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**WORKING PAPER**

### **Tiger Mothers and Child Achievement: Do Activity Patterns explain the Achievement of Children of Immigrants?**



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## Tiger Mothers and Child Achievement:

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#### Abstract

This paper compares the achievement of school-aged children of immigrant parents with that of children of native parents using data from the 1997 and 2003 Panel Study of Income Dynamics Child Development Supplement. Generational differences in achievement are primarily socioeconomic differences; controlling for socioeconomic status eliminates the differences across generations in problem-solving and reading. In spite of their greater socioeconomic disadvantage, children of immigrant parents (first or second generation) achieve at levels at least equal to those of children of native parents. In the case of vocabulary, they surpass the achievement of their third generation peers. Children of immigrants spend more time studying and watching television and less time playing video games and sports; these activities mediate some of the effect of generation. Immigrant values and beliefs remain important sources of generational achievement differences even after socioeconomic status is controlled.

Today, one out of five elementary school children comes from an immigrant family (Federal Interagency Forum on Child and Family Statistics, 2004). In spite of the socioeconomic disadvantage and language limitations of their families, overall, children of immigrants have been shown to perform better academically than children whose parents were not immigrants (Fuligni, 1997; Kao & Tienda, 1995; Sastry & Pebley, 2010). Considerable research has been conducted since this paradox was first documented, yet it is still not well understood. Some argue that the academic outcomes of children of immigrants start at a low level but improve across generations as they assimilate to American language and culture; others argue that academic outcomes start high but decline across generations because immigrant families are positively selected and motivated to succeed. If acculturation reflects the process of adopting new beliefs, attitudes and behaviors due to exposure to a new culture, then it is parental immigrant status that matters. Furthermore, it is argued that immigrant parental efforts or “optimism” fuel the achievement of immigrant children and children of immigrants compared to children of nonimmigrants (Kao & Tienda, 1995). Finally, achievement may vary across ethnic groups, as the context of acculturation varies. Parenting beliefs and values of immigrant parents favoring education among some cultural groups and high SES among other groups could explain greater achievement in first and second generation children. It is clear that generation, SES, and culture interact in influencing the achievement trajectory of children of immigrants (Glick, 2010; Quintana, 2006) and need to be considered jointly.

Although research has examined variation in parenting practices and its implications for the well-being of immigrant and native-born children and their families (Garcia Coll et al., 1996; Maccoby & Martin, 1983; McLoyd, Cauce, Takeuchi & Wilson, 2000), only one previous study

has examined the implications of parenting beliefs and practices in actual daily life, in particular, children's daily activities as contexts for development among immigrant and native children (Updegraff, McHale, Witeman, Thayer & Crouter, 2006). Immigrant parents have been shown to emphasize the importance of their children doing well in school (Kao & Tienda, 1995), encourage their children to do well (Caplan, Choy & Whitmore, 1992; Okagaki & Frensch, 1998; Portes & Fernandez-Kelly, 2008), and their children do well (Sieff, 2011). This penchant could translate into bringing intensive pressure to bear on children's extracurricular activities (Chua, 2011).

More time spent in educational activities such as studying and reading has been linked to higher achievement (Fuligni, 1997; Hofferth & Sandberg, 2001). However, studying and reading are only two of the activities in which children engage. Some parents may promote engagement in more familial and social activities. Could spending more (or less) time engaged in music and music lessons, household work, playing sports, or visiting help explain the differential achievement of children of immigrants in middle childhood compared with other children?

This paper examines variation in children's daily activities in immigrant versus native families and how these activities enable the children of immigrants to achieve at higher levels. The structure, parenting values and goals, and socioeconomic status (SES) of the family facilitate or constrain child activities and activity settings (Cole, 1995; Garcia Coll et al., 1996; Tudge, Doucet, Odero, Piccinini & Lopes, 2006), which influence cognitive development (Hofferth & Sandberg, 2001). This paper specifically focuses upon the part played by children's activities in explaining generational differences in achievement on standardized tests, after adjusting for SES and race/ethnicity.

