the analysis above, I find mixed evidence for the existence of a nativity gap. In terms of receptive vocabulary skills as measured by the PPVT, I find that a significant second-generation disadvantage does exist and it appears to have widened over time between the ages when the children are toddlers and preschoolers. However, in terms of word recognition, there appears to be no significant difference in the abilities of the second- and third-plus generations. The different results between these two outcome measures yield interesting implications. As previously discussed, one can interpret these findings as a function of the tests' construct validity. However, based on the extensive literature on the validity of these testing instruments, there is no consensus on which test is 'better' or more valid. Instead, it is more apt to interpret the different results as a function of the tests' different objectives: the PPVT measures receptive vocabulary skills while the WJ-LWIT measures reading skills. Given that the findings presented in this study shows that a significant nativity gap exists for the former but not the latter test, this suggests that upon school entry, the second-generation have adequate reading comprehension skills but, in comparison to the third-plus generation, they have a limited receptive vocabulary.

[9] Analyses which include other interaction terms, such as those between the child's nativity and the percent of foreign-born neighbors, were conducted but they yield largely insignificant results and thus, the results are not presented in this paper.

While the second-generation does not appear to substantially lag behind their third-generation counterparts in terms of their reading comprehension skills, they do seem to be significantly disadvantaged in terms of their listening comprehension of English, which is arguably, an important cognitive skill required in the classroom. Probing further into this significant nativity gap, I ask what the main mechanisms through which this disadvantage operates are. I specifically examine the role of three factors: family resources, childcare arrangements and neighborhood contexts.

Net of demographic characteristics, family resources matter a lot in explaining the nativity gap in receptive vocabulary. Variations in the family structures – measured by the current relationship status of the child's biological parents and the household composition – and the level of socioeconomic capital of immigrant versus non-immigrant households – measured by maternal education, household income and the child's primary healthcare provider, the latter which provides a proxy for the insurance coverage available to family members and the financial security of the household – contribute to the nativity gap. Particularly important in reducing the nativity gap is the home environment, as indicated by the mother's first language and the literacy activities practiced at home, which possibly mediates much of the effect of family structures and socioeconomic status on the nativity gap.

Compared to the role of family resources, childcare arrangements and neighborhood contexts do not appear to directly reduce the nativity gap, once demographic characteristics and family resources are accounted for. That is not to suggest that they do not matter. Instead, given that these factors are highly correlated with the amount of family resources available to children, it is likely that all these factors operate in tandem to produce a significant nativity gap. For instance, second-generation children living in households with less socioeconomic capital and less exposure to parent-child literacy activities are also less likely to be enrolled in formal types of childcare, such as preschool, daycare or Head Start, while they are likely to live in poorer neighborhoods with high concentrations of immigrant residents. The concurrencies of these factors, which operate on multiple levels, make it difficult to disentangle the importance of one over the others in determining the nativity gap.

It is important to note that even after accounting for these different mechanisms, a significant and sizeable second-generation disadvantage in receptive vocabulary persist at both

waves. This suggests that there are other important factors that underlie the nativity gap, which are not accounted for in these analyses. Culturalist accounts would argue that the values, aspirations, and norms of immigrant parents for their children are different from native-born parents, which may account for gaps in their school readiness. However, as the literature on the well-documented black-white test score gap has shown, such disparities are rarely due to cultural discrepancies alone. Immigrant parents have shown to have equal, if not higher, educational aspirations for their children, as compared to native-born parents (Louie 2002; Zhou and Bankston 1994) so, based on norms and values, they should be more motivated and more committed to preparing their children for school.

Figuring out why the nativity gap persists, net of the common mechanisms of families, schools/childcare, and neighborhoods, should be a research priority. Nevertheless, the combination of family resources, childcare arrangements and neighborhood contexts does account for a substantial portion of the nativity gap, reducing it by almost a third. While this analysis does not model the interactions between these mechanisms, it is highly unlikely that they operate in isolation; rather, as mentioned above, families, schools and neighbourhoods are enmeshed institutions which shape the life chances of children in concert. As segmented assimilation theory suggests, the incorporation of immigrants and their successors depends on how immigrant families are received by, and interact with, the various contexts of the host society, as determined by its policies and support for ethnic diversity (Portes and Zhou 2001; Portes and Zhou 1993; Zhou 1997). Therefore, in formulating policy solutions to reduce the nativity gap in school readiness, it is important to address issues operating at multiple institutional levels. Based on the findings of this study, I make several specific policy recommendations which can prevent the children of immigrants from already falling behind upon entering school:

- There should be programs which encourage literacy activities within immigrant homes, specifically those which encourage parents to read to children when they are toddlers and those which encourage children to read independently when they are older.
- For the many children in immigrant families without adequate healthcare plans, they can suffer from developmental problems without proper medical intervention (see: Currie 2005). Therefore, immigrant families should have access to higher-quality and more affordable healthcare, particularly access to private clinics and HMOs.

- Immigrant families should have access to center-based childcare since they are more likely to rely on parents or relatives for primary childcare. The children of immigrant families should also be ensured with ample resources and learning supports within the classroom, which are targeted to their unique needs.

It is more difficult to make policy recommendations about the role of neighbourhoods in explaining the nativity gap. While the analysis shows that living in highly-concentrated immigrant neighborhoods, racially-segregated neighborhoods for minority groups, and disadvantaged neighbourhoods with high proportions of residents on public assistance is negatively associated with the child's receptive vocabulary abilities, the precise mechanisms for why this is so remain elusive. The tenuous relationship between neighborhood contexts and individual outcomes, and the mechanisms for why there would be a significant association, is widely debated within the literature on neighborhood effects (e.g. Jencks and Mayer 1990). As such, policy solutions cannot easily be determined. Nevertheless, immigrant families are more likely to live in neighborhoods with fewer resources, which are in need of better infrastructure (e.g. schools, community organizations, social assistance offices) – arguably, policies which aim to ameliorate the living conditions of neighbourhoods in which immigrant families concentrate can inadvertently, improve the cognitive development of their children.

Given that a substantial nativity gap in school readiness exists, academics and policymakers alike should pay more attention to this emergent issue because it has important implications for differences in educational performance between the children of immigrant and non-immigrant backgrounds, as well as children of different ethno-racial origins among the second-generation. If the children of immigrants are already falling behind before they enter school, there are vast repercussions for whether they can ever 'catch-up' to their peers of native-parentage further along in their academic trajectories. Future research should track the consequences of these early nativity gaps in school readiness on educational performance in the short and long runs. Future research should also examine nativity gaps for a wider array of early childhood outcomes, whether behavioral, cognitive and psychological. This study examines two kinds of cognitive abilities – oral communication and reading comprehension – and finds vastly different results for each. More

research is needed to identify in which areas of school readiness the children of immigrants are disadvantaged in order to more effectively target resources to close in the nativity gap.

In broader terms, this study attempts to address the general oversight in research on the early childhood period of the children of immigrants. It is a promising field of study, which provides crucial research on how disadvantages are accrued early in life among a sizeable and vulnerable population within the second-generation.