## **Theory and Review of the Literature**

### Recent Immigrant Streams

Differences in achievement between children of immigrants and of natives are of considerable interest to educators as the number and proportion of immigrant children and children of immigrants in U.S. schools increases (Jencks & Phillips, 1998). The nature of immigration streams has changed substantially over time from its European origins in the early 1900s; of 10 million legal immigrants admitted to the United States between 1984 and 1994, most came from Asia (one-third) and Latin America (close to half) (Oropesa & Landale, 1997). Research has documented the economic disadvantage of recent immigrants compared to native families after immigrating (Brandon, 1999; Hofferth, 1999). Besides navigating the large gap in culture and technology, new entrants need to learn the language in order to negotiate daily life, find work, and communicate with children's teachers and principals. The financial resources with which such families can assist their children at home and in conjunction with the school may be limited.

### SES and Achievement

According to the "straight-line" assimilation approach, children of immigrants are expected to do *less well* than children of natives because of social class, which includes family income and parental education (Hernandez & Charney, 1998). Substantial research has

documented the economic disadvantage of Mexican and Central American immigrant families compared to native families on both income and parental education even prior to immigrating (Brandon, 1999; Hofferth, 1999). Many had not completed high school. As a result of educational and language barriers, their incomes remain low once in the U.S. and they are less confident in their ability to help their children with their homework (Okagaki & Frensch, 1998). Although immigrants from Mexico and Central America have been disadvantaged, this may not be the case for those from Asia. A larger fraction of Asian families came from a middle-class background in their home country, with consequent greater education and employment opportunities upon arrival (Mindel, Habenstein & Wright, 1998). Differences in child achievement may be partially a result of these economic differences. We can see whether generational differences in achievement are maintained (for higher SES immigrants) or become visible (for lower SES immigrants) once SES is controlled.

#### Parenting Values and Belief and Children's activities across Generation and Ethnicity

Differences in *parenting practices* across generations are believed to be critical to children's differences in achievement. Parental behaviors that may reflect ethnic and generational differences include educational expectations and beliefs and attributions about children (Hess & Holloway, 1984). Research has found that less acculturated parents are more controlling (Buriel, 1993). As acculturation proceeds, parents may become more aware of American parenting styles and may live in safer neighborhoods where strict control is less needed (Furstenberg, Cook, Eccles, Elder & Sameroff, 1999). Of course, immigrant families may not leave behind all the components of their culture. Latinos are said to be warm, especially with younger children (Delgado-Gaitan, 1994; Halgunseth, Ispa & Rudy, 2006). Although

warmth and monitoring or control, linked together in what are called parenting styles (Maccoby & Martin, 1983; Steinberg, Elmen & MOUNTS, 1989), are frequently studied with regard to behavior and adjustment, there is little evidence that warmth relates directly to cognitive achievement whereas monitoring and control are related to grades (Okagaki & Frensch, 1998; Valenzuela & Dornbusch, 1994). This paper focuses on the real-life activities in which children engage during their nonschool hours, which reflect generational, SES, and cultural differences in parenting values and beliefs. Children of parents who are very family-oriented will spend more time visiting, for example. Children of parents who value academic success will spend more time studying.

*Variation across Generation.* Immigrant parents are believed to differ in *values* regarding schooling and motivation for achievement, in particular, the value of hard work, getting along, and obeying rules, versus thinking for oneself in getting ahead (Alwin, 2001; Schaefer & Edgerton, 1985). Early research suggested immigrant-native differences across generations in parental expectations based upon hard work and upon ability; native American parents were said to associate innate ability with success in school whereas first generation immigrant parents were said to emphasize effort (Stevenson, 1992). Differences in beliefs regarding payoff to hard work may lead parents to encourage their children to study and read and discourage them from watching television or playing video games. Increased studying and reading and reduced television time have been linked to better grades and test scores for U.S. children (Hofferth & Sandberg, 2001). As part of this focus on schoolwork, immigrant parents may encourage their children to spend time on the computer to do their homework, to develop computer skills, to link the family across countries, and to link to services via the Internet. More computer time has been linked to better achievement test scores (Hofferth & Moon, 2010). The

Chua book portrayed a mother pushing her children to excel not only in academic subjects but also in extracurricular music performance (Chua, 2011). Extracurricular activity is a known avenue to child achievement (Eccles & Barber, 1999), but its relevance to immigrant children untested.