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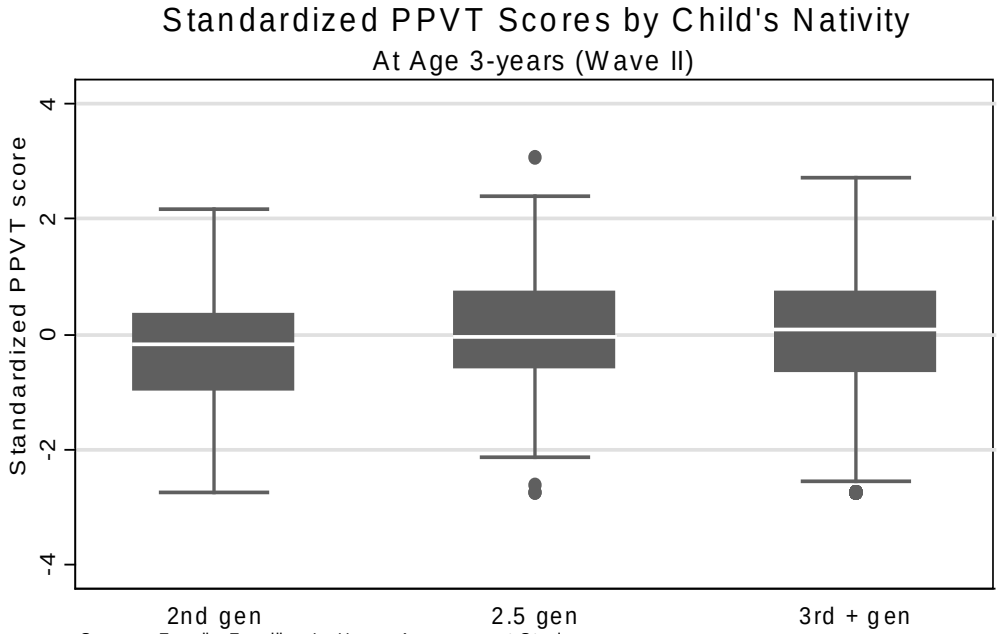
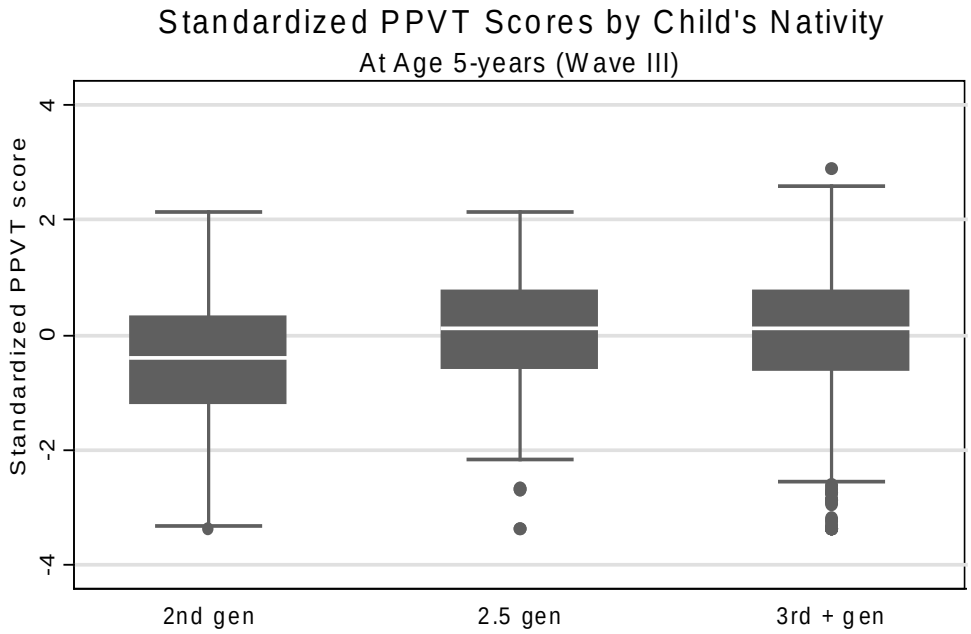
Figure 1. Boxplots of standardized PPVT (Waves II & III) and WJ-LWIT scores (Wave III) by Child's Nativity. (Source: Fragile Families Study)





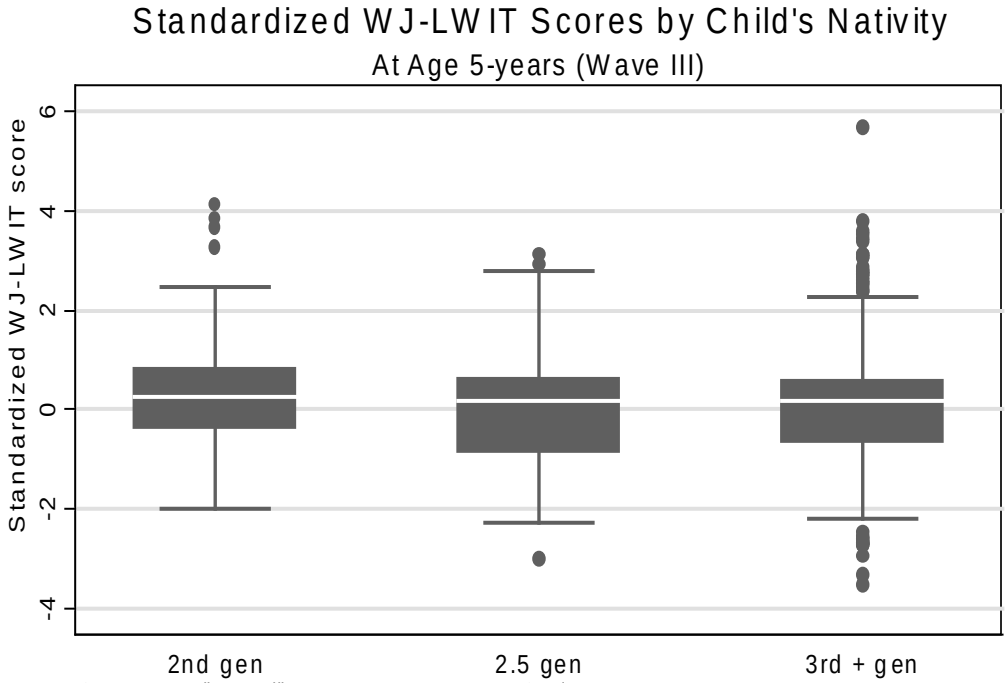


Table 1: Bivariate Distributions of the Key Variables by the Child's Nativity (incl. total sample – i.e. all generations)

		Child's Nativity			
	Key Variables	2nd generation Weighted Proportions / Means (Std. Errors)	2.5 generation Weighted Proportions / Means (Std. Errors)	3rd-plus generation Weighted Proportions / Means (Std. Errors)	**All generations Weighted Proportions / Means (Std. Errors)**
Outcome	Child's Standardized Raw/Standardized PPVT Score (Wave 2)	82.342 (4.513)/ -.208(.270)	89.225 (5.194)/ .204 (.311)	87.685 (1.2334)/ .112 (.074)	**87.343 (1.091) /.092 (.065)**
	Child's Standardized Raw/Standardized PPVT Score (Wave 3)	82.021 (2.428)/ -.718 (.154)	98.526 (3.819)/ .330 (.242)	96.739(1.147)/ .217(.073)	**94.415 (1.076)/ .150 (.075)**
	Child's Standardized Raw/Standardized WJ-LWIT Score (Wave 3)	102.091 (3.515)/ .174 (.231)	102.562 (3.006) /.205 (.198)	101.9222 (.699)/ .163 (.046)	**102.004 (.723)/ .168 (.048)**
Demographic Characteristics	Mom's race/ethnicity:				
	Non-Hispanic White	.04	.248	.484	**.405**
	Non-Hispanic Black	.056	.085	.271	**.226**
	Mexican	.5108	.305	.100	**.171**
	Non-Mexican Hispanic	.210	.104	.122	**.131**
	Asian	.181	.254	.010	**.054**
	American Indian	0	0	012	**.010**
	Mom's age in years (Wave 2)	32.045 (.709)	31.026 (.832)	29.456 (.210)	**29.970 (.108)**
	Mom's age in years (Wave 3)	33.536 (.759)	33.710 (.826)	31.777 (.238)	**32.1988 (.138)**
	Mom's years since migration (Wave 2)	13.863 (3.609)	26.219 (3.581)	--	**14.894 (1.090)**
	Mom's years since migration (Wave 3)	15.404 (3.721)	28.676 (3.867)	--	**16.359 (1.197)**
	Mom is U.S. citizen (Wave 2)	.127	.777	--	**.320**
	Mom is U.S. citizen (Wave 3)	.161	.808	--	**.336**
	Child's age in months (wave 2)	34.550 (.261)	35.136 (.433)	34.665 (.092)	**34.690 (.104)**
	Child's age in months (wave 3)	61.136 (.092)	61.433 (.426)	61.397 (.441)	**61.365 (.106)**
	Child is male	.556	.634	.544	**.554**
	Child's low-birth weight?	.037	.048	.078	**.070**
Family Resources	*I. Family Structure:*				
	Bio. parents' relationship status (wave 2)				
	No relationship	.058	.033	.141	**.120**
	Married	.747	.817	.526	**.583**
	Romantic relationship	.156	.083	.149	**.144**
	Separated/Divorced	.009	.029	.090	**.073**
	Just Friends	.034	.036	.091	**.078**
	Bio. parents' relationship status (wave 3)				
	No relationship	.049	.061	.263	**.215**
	Married	.590	.806	.501	**.542**
	Romantic relationship	.122	.036	.091	**.090**
	Separated/Divorced	.173	.073	.074	**.088**
	Just Friends	.064	.021	.069	**.063**
	No. of adults in the household including parents (wave 2)	2.357 (.115)	2.245 (.152)	2.037 (.035)	**2.103 (0.032)**
	No. of adults in the household including parents (wave 3)	2.285 (.136)	2.057 (.071)	1.999 (.041)	**2.045 (.041)**
	No. of children (i.e. < 18 years old) in the household (wave 2)	2.013 (.123)	2.287 (.192)	2.207 (.061)	**2.186 (.057)**
	No. of children (i.e. < 18 years old) in the household (wave 3)	2.149 (.195)	2.603 (.156)	2.345 (.067)	**2.342 (.059)**
	II. Socioeconomic Capital in the Household				
	Mom's highest level of schooling:				
	Less than grade 8	.347	.022	.065	**.098**
	Some high school	.162	.195	.191	**.187**
	High school grad or GED	.208	.316	.313	**.299**
	Some college	.073	.143	.214	**.189**
	BA, BS or Grad school	.209	.321	.215	**.224**
	Annual household income in $ (Wave 2)	33439.28 (5769.83)	67873.97 (8651.25)	50627.83 (2955.17)	**46247.80 (3341.52)**
	Annual household income in $ (Wave 3)	32902.91 (6340.11)	72815.52 (10531.42)	48700 (1622.90)	**44040.79 (1997.42)**

Note: Unless otherwise stated, the proportions are based on data from the baseline interview.

Table 1 (Cont'd): Bivariate Distributions of the Key Variables by the Child's Nativity (incl. total sample – i.e. all generations)

		Child's Nativity			
	Key Variables	2nd generation Weighted Proportions / Means (Std. Errors)	2.5 generation Weighted Proportions / Means (Std. Errors)	3rd-plus generation Weighted Proportions / Means (Std. Errors)	**All generations Weighted Proportions / Means (Std. Errors)**
	Child's healthcare provider (Wave 2)				
	Private clinic……	.631	.809	.773	**.755**
	Hospital outpatient……	.148	.085	.120	**.121**
	Other type of clinic……	.213	.098	.088	**.108**
	Other provider – e.g. ER, homeopathy……	.006	.005	.017	**.014**
	Child's healthcare provider (Wave 3)				
	Private clinic……	.545	.785	.775	**.743**
	Hospital outpatient……	.257	.117	.149	**.161**
	Other type of clinic……	.196	.096	.057	**.081**
	Other provider – e.g. ER, homeopathy……	0..003	0.000	.018	**.014**
	III. Home Environment				
	Mom's interview administered in Spanish……	.629	.046	.064	**.135**
	Reads story to child (Wave 2) ……	.238	.366	.396	**.370**
	No. of children's books in home (wave 2):				
	No books…… ……	.219	.227	.255	**.247**
	1-2 books…… ……	.053	.071	.012	**.023**
	3-4 books…… ……	.102	.015	.030	**.039**
	5+ books…… ……	.624	.685	.702	**.689**
	Freq. of reading to child (Wave 3):				
	Once a month or less…… ……	.032	.015	.016	**.018**
	A couple of times a week or less……	.514	.420	.462	**.466**
	Everyday…… …… …… ……	.453	.564	.520	**.515**
	Freq. of encouraging child to read (wave 3):				
	Once a month or less…… ……	.096	.080	.056	**.064**
	A couple of times a week or less……	.517	.273	.403	**.407**
	Everyday…… …… …… ……	.386	.646	.540	**.528**
	No. of children's books in home (wave 3):				
	No books…… …… …… ……	.029	.008	.002	**.006**
	1-10 books…… …… …… ……	.541	.170	.161	**.216**
	11-20 books…. …… …… ……	.159	.277	.146	**.160**
	20+ books…. …… …… ……	.269	.544	.689	**.61**
	No. of toys that help child learn the alphabet (wave 3):				
	None…… …… …… ……	.103	.057	.013	**.030**
	1-2 toys…… …… …… ……	.341	.161	.144	**.174**
	3-4 toys…… …… …… ……	.258	.222	.252	**.250**
	5+ toys…… …… …… ……	.296	.558	.589	**.544**
	Primary childcare arrangement (wave 2)				
	Only parent(s)…. …… ……	.594	.381	.400	**.426**
	Relatives…… …… …… ……	.160	.156	.171	**.168**
	Daycare…… …… …… .	.148	.236	.271	**.250**
	Head Start …… …… …… ……	.024	.010	.012	**.014**
	Other (e.g. family daycare, non-relative)	.073	.215	.144	**.140**
	Primary childcare arrangement (wave 3)				
	Only parent(s) …… …… ……	.260	.083	.172	**.176**
	Relatives…… …… …… ……	.109	.040	.043	**.051**
	Daycare…… …… …… ……	.087	.089	.110	**.105**
	Head Start…… …… …… ……	.092	.15	.073	**.083**
	Preschool…… …… …… ……	.134	.23	.311	**.280**
	Kindergarten…… …… …… ……	.310	. 330	.270	**.281**
	Other (e.g. family daycare, non-relative)	.004	.063	.018	**.020**
	Percent of co-racial neighbors (wave 2)……	52.662	45.648	65.886	**62.973**
		(4.508)	(4.197)	(1.434)	**(2.248)**
	Percent of foreign-born neighbors (wave 2)…..	34.603	16.085	9.275	**11.482**
		(2.348)	(1.625)	(.428)	**(1.085)**
	Percent of neighbors on public assistance	18.256	14.140	14.96812	**15.717**
	(wave 2) …… …… …… ……	(1.559)	(2.019)	(.693)	**(.881)**
	Weighted Proportions of Sample when:				
	PPVT as outcome (wave 2)……	.10	.11	.78	**1.00**
	PPVT as outcome (wave 3)……	.11	.09	.80	**1.00**
	WJ-LWIT as outcome (wave 3)……	.11	.09	.80	**1.00**