*Variation across Ethnic Group.* Values vary across ethnic groups. As the largest minority groups, Asians and Latinos are very different. Asian Americans are often referred to as the “Model Minority,” because their children tend to be high achievers (Kao & Tienda, 1995). Expectations of their children’s achievement are higher for Asian Americans than for European American or Latino parents (Okagaki & Frensch, 1998). Asian parents participate in their children’s schooling, including helping children with homework, tutoring, and sending them to extra classes to supplement their regular classes (Schneider & Lee, 1990; Stevenson, 1992). Parents are said to instill in their children the value of hard work as the key to success in school. Yet, Asians as a category include persons of diverse ethnic, cultural, and socioeconomic status origins. Some immigrants were highly educated and successful in their home countries (Indian) while others were poor farmers (Hmong). Not all parents may be able to help their children with homework, though they can encourage their efforts and have high expectations (Okagaki & Frensch, 1998). One hypothesis is that they may relieve their children from household work so that they can spend time on their school work (Kao & Tienda, 1995). Immigrant children may spend more time on family obligations, and time spent in such obligations has been shown to be linked to lower achievement (Tseng, 2004).

In contrast, Latino parenting objectives and values are characterized by familismo, respeto, and educacion (Halgunseth et al., 2006). Familismo includes strong family ties, loyalty and commitment to the family, and high family cohesion. Although this value appears to be

highly stable regardless of country of origin or acculturation (Fuligni, Tseng & Lam, 1999; Rueschenberg & Buriel, 1989), there is some evidence of declines in some components with acculturation, particularly the sense of interpersonal obligations across family members (Rumbaut, 1996; Sabogal, Marin, Otero-Sabogal, Marin & Perez-Stable, 1987). *Respeto* involves the maintenance of positive interpersonal relationships with elders and with peers. Latinos may attribute success to personal connections and obedience to authority, what is sometimes called *personalismo* (Roosa, Morgan-Lopez, Cree & Specter, 2002). Research has found Mexican American fathers to place greater emphasis on child obedience and social skills than Anglo parents (Roosa et al., 2002). Again, although this is a strongly held value, it appears to decline somewhat with successive generations; for example, later-generation children were more likely to exhibit more disagreement with adults, less obedience, and more autonomy (Fuligni, 1998). Finally, the third objective is *educacion*, with a meaning more of a moral education than a cognitive one. One study (Okagaki & Sternberg, 1993) found that their Latino sample (Mexican and immigrant) rated social skills as more important to school readiness than cognitive skills. How do values translate into activity contexts? Latinos may emphasize time spent visiting or time spent in sports instead of time spent studying. Latinos may also spend more time watching television or playing video games as entertainment or a way to learn language. Finally, Latino children may spend more time helping the family by engaging in household work and caring for younger children (Fuligni et al., 1999).

### Immigrant Selection

The literature also argues that children of immigrants are especially likely to succeed because their parents were optimistic about their chances in the U.S. prior to leaving their home

country (Kao & Tienda, 1995). Parents communicate these expectations to children and provide the contexts in which they can succeed. Immigrants are especially selective of highly motivated families and individuals. There continues to be nonrandomness in who migrates; even though disadvantaged in the U.S., research has shown that migrants were more highly educated in their country of origin than nonmigrants (Feliciano, 2005). Although we do not have status prior to migrating, we have information on parental schooling completed, a good proxy for social class at U.S. entry.

This study includes immigrants from European and those of African or Afro-Caribbean backgrounds. Because of the history of discrimination and disadvantage, African Americans have traditionally had lower achievement and white Americans higher achievement. Including immigrants from White and from Black racial backgrounds will enable us to better test hypotheses about the contribution of generation, SES, and racial/ethnic background to the achievement of children of immigrants. To what extent is the achievement of immigrants alike and different across SES and culture?