Family Resource | **Childcare** | **Neighborhood** | **Child's Nativity**

Note: Unless otherwise stated, the proportions are based on data from the baseline interview.

Table 2: Multivariate Regressions Results of the Child's Standardized PPVT Score by Child' Nativity and Key Mediators at Wave 2 (N=2018)

		Regression Models: β (SE)							
	Predictors (where category in brackets is the reference):	M1: Child's Nativity Only	M2: Demographics + M1	M3a: Family structure + M2	M3b: Household capital + M2 + M3a	M3c: Home environ.+ M2 + M3a + M3b	M4: Childcare arrangements + M2	M5: Neighborhood contexts + M2	M6: Full model (M1 to M5)
	Intercept	.029	.198	.118	-.576	-.639	.055	.320	-.513
		(.054)	(.478)	(.464)	(.576)	(.497)	(.484)	(.467)	(.509)
	Child's nativity (ref: 3rd-plus generation)								
	2nd generation……	-.300**	-.504***	-.598***	-.568***	-.395*	-.486***	-.520***	-.388*
		(.098)	(.091)	(.103)	(.115)	(.166)	(.090)	(.103)	(.174)
	2.5 generation ……..	.052	-.086	-.138	-.112	-.100	-.097	-.091	-.102
		(.074)	(.073)	(.080)	(.080)	(.083)	(.071)	(.085)	(.092)
	Key Mediators:								
	Mom's race/ethnicity (ref: Non-Hispanic White):								
Demographics	Non-Hispanic Black……..	……..	-.651***	-.530***	-.435***	-.382***	-.649***	-.522***	-.356***
			(.078)	(.079)	(.067)	(.069)	(.077)	(.069)	(.066)
	Mexican……	……..	-.614***	-.541***	-.406***	-.354***	-.601***	-.502**	-.318***
			(.086)	(.092)	(.083)	(.083)	(.085)	(.080)	(080)
	Non-Mexican Hispanic……..	……..	-.619***	-.576***	-.464***	-.364***	-.601***	-.440***	-.290**
			(.104)	(.108)	(.083)	(.083)	(.099)	(.112)	(.093)
	Asian……..	……..	.373*	.360*	.058	.158	.369*	.483**	.246
			(.156)	(.164)	(.172)	(.190)	(.165)	(.178)	(.206)
	American Indian……	……..	-.506	-.476	-.414	-.434	-.430	-.337	-.326
			(.358)	(.312)	(.328)	(.321)	(.356)	(.330)	(.305)
	Mom's age (in years)……	……..	.015**	.013*	-.001	-.002	.013**	.012*	-.001
			(.005)	(.006)	(.005)	(.005)	(.005)	(.005)	(.005)
	Child's age (in months) ……..	……..	.0008	.005	.012	.009	.002	.0002	.009
			(.011)	(.011)	(.012)	(.011)	(.011)	(.011)	(.011)
	Child is male……..	……..	-.162**	-.163**	-.139*	-.138***	-.163**	-.152**	-.136**
			(.051)	(.051)	(.055)	(.047)	(.049)	(.046)	(.046)
	Child's low-birth weight?……..	……..	-.284**	-.263**	-.253*	-.242**	-.242*	-.273**	-.245*
			(.094)	(.097)	(.113)	(.095)	(.093)	(.087)	(.091)
	Biological parents' relationship status (ref: No relationship)								
Family	Married……..	……..	……..	.230**	.027	.011	……..	……..	.023
				(.085)	(.076)	(.077)			(.080)
	Romantic relationship……..	……..	……..	-.060	-.079	-.077	……..	……..	-.063
				(.053)	(.051)	(.055)			(.057)
	Separated/Divorced ……..	……..	……..	.021	-.009	-.011	……..	……..	-.021
				(.109)	(.098)	(.102)			(.103)
	Just Friends……..	……..	……..	-.054	-.036	-.045	……..	……..	-.054
				(.065)	(.066)	(.062)			(.065)
	Number of adults in the household (including parents)……	……..	……..	.031	.038	.028	……..	……..	.023
				(.023)	(.021)	(.024)			(.027)
	Number of children (i.e. < 18 years old) in the household……	……..	……..	-.074**	-.051*	-.027	……..	……..	-.023
				(.024)	(.023)	(.022)			(.024)

*p < .05 **p< .01 ***p<.001

Table 2: Multivariate Regressions Results of the Child's Standardized PPVT Score by Child' Nativity and Key Mediators at Wave 2 (N=2018) – CONT'D

		Regression Models: β (SE)							
	Predictors (where category in brackets is the reference):	M1: Child's Nativity Only	M2: Demographics + M1	M3a: Family structure + M2	M3b: Household capital + M2 + M3a	M3c: Home environ.+ M2 + M3a + M3b	M4: Childcare arrangements + M2	M5: Neighborhood contexts + M2	M6: Full model (M1 to M5)
Family	Mom's highest level of schooling (ref: Less than gr.8)								
	Some high school	…….	…….	…….	.035	-.072	…….	…….	-.076
					(.154)	(.159)			(.157)
	High school grad or GED	…….	…….	…….	-.014	-.144	…….	…….	-.164
					(.150)	(.154)			(.156)
	Some college	…….	…….	…….	.271	.099	…….	…….	.059
					(.147)	(.164)			(.165)
	BA, BS or Grad school	…….	…….	…….	.764***	.574***	…….	…….	.506**
					(.160)	(.159)			(.160)
	Annual household income (in logged $)	…….	…….	…….	.063*	.056**	…….	…….	.039
					(.025)	(.020)			(.021)
	Child's primary healthcare provider (ref: private clinic/HMO)								
	Hospital outpatient	…….	…….	…….	-.102	-.113*	…….	…….	-.098
					(.053)	(.053)			(.052)
	Other type of clinic	…….	…….	…….	-.149	-.172*	…….	…….	-.154
					(.084)	(.077)			(.080)
	Other kind of provider – e.g. ER, homeopathy	…….	…….	…….	-.369	-.281	…….	…….	-.248
					(.195)	(.164)			(.152)
	Mom's interview administered in Spanish	…….	…….	…….	…….	-.371	…….	…….	-.349
						(.241)			(.233)
	Reads story to child	…….	…….	…….	…….	.134**	…….	…….	.129**
						(.044)			(.044)
	No. of children's books in the home (ref: no books)								
	1-2 books	…….	…….	…….	…….	-.251	…….	…….	-.243
						(.287)			(.293)
	3-4 books	…….	…….	…….	…….	-.008	…….	…….	-.0003
						(.206)			(.209)
	5+ books	…….	…….	…….	…….	.269	…….	…….	.259
						(.204)			(.212)
Childcare	Primary childcare arrangement (ref: only parent/s)								
	Relatives	…….	…….	…….	…….	…….	.130*	…….	.087
							(.056)		(.057)
	Daycare	…….	…….	…….	…….	…….	.247***	…….	.115**
							(.041)		(.043)
	Head Start	…….	…….	…….	…….	…….	.359**	…….	.225
							(.133)		(.145)
	Other (e.g. non-relative childcare, family daycare)	…….	…….	…….	…….	…….	.332***	…….	.170**
							(.074)		(.061)
Neighborhood	Percent of co-racial/co-ethnic neighbors	…….	…….	…….	…….	…….	…….	.001	.001
								(.001)	(.001)
	Percent of foreign-born neighbors	…….	…….	…….	…….	…….	…….	-.002	-.002
								(.003)	(.002)
	Percent of neighbors on public assistance	…….	…….	…….	…….	…….	…….	-.010***	-.004*
								(.002)	(.002)