## Hypotheses

To the extent that parents make activity decisions based upon anticipation of consequences, symbolic as well as physical, they are expressing their values (Bandura, 1976). Thus, how people spend their time becomes a reliable indicator of their values. And, even more important, how parents and children make decisions regarding their *children's time* is a reliable indicator of their values regarding childrearing (Hofferth, 2009). As parental values or underlying circumstances change across time since immigration, which we operationalize by generation, children's activities should change. Because of the focus on children under age 13,

first generation children, who were born outside the U.S., and second generation children, U.S.-born children of immigrant parents, are examined jointly; the academic success of the first generation that arrives as children is similar to that of the second generation (Fuligni, 1997; Sastry & Pebley, 2010; Rumbaut, 1996). This paper, therefore, tests the following hypotheses:

1. Child achievement will be associated with generation, without controls. According to the assimilation argument, achievement of the third generation will be greater than that of the first and second. According to the parental optimism and selection argument, achievement will be greater for first and second generation children, both of whom have immigrant parents.
2. SES will be positively related to child achievement. After controlling for family SES and race/ethnicity, the impact of first/second generation will become more positive. This is because the effect of any first/second generation SES disadvantage is controlled. If there is an initial SES advantage to the first generation ethnic group, the effect of generation will decline with control for SES.
3. Children of Black race and Latino ethnicity will have lower test scores than White children. However, the difference in the test scores of Black, Latino, and White children will decline after controlling for generation, SES, and other factors.
4. There will be an interaction between race/ethnicity and generation, such that the effect of first/second generation on achievement will be more positive for Latinos than for other groups.
5. First/second generation children will spend more time reading and studying and less in television viewing and game playing, and study and reading time will, in turn, be

related to child achievement. Immigrant children will spend more time in music and music lessons, which will be associated with greater achievement.

6. Children's activities will explain (mediate) some of the influence of generation on achievement. That is, the influence of generation on achievement will be reduced once controls for children's time use are added to the model.

## **Data and Methods**

### **Data**

The current study used data from the Panel Study of Income Dynamics (PSID), a longitudinal ongoing survey gathering detailed socioeconomic and demographic data from individuals since 1968. The PSID is a representative sample of U.S. families, especially when weights are applied (Fitzgerald, Gottschalk & Moffitt, 1998a). In 1997, the PSID added a refresher sample of 441 immigrant families, conducting interviews in Spanish, English, and several other languages. Either the head/wife or their parents had to have arrived in the United States after 1968, when the first wave of the PSID was collected. Also in 1997, the PSID inaugurated the first Child Development Supplement (CDS I), which was administered to the parents of children aged 0-12, including parents in these immigrant families, and up to two of their children were assessed using standardized assessments. Interviews were conducted in the preferred language of the parent respondent. Assessments were conducted in either English or Spanish. The first wave of the CDS included 3,563 children from 2,380 families, with a response rate of 88%. These same families were recontacted approximately 5 years later. In the second wave (CDS II), conducted in 2002 and 2003, 2,907 out of 3,191 eligible children and adolescents aged 5-18 completed interviews; this represented a response rate of 91%. We did

not include third wave data (conducted in 2007 and 2008) because only children who were under 18 or were 18 but still living at home and had not completed high school, about half of those in CDS II, were interviewed in the CDS III. Noneligibles were interviewed for a study of the Transition into Adulthood (TA) in 2005 and 2007, which did not assess achievement or collect time diary data.

This study focuses upon 256 first-generation and second-generation children and their families added to the study in 1997, and 256 comparison children chosen from the core. The comparison group consists of all families of Hispanic and Asian origin who were in the main sample and a random sample of the remaining families of all race/ethnicities, mainly native White and Black families. Subselection was used to maintain comparable sample sizes in the three groups. The majority of the Hispanic families (74 percent) were from Mexico and we refer to all as Latinos. We used data from both the 1997 and 2003 waves. We pooled 1997 data from 226 children ages 3 through 13 who were assessed in 1997 and 2003 data for 139 children 5 through 8 in that year who had been 0 to 2 years old in 1997 and thus not eligible to provide assessment data at that time. We also included 2003 data for 265 children who had test scores in 2003 but not in 1997.<sup>1</sup> Ages, therefore, range from 3 to 18. Pooling across the two waves maximized the number of immigrant children we were able to include and reduced potential selection bias. We included only those children who had time diary information (81%), which reduced the sample size from 630 to 516 children. And after selecting only biological, step-, or