Table 3: Multivariate Regressions Results of the Child's Standardized PPVT Score by Child' Nativity and Key Mediators at Wave 3 (N=1869)

		Regression Models: β (SE)							
	Predictors (where category in brackets is the reference):	M1: Child's Nativity Only	M2: Demographics + M1	M3a: Family structure + M2	M3b: Household capital + M2 + M3a	M3c: Home environ.+ M2 + M3a + M3b	M4: Childcare arrangements + M2	M5: Neighborhood contexts + M2	M6: Full model (M1 to M5)
	Intercept	.062	-1.033	-.934	-1.83	-2.759	-0.355	.027	-2.852
		(.037)	(.663)	(.654)	(.702)	(.775)	(.504)	(.621)	(.799)
	Child's nativity (ref: 3rd-plus generation)								
	2nd generation……	-.529**	-.666***	-.753***	-.667***	-.496***	-.559***	-.566**	-.467***
		(.186)	(.154)	(.151)	(.145)	(.131)	(.200)	(.190)	(.120)
	2.5 generation ……	.049	-.071	-.130	-.116	-.103	-.120	-.096	-.078
		(.111)	(.072)	(.069)	(.060)	(.057)	(.091)	(.086)	(.061)
	Key Mediators:								
	Mom's race/ethnicity (ref: Non-Hispanic White):								
Demographics	Non-Hispanic Black……	……	-.723***	-.552***	-.455***	-.414***	-.712***	-.547***	-.392***
			(.066)	(.058)	(.062)	(.055)	(.080)	(.077)	(.051)
	Mexican……	……	-.618***	-.520***	-.409***	-.319***	-.588***	-.458***	-.244**
			(.075)	(.076)	(.078)	(.078)	(.079)	(.073)	(.080)
	Non-Mexican Hispanic……	……	-.776***	-.679***	-.575***	-.456***	-.747***	-.507***	-.350***
			(.110)	(.108)	(.110)	(.097)	(.142)	(.121)	(.080)
	Asian……	……	.329*	.294	.176	.110	.240	.391**	.238
			(.133)	(.149)	(.136)	(.123)	(.139)	(.134)	(.129)
	American Indian……	……	-.522	-.357	-.402	-.375	-.646	-.468	-.213
			(.403)	(.350)	(.315)	(.304)	(.374)	(.391)	(.291)
	Mom's age (in years)……	……	.016**	.013**	-.001	-.001	.018**	-.017**	-.001
			(.005)	(.005)	(.004)	(.004)	(.006)	(.006)	(.004)
	Child's age (in months) ……	……	.021	.022*	.024*	.023*	.003	.004	.022
			(.011)	(.011)	(.011)	(.011)	(.009)	(.010)	(.011)
	Child is male……	……	-.183***	-.177***	-.169***	-.147***	-.203***	-.189***	-.145***
			(.038)	(.036)	(.032)	(.032)	(.033)	(.036)	(.033)
	Child's low-birth weight?……	……	-.123*	-.103	-.081	-.072	-.132	-.127	-.083
			(.060)	(.061)	(.064)	(.066)	(.081)	(.079)	(.065)
	Biological parents' relationship status (ref: No relationship)								
Family	Married……	……	……	.373***	.184**	.164**	……	……	.155**
				(.062)	(.055)	(.050)			(.055)
	Romantic relationship……	……	……	.037	.038	.074	……	……	.085
				(.049)	(.051)	(.053)			(.059)
	Separated/Divorced ……	……	……	.094	.104	.133	……	……	.114
				(.090)	(.089)	(.085)			(.088)
	Just Friends……	……	……	.043	.072	-.065	……	……	-.070
				(.083)	(.07)	(.077)			(.078)
	Number of adults in the household (including parents)……	……	……	.013	.008	.009	……	……	.009
				(.025)	(.024)	(.025)			(.026)
	Number of children (i.e. < 18 years old) in the household……	……	……	-.138***	-.106***	-.093***	……	……	-.088***
				(.016)	(.016)	(.016)			(.016)

Table 3: Multivariate Regressions Results of the Child's Standardized PPVT Score by Child' Nativity and Key Mediators at Wave 3 (N=1869) - CONT'D

	Regression Models: β (SE)							
Predictors (where category in brackets is the reference):	M1: Child's Nativity Only	M2: Demographics + M1	M3a: Family structure + M2	M3b: Household capital + M2 + M3a	M3c: Home environ.+ M2 + M3a + M3b	M4: Childcare arrangements + M2	M5: Neighborhood contexts + M2	M6: Full model (M1 to M5)
Family								
Mom's highest level of schooling (ref: Less than gr.8)								
Some high school	…….	…….	…….	.043	-.017	…….	…….	-.005
				(.173)	(.166)			(.167)
High school grad or GED	…….	…….	…….	.128	-.060	…….	…….	-.069
				(.152)	(.143)			(.147)
Some college	…….	…….	…….	.428**	.306*	…….	…….	.308*
				(.144)	(.138)			(.141)
BA, BS or Grad school	…….	…….	…….	.542**	.393*	…….	…….	.364
				(.200)	(.199)			(.204)
Annual household income (in logged $)	…….	…….	…….	.095***	.072**	…….	…….	.064*
				(.025)	(.026)			(.027)
Child's primary healthcare provider (ref: private clinic/HMO)								
Hospital outpatient	…….	…….	…….	-.149*	-.134*	…….	…….	-.099
				(.071)	(.065)			(.067)
Other type of clinic	…….	…….	…….	-.239**	-.218**	…….	…….	-.173*
				(.077)	(.065)			(.068)
Other kind of provider – e.g. ER, homeopathy	…….	…….	…….	-.084	-.038	…….	…….	-.007
				(.258)	(.213)			(.204)
Mom's interview administered in Spanish	…….	…….	…….	…….	-.299**	…….	…….	-.270*
					(.110)			(.111)
Freq. of reading to child (ref: once a month or less)								
A couple of times a week or less	…….	…….	…….	…….	-.049	…….	…….	-.034
					(.112)			(.109)
Everyday	…….	…….	…….	…….	.055	…….	…….	.066
					(.116)			(.113)
Freq. of encouraging child to read (ref: once a month or less)								
A couple of times a week or less	…….	…….	…….	…….	.520***	…….	…….	.513***
					(.083)			(.079)
Everyday	…….	…….	…….	…….	.462***	…….	…….	.456***
					(.090)			(.088)
No. of children's books (ref: none)								
1-10 books	…….	…….	…….	…….	.466	…….	…….	.472
					(.266)			(.268)
11-20 books	…….	…….	…….	…….	.525	…….	…….	.520
					(.291)			(.298)
20+ books	…….	…….	…….	…….	.700*	…….	…….	.697*
					(.286)			(.291)
No. of toys that help child learn the alphabet (ref: none)								
1-2 toy s	…….	…….	…….	…….	-.062	…….	…….	-.086
					(.135)			(.131)
3-4 toys	…….	…….	…….	…….	.112	…….	…….	.093
					(.146)			(.141)
5+ toys	…….	…….	…….	…….	.128	…….	…….	.109
					(.137)			(.130)

Table 3: Multivariate Regressions Results of the Child's Standardized PPVT Score by Child' Nativity and Key Mediators at Wave 3 (N=1869) - CONT'D

		Regression Models: β (SE)							
	Predictors (where category in brackets is the reference):	M1: Child's Nativity Only	M2: Demographics + M1	M3a: Family structure + M2	M3b: Household capital + M2 + M3a	M3c: Home environ.+ M2 + M3a + M3b	M4: Childcare arrangements + M2	M5: Neighborhood contexts + M2	M6: Full model (M1 to M5)
Childcare	Primary childcare arrangement (ref: only parent/s)								
	Relatives……	……	……	……	……	……	.063	……	.138
							(.123)		(.095)
	Daycare……	……	……	……	……	……	.276***	……	.124*
							(.078)		(.059)
	Head Start ……	……	……	……	……	……	.321***	……	.156*
							(.083)		(.072)
	Kindergarten ……	……	……	……	……	……	.442***	……	.173**
							(.059)		(.062)
	Preschool……	……	……	……	……	……	432***	……	.177**
							(.059)		(.051)
	Other (e.g. non-relative childcare, family daycare)……	……	……	……	……	……	.355	……	.017
							(.201)		(.093)
Neighborhood	Percent of co-racial/co-ethnic neighbors……	……	……	……	……	……	……	.001	.002***
								(.0007)	(.0004)
	Percent of foreign-born neighbors……	……	……	……	……	……	……	-.003*	-.003*
								(.002)	(.002)
	Percent of neighbors on public assistance……	……	……	……	……	……	……	-.012*	-.004*
								(.001)	(.002)

*p < .05 **p< .01 ***p<.001

Table 4: Multivariate Regressions Results of the Child's Standardized WJ-LWIT Score by Child' Nativity and Key Mediators at Wave 3 (N=1861)

		Regression Models: β (SE)							
	Predictors (where category in brackets is the reference):	M1: Child's Nativity Only	M2: Demographics + M1	M3a: Family structure + M2	M3b: Household capital + M2 + M3a	M3c: Home environ.+ M2 + M3a + M3b	M4: Childcare arrangements + M2	M5: Neighborhood contexts + M2	M6: Full model (M1 to M5)
	Intercept	.041	-2.100	-.2.008	-2.464	-3.098	-2.409	-1.849	-3.255
		(.061)	(.795)	(.765)	(.748)	(.776)	(.768)	(.855)	(.743)
	Child's nativity (ref: 3rd-plus generation)								
	2nd generation	.188	.104	.019	.086	.127	.109	.030	.087
		(.204)	(.153)	(.137)	(.128)	(.120)	(.169)	(.137)	(.131)
	2.5 generation	-.010	-.044	-.092	-.068	-.072	-.053	-.092	-.114
		(.095)	(.082)	(.077)	(.075)	(.071)	(.080)	(.071)	(.068)
	Key Mediators:								
	Mom's race/ethnicity (ref: Non-Hispanic White):								
Demographics	Non-Hispanic Black	.....	.016	.183*	.262***	.299***	.007	.135*	.274***
			(.067)	(.072)	(.072)	(.068)	(.066)	(.064)	(.068)
	Mexican	.....	-.257**	-.160	-.068	-.007	-.233**	-231*	-.059
			(.087)	(.091)	(.089)	(.087)	(.082)	(.104)	(.091)
	Non-Mexican Hispanic	.....	-.183*	-.090	-.002	.077	-.200**	-.095	.024
			(.071)	(.075)	(.073)	(.063)	(.074)	(.078)	(.064)
	Asian	.....	.783***	.747***	.644***	.597***	.736***	.784***	.568***
			(.139)	(.134)	(.157)	(.165)	(.131)	(.142)	(.158)
	American Indian	.....	.113	.045	.007	-.029	-.092	.038	.043
			(.332)	(.291)	(.302)	(.290)	(.314)	(.331)	(.283)
	Mom's age (in years)	.....	.019*	.015**	.003	.004	.016**	.017**	.004
			(.005)	(.004)	(.004)	(.004)	(.005)	(.005)	(.004)
	Child's age (in months)	.....	.028*	.030*	.032*	.029*	.028*	.025	.027*
			(.013)	(.011)	(.011)	(.012)	(.012)	(.013)	(.012)
	Child is male	.....	-.233***	-.225***	-.221***	-.208**	-.229***	-.226***	-.205***
			(.040)	(.038)	(.038)	(.039)	(.034)	(.037)	(.035)
	Child's low-birth weight?	.....	-.046	-.025	-.003	.006	-.035	-.035	.009
			(.094)	(.092)	(.092)	(.087)	(.088)	(.096)	(.086)
	Biological parents' relationship status (ref: No relationship)								
Family	Married	.....	.....	.371***	.223**	.206**	.....	.....	.196*
				(.074)	(.076)	(.076)			(.075)
	Romantic relationship	.....	.....	.069	.081	.097	.....	.....	.109
				(.068)	(.065)	(.068)			(.070)
	Separated/Divorced	.....	.....	.053	.061	.063	.....	.....	.053
				(.082)	(.088)	(.089)			(.088)
	Just Friends	.....	.....	.003	-.093	-.106	.....	.....	-.088
				(.095)	(.094)	(.093)			(.094)
	Number of adults in the household (including parents)	.....	.....	.002	-.001	.001	.....	.....	.003
				(.035)	(.034)	(.033)			(.032)
	Number of children (i.e. < 18 years old) in the household	.....	.....	-.143***	-.115***	-.105***	.....	.....	-.088***
				(.016)	(.015)	(.015)			(.016)

Table 4: Multivariate Regressions Results of the Child's Standardized WJ-LWIT Score by Child' Nativity and Key Mediators at Wave 3 (N=1861) – CONT'D