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<sup>1</sup> We believe that the reason immigrant child assessments had a higher response in 2003 than in 1997 is twofold: First, in contrast to nonimmigrant families who had been contacted regularly by PSID staff since 1968, immigrant families were new to the PSID and probably were less trusting of interviewers having direct contact with their children. Second, by 2003, the children (and their parents) were more proficient in English and better able to participate in assessments in English.

adopted children, or grandson/daughter of the head of household; there were 512 children remaining in the final sample.

## Measures

### *Children's Activity Time*

In each year in which the Child Development Supplement was administered, the study also collected diaries on the type, duration, and location of children's activities. Two time diaries were collected, one for a randomly chosen week day and one for a randomly chosen weekend day. The time diary was completed by the parents of young children, or by the parents and child together in the case of older children and adolescents, as a 24-hour record of children's activities, the start and end-times for these activities, the people who accompanied the child, and the location of the activities. The time diaries began at midnight on one randomly chosen week day and one randomly chosen weekend day. Excluding secondary activities, the total hours per child for each time diary amounted to 24.

Tallies for the time children spent on computer games were drawn from time spent on a set of computer-related activities that occurred at home. We did not include other computer-related activities because they accounted for little of the time spent (e.g., web surfing, email, and shopping). Our study sample consists of children aged 3-13 in 1997 or 5-18 in 2003; at the time, home broadband service was not widely available, and children/adolescents rarely used the computer for most purposes other than playing games (Hofferth & Moon 2010}. Electronic video game time was coded separately from time spent on other computer games. Video games included handheld game devices (Nintendo or Sony) such as Game Boy, and screen game play, in which a game console was connected to a television (e.g., Sega game programs). Time spent

watching television, the most common and routine activity, was also measured and included. Children's reading time included time spent reading books, newspapers, magazines, or online material, as long as this reading was done not for homework, but rather for pleasure (Hofferth & Moon, 2010). The time spent on study and homework, either using the computer or not, was categorized as a child's study time. Time spent on household chores included indoor activities such as setting the table, doing dishes, or making beds, and outdoor chores such as weeding or trash cleanup. Visiting time included socializing with people other than the child's own household members both at home and at places other than the child's home (e.g. at a party). Time spent on sports included lessons, practices, and sports matches such as football, baseball, and gymnastics in which the child participated. Music included time spent playing, practicing, or taking lessons in a musical instrument or voice. In sum, the following eight children's activities were used for outcome analysis: computer game play, video game play, television viewing, reading, studying, household work, visiting, and sports participation. To calculate the total time spent per week on each of these activities (in hours), the total weekday time was multiplied by 5, and added to the total weekend time multiplied by 2.

### *Children's Achievement*

*Cognitive achievement.* Children's cognitive achievement was measured using three subsets of the Woodcock-Johnson Revised Test: letter-word identification, a test of children's ability to identify and respond to letters and words; passage comprehension, a test that measures reading comprehension skills; and applied problems, a test of skill in analyzing and solving practical numerical problems (Woodcock & Mather, 1989). The interviewers were trained and provided with the materials needed to administer this standardized test in the target child's home.

The scores of the tests were standardized by child's age, with a mean of 100 and a standard deviation of 15. Children 3 and older were eligible for the letter-word and applied problems subtests, and children 6 and older were eligible for passage comprehension subtest. Because not all children were assessed in either 1997 or 2003, the final sample sizes were 458 children for the letter-word test, 457 for applied problems, and 433 for passage comprehension.