		Regression Models: β (SE)							
	Predictors (where category in brackets is the reference):	M1: Child's Nativity Only	M2: Demographics + M1	M3a: Family structure + M2	M3b: Household capital + M2 + M3a	M3c: Home environ.+ M2 + M3a + M3b	M4: Childcare arrangements + M2	M5: Neighborhood contexts + M2	M6: Full model (M1 to M5)
Family	Mom's highest level of schooling (ref: Less than gr.8)								
	Some high school	…….	…….	…….	-.088	-.104	…….	…….	-.052
					(.133)	(..137)			(.133)
	High school grad or GED	…….	…….	…….	.092	.070	…….	…….	.083
					(.152)	(.134)			(.133)
	Some college	…….	…….	…….	.271*	.199	…….	…….	.196
					(.131)	(.141)			(.138)
	BA, BS or Grad school	…….	…….	…….	.441*	.345	…….	…….	.314
					(.194)	(.176)			(.169)
	Annual household income (in logged $)	…….	…….	…….	.059*	.042	…….	…….	.027
					(.027)	(.026)			(.027)
	Child's primary healthcare provider (ref: private clinic/HMO)								
	Hospital outpatient	…….	…….	…….	-.186**	-.176**	…….	…….	-.156*
					(.063)	(.062)			(.062)
	Other type of clinic	…….	…….	…….	-.189*	-.168	…….	…….	-.134
					(.089)	(.092)			(.082)
	Other kind of provider – e.g. ER, homeopathy	…….	…….	…….	-.202	-.204	…….	…….	-.149
					(.241)	(.234)			(.209)
	Mom's interview administered in Spanish	…….	…….	…….	…….	-.025	…….	…….	-.072
						(.120)			(.116)
	Freq. of reading to child (ref: once a month or less)								
	A couple of times a week or less	…….	…….	…….	…….	.221*	…….	…….	.239*
						(.106)			(.105)
	Everyday	…….	…….	…….	…….	.300**	…….	…….	.307**
						(.105)			(.108)
	Freq. of encouraging child to read (ref: once a month or less)								
	A couple of times a week or less	…….	…….	…….	…….	.260**	…….	…….	.249**
						(.089)			(.081)
	Everyday	…….	…….	…….	…….	.368***	…….	…….	.357***
						(.098)			(.096)
	No. of children's books (ref: none)								
	1-10 books	…….	…….	…….	…….	.432	…….	…….	.421
						(.331)			(.302)
	11-20 books	…….	…….	…….	…….	.485	…….	…….	.469
						(.328)			(.299)
	20+ books	…….	…….	…….	…….	.587	…….	…….	.573
						(.367)			(.331)
	No. of toys that help child learn the alphabet (ref: none)								
	1-2 toy s	…….	…….	…….	…….	-.205	…….	…….	-.204
						(.188)			(.190)
	3-4 toys	…….	…….	…….	…….	-.205	…….	…….	-.209
						(.194)			(.199)
	5+ toys	…….	…….	…….	…….	-.126	…….	…….	-.137
						(.193)			(.195)

Table 4: Multivariate Regressions Results of the Child's Standardized WJ-LWIT Score by Child' Nativity and Key Mediators at Wave 3 (N=1861) – CONT'D

		Regression Models: β (SE)							
	Predictors (where category in brackets is the reference):	M1: Child's Nativity Only	M2: Demographics + M1	M3a: Family structure + M2	M3b: Household capital + M2 + M3a	M3c: Home environ.+ M2 + M3a + M3b	M4: Childcare arrangements + M2	M5: Neighborhood contexts + M2	M6: Full model (M1 to M5)
Childcare	Primary childcare arrangement (ref: only parent/s)								
	Relatives……..	…….	…….	…….	…….	…….	.118	…….	.098
							(.108)		(.099)
	Daycare……	…….	…….	…….	…….	…….	.494***	…….	.374***
							(.077)		(.072)
	Head Start ……	…….	…….	…….	…….	…….	.398***	…….	.352***
							(.060)		(.060)
	Kindergarten ……	…….	…….	…….	…….	…….	.637***	…….	.471***
							(.082)		(.086)
	Preschool……	…….	…….	…….	…….	…….	.651***	…….	.434***
							(.078)		(.091)
	Other (e.g. non-relative childcare, family daycare)……..	…….	…….	…….	…….	…….	.391**	…….	.300*
							(.155)		(.121)
Neighborhood	Percent of co-racial/co-ethnic neighbors……	…….	…….	…….	…….	…….	…….	.0008	.0007
								(.0008)	(.0008)
	Percent of foreign-born neighbors……	…….	…….	…….	…….	…….	…….	.004	.005*
								(.003)	(.002)
	Percent of neighbors on public assistance……	…….	…….	…….	…….	…….	…….	-.009***	-.002
								(.002)	(.001)

*p < .05 **p< .01 ***p<.001

Table 5: Multivariate Regressions Results of the Child's Standardized PPVT and WJ-LWIT Scores by the Mother's Years since Arrival to the U.S. and U.S. Citizenship among Foreign-Born Mothers Only

	Regression Models: β (SE)							
Predictors (where category in brackets is the reference):	M1: Child's Nativity Only	M2: Demographics + M1	M3a: Family structure + M2	M3b: Household capital + M2 + M3a	M3c: Home environ.+ M2 + M3a + M3b	M4: Childcare arrangements + M2	M5: Neighborhood contexts + M2	M6: Full model (M1 to M5)
PPVT at Wave 2 (N=115)								
Intercept……	-.430	-.214	1.459	1.515	-1.586	**-.992**	**-.209**	**-3.751**
	(.217)	(1.472)	(1.784)	(2.586)	(3.314)	**(1.672)**	**(1.526)**	**(3.737)**
Child's nativity (ref: 2.5 generation)								
2nd generation……	-.329**	-.115	-.047	**-.055**	**-.101**	**-.033**	**-.120**	**.053**
	(.144)	(.148)	(.174)	**(.204)**	**(.168)**	**(.162)**	**(.143)**	**(.192)**
Key Parameters for Foreign-Born Mothers								
Years since Arrival to the U.S. ……	.019	.013	.012	**.016**	**.014**	**.015**	**.013**	**.014**
	(.011)	(.009)	(.009)	**(.011)**	**(.010)**	**(.011)**	**(.009)**	**(.012)**
U.S. Citizen? ……	.639**	.541*	.579*	**.418**	**.351**	**.520**	**.501**	**.309**
	(.265)	(.305)	(.318)	**(.359)**	**(.374)**	**(.322)**	**(.304)**	**(.381)**
PPVT at Wave 3 (N=109)								
Intercept……	-.203	-6.043	-7.598	-7.841	-10.022	-5.332	-6.008	-8.558
	(.326)	(2.341)	(2.295)	(2.006)	(2.425)	(2.399)	(2.681)	(2.853)
Child's nativity (ref: 2.5 generation)								
2nd generation……	**-.681****	**-.584****	**-.568****	**-.542****	**-.345***	**-.345***	**-.681*****	**-.375**
	(.204)	**(.246)**	**(.226)**	**(.232)**	**(.198)**	**(.198)**	**(.211)**	**(.265)**
Key Parameters for Foreign-Born Mothers								
Years since Arrival to the U.S. ……	**.027*****	**.020**	**.022***	**.024***	**.031****	**.031****	**.014**	**.038****
	(.009)	**(.012)**	**(.012)**	**(.013)**	**(.012)**	**(.012)**	**(.011)**	**(.015)**
U.S. Citizen? ……	**.192**	**.017**	**-.083**	**-.229**	**-.342**	**-.342**	**-.077**	**-.502***
	(.240)	**(.242)**	**(.247)**	**(.283)**	**(.214)**	**(.214)**	**(.245)**	**(.248)**
WJ-LWIT at Wave 3 (N=101)								
Intercept……	**-.004**	.110	.286	-1.469	-3.589	-.202	-.112	-3.192
	(.342)	(2.394)	(2.779)	(2.583)	(2.619)	(2.688)	(2.363)	(2.903)
Child's nativity (ref: 2.5 generation)								
2nd generation……	**.106**	**.209**	.254	.235	.284	.124	.174	.204
	(.196)	**(.200)**	(.258)	(.307)	(.290)	(.175)	(.216)	(.245)
Key Parameters for Foreign-Born Mothers								
Years since Arrival to the U.S. ……	**.008**	**-.005**	**-.002**	-.006	-.003	-.005	-.008	-.009
	(.014)	**(.012)**	**(.014)**	(.016)	(.019)	(.011)	(.013)	(.019)
U.S. Citizen? ……	**.138**	**-.173**	**-.188**	-.253	-.398*	-.077	-.171	-.410*
	(.282)	**(.444)**	**(.198)**	(.190)	(.195)	(.243)	(.232)	(.227)

*p<.10 **p < .05 ***p< .01 ****p<.001 (N.B.: Given the small sample sizes for these sets of regressions, more liberal significance levels (i.e. p<.10) are denoted .)

Nested parameters included per models above: None (M1); Demographic characteristics, i.e. mother's race/ethnicity and age, plus child's sex, age, and low birth-weight status (M2); Family structure, i.e. biological parents' relationship status, number of adults in household, number of children (<18 years) in household (M3a); Household capital, i.e. Mother's highest level of schooling, annual household income, and child's primary healthcare provider (M3b); Home environment, i.e. mother's interview conducted in Spanish, and at wave 2, frequency of reading to child and number of children's books in home vs. at wave 3, frequency of reading to child, frequency of encouraging child to read, number of toys teaching the alphabet in home, number of children's books in home (M3c); primary childcare arrangement (M4); percent of co-racial/co-ethnic neighbors, percent of foreign-born neighbors and percent of neighbors on public assistance (M5)

Table 6: Child's Standardized PPVT Scores by the Interaction of the Child's Nativity and the Childcare Arrangement at Wave 3 (Net of others predictors in the full model)

	Childcare arrangement at Wave 3:		Childcare arrangement at Wave 2 (Lagged model)	
	Regression Coefficient	Predicted PPVT Score	Regression Coefficient	Predicted PPVT Score
Interaction between Child's Nativity and Primary Childcare Arrangement	β (SE)	(σ)[a]	β (SE)	(σ) [a]
2nd gen X Only parent(s)	029	-.313	-.481**	-.591
	(.323)	(.674)	(.169)	(.698)
2nd gen X Relatives	-.302	-.274	-.072	-.325
	(.716)	(.694)	(.362)	(.671)
2nd gen X Daycare	-.536	-.435	.133	-.067
	(.367)	(.542)	(.359)	(.603)
2nd gen X Head Start	-.844	-.853	144	-.422
	(.622)	(.544)	(.247)	(.604)
2nd gen X Kindergarten	-1.100**	-1.207	--	--
	(.365)	(.676)		
2nd gen X Preschool	-.345	-.101	--	--
	(.292)	(.734)		
2nd gen X Other (e.g. non-relative childcare, family daycare)	-.752*	-.401	-.303	-.921
	(.353)	(N/A)	(.857)	(.562)
2.5 gen X Only parent(s)	.-.079	-.144	-.032	.094
	(.294)	(.629)	(.166)	(.637)
2.5 gen X Relatives	.129	-.020	-.218	-.137
	(.491)	(.348)	(.292)	(.455)
2.5 gen X Daycare	-.348	-.185	.165	.388
	(.442)	(.541)	(.213)	(.465)
2.5 gen X Head Start	-.161	-.312	.450	.551
	(.415)	(.400)	(.276)	(.597)
2.5 gen X Kindergarten	.073	-.186	--	--
	(.321)	(.578)		
2.5 gen X Preschool	.090	.509	--	--
	(.310)	(.474)		
2.5 gen X Other (e.g. non-relative childcare, family daycare)	-.036	-.147	-.025	.384
	(.610)	(.311)	(.264)	(.553)
3rd- plus gen X Only parent(s)	-2.715**	-.216	-2.878**	-.065
	(.798)	(.469)	(.818)	(.529)
3rd- plus gen X Relatives	.134	-.087	.095	.107
	(.089)	(.507)	(.059)	(.463)
3rd- plus gen X Daycare	-.161*	.051	.009	.106
	(.076)	(.528)	(.067)	(.477)
3rd- plus gen X Head Start	.193*	-.048	-.001	.030
	(.083)	(.402)	(.171)	(.406)
3rd- plus gen X Kindergarten	.205**	.157	--	--
	(.069)	(.472)		
3rd- plus gen X Preschool	.184**	.257	--	--
	(.054)	(.581)		
3rd- plus gen X Other (e.g. non-relative childcare, family daycare)	.048	.014	.021	.346
	(.090)	(.543)	(.094)	(.607)

[a] Where all other predictors are set at their mean values.

Table 7: Child's Standardized PPVT Scores by the Interaction of the Mother's Race/Ethnicity and the Percent of Co-Racial/Co-Ethnic neighbors at Wave 3

	Regression Coefficient		Predicted PPVT Score	
	β (SE)	(σ)	At actual minimum value of % co-racial neigbhors [a]	At actual maximum value of % co-racial neigbhors [a]
Main Effects				
Child's Nativity (where 3rd-plus generation is ref group):				
2nd gen……	-.471***	--	--	--
	(.121)			
2.5 gen ……	-.471	--	--	--
	(.122)			
Mom's race/ethnicity (where Non-Hispanic White is ref group):				
Non-Hispanic Black……	-.326***	--	--	--
	(.109)			
Mexican……	-.071	--	--	--
	(.104)			
Non-Mexican Hispanic……	-.194	--	--	--
	(.153)			
Asian……	.626***	--	--	--
	(.175)			
American Indian……	-.798	--	--	--
	(.534)			
Percent of Co-racial neighbors ……	.003*	--	--	--
……	(.001)			
Interaction Terms				
Mom's race/ethnicity*Percent of Co-racial neighbors (where Non-Hispanic White is ref group):				
Non-Hispanic White (ref) X Percent of Co-racial neighbors:	-2.940***	.611	-.973	1.441
	(.818)	(.458)		
Non-Hispanic Black X Percent of Co-racial neighbors: ……	-.001	-.138	-1.322	.895
	(.002)	(.403)		
Mexican X Percent of Co-racial neighbors: ……	-.003	-.117	-1.461	.873
	(.002)	(.499)		
Non-Mexican Hispanic X Percent of Co-racial neighbors: ……	-.003	-.252	-2.286	.762
	(.002)	(.497)		
Asian X Percent of Co-racial neighbors: ……	-.017***	.656	-.201	1.281
	(.004)	(.437)		
American Indian X Percent of Co-racial neighbors: ……	1.400	.064	.064	.556
	(.743)	(.556)		

*p<.10 **p < .05 ***p< .01 ****p<.001

[a] Where all other predictors are set at their mean values