### *Generation and Use of Non-English Language at Home*

“First generation” refers to children who were born outside the United States to foreign-born parents, “second generation” refers to children who were born in the U.S. to at least one foreign-born parent, and “third generation” is used to refer to children who were born in the U.S. to U.S.-born parents. To examine generational differences, we combined first and second generation children and compared them to third generation children. Generation was determined by questions that asked where each of the child's parents and grandparents was born and where each child was born. Families were identified by in-person household screening in areas of high immigrant concentrations (Panel Study of Income Dynamics, 1999). A screener was used to establish the birthplace of each respondent and each respondent's parents so that country of origin as well as race/ethnicity is known. To be eligible for the refresher sample, a family had to have had a family member immigrate to the United States after 1968. As part of a set of questions asked about migration experience, each of these immigrant parents was asked whether any language other than English was spoken at home. This was coded (1=yes, 0 = no).

### *Race/ethnicity*

Dummy variables were created for each race/ethnic group, and in this study Black, Latino, and Asian groups were compared to those of European background or White, unspecified. Race was determined by the race/ethnicity of the child in the household reported by the primary caregiver. If that was not available, the ethnicity was determined by information on the household head. In 2 cases there was a discrepancy between race/ethnicity of parent and child; the race/ethnicity of parent was selected; these may have been adopted children and the background of parent was of more importance to our analyses.

### *Socioeconomic status*

Family SES includes parental education, family income, and family structure. Parental education was determined primarily according to mother's education, but father's education was used in the case of single father families. Children of parents who had completed high school and children of parents with some college education or more were compared with children of parents who had less than a high school education. Poverty was coded "0" indicating a family income greater than the poverty line and "1" indicating a family income less than the poverty line. A dummy variable for family type was created using number of parents (0 for one parent, and 1 for two parents).

### *Background Variables*

Individual characteristics that might influence the child's achievement were used as control variables. Individual characteristics included child's gender and age. Child gender was coded as 0 for boy and 1 for girl. Children's age was included as a continuous variable in terms of years of age, ranging from 3 to 18.

## Results

The sample comprised 258 first/second generation and 256 third generation children. The 225 Latino children account for 44% of the sample. The remainder of the sample consists of 135 White (26%), 99 Black (19%), and 55 Asian (10%) children from immigrant families. The number of first/second generation versus third generation children is disproportionately distributed across the races: Ninety percent of White and Black children were third generation, compared to only 18 and 15%, respectively, of Latino and Asian children.

Table 1, top panel, shows the means of children's academic outcomes, by generation. Columns 1 and 2 show means, standard deviations, and proportions for all children; columns 3 through 6 show test scores by generation. The average score across all children in this sample was about 104 on each of the three tests. This is slightly higher than the average for U.S. children on which the tests were standardized (100). Examining means by generation, third generation children scored considerably better on the passage comprehension and applied problem solving tests than did children of foreign-born parents (first or second generation). On the letter word test, there were no significant differences by generation.

The middle panel of Table 1 shows the means and proportions of family background variables for the entire sample and for children of first or second and third generations. The average age of the sample was almost 10 years (9.92). First or second generation children were older; they averaged almost 11 years of age, compared to 9 for the third generation. Although the full sample was evenly divided by gender, a slightly larger proportion of first or second generation children were girls, 56%, compared to 44% of the third generation.

Children of immigrant parents were much less well-off than children of native-born parents. About 19% overall had family incomes below the poverty line: 25% of first or second generation children and only 13% of the third generation. Overall, 40% of the sample parents had less than a high school education, 24% had completed high school, and 37% had completed some college or more. Parents of first or second generation children were less educated than those of third generation children: 57% of parents of first or second generation children had completed less than high school and 26% had completed some college. In contrast, 22% of parents of third generation children had completed less than high school whereas 47% had completed some college.

Although economically disadvantaged, recent immigrants have a family structure advantage. Three-quarters of children lived with two parents. A higher proportion of first or second generation children (84%) lived with two parents, compared with 71 percent of 3<sup>rd</sup> generation children. These differences are all statistically significant. Finally, the use of a non-English language at home differed dramatically by generation, with 86% of first or second generation children using a non-English language at home, compared with none of third generation children. Eighty-four percent of first and second generation children's information was obtained in 2003, compared to 49% of third generation children's information.

Table 1, lower panel, shows the mean times in children's activities by generation. First and second generation immigrant children spent more time studying, reading, and watching television but less time playing video games and playing sports.

(Table 1 about here)

In Table 2 we show differences in average test scores (top panel) and family background measures (lower panel) across racial/ethnic group and generation. The only significant

generational difference in test scores across ethnic groups was that Latino first or second generation students had higher letter word scores than third generation students. This is in spite of their greater disadvantage; the lower panel shows that Latino first or second generation children were more likely to be poor and to have a parent who had not completed high school. They were advantaged only in that they were more likely to live with two parents. Parents of first or second generation Asian children were also more likely to be poor and to have a parent who had not completed high school compared to parents of third generation children. Parental education did not differ significantly across generations for Whites and Blacks. For Whites, the third generation was significantly more likely to be in poverty than the first or second, but the levels were low compared with the other racial/ethnic groups. There were no differences in test scores across generations for Asians, Whites, or Blacks.

(Table 2 about here)

Activity time is shown by race/ethnicity and generation in Table 3. Across race/ethnic groups, first and second generation children of immigrant parents consistently spent more time studying than third generation children (Table 3); these differences were significant among Whites and Asians. Reading time was also greater among first and second compared to third generation Asian children. Television viewing time was consistently higher for first and second generation Latino children compared with third generation children. In contrast, television viewing time was greater for third generation White compared with first and second generation White children. Video game play was greater among third generation children, significantly so for Whites ( $p < .10$ ), Blacks ( $p < .05$ ), and Asians ( $p < .05$ ). Time spent in music did not vary by generation except among Blacks, where time was marginally greater for the third generation.

(Table 3 about here)

## Association between Generation and Activities

Table 4, Model 1 reiterates significant differences in the activities of first/second generation compared with third generation children without controls. Compared with third generation children, first and second generation children spent more time watching television, more time reading, and more time studying (Model 1). They spent less time playing video games and playing sports. After controlling for child and family characteristics (Models 2 and 3), first and second generation children spent significantly more time reading and studying and less time playing video games; differences in television viewing and sports participation were no longer significant, however. There were no generational differences in time spent on music. Parental education was strongly linked to music involvement and television viewing; children of college educated parents spent significantly less time in music and music lessons and watching television.

(Table 4 about here)

## Generation and Child Achievement

In Tables 5 to 7 we examine the association of achievement (separately for letter word, passage comprehension, and applied problems tests) with generation, socioeconomic status, race/ethnicity and activity time. In Model 1 we regressed achievement on generation, adding age and gender of child in Model 2. In the third model we added parental education, poverty, and family structure. In the fourth model we add race/ethnicity. In the fifth model we added children's activity time. In a sixth model we added whether a language other than English was used at home to test whether language use was the primary reason for the effect of generation. Although it was linked to generation, once all the controls were included, language use was not significantly related to any of the test scores and this model is, consequently, not shown.

Language use, though an indicator of generation, did not explain the effect of generation and, therefore, of the extent of acculturation, on test scores.

*Vocabulary.* Table 5, Model 1, shows that generation alone was positively but not significantly linked to letter-word test score. Because girls have higher vocabulary scores than boys, adding age and gender of child in Model 2 raised the coefficient between generation and vocabulary score, though it was still not significant. The effect of generation became stronger after SES was added in Model 3; the  $R^2$  also increased substantially. After race/ethnicity was added in Model 4, generation became large and significantly associated with vocabulary score ( $b=6.43$ ,  $p<.01$ ). First or second generation children scored 6.43 points higher on the letter word test once differences in background that reflected immigrant disadvantage (race/ethnic minority status, low parental education, greater poverty) were controlled. Having parents who completed some college or more was associated with children's significantly higher vocabulary scores. Blacks and Latinos had significantly lower test scores. Once these disadvantages were controlled, first and second generation children had significantly higher vocabulary test scores.

(Table 5 about here)

In model 5 of Table 5 we tested for activity mediation. Two activities were associated with a better vocabulary score: time spent studying, visiting, and in music were significantly related to a higher letter word score. Because first generation children spent more time studying (Table 4) and studying was linked to higher vocabulary score (Table 5), controlling for studying reduced the effect of generation by about 10%. Because there was no significant association between generation and visiting or music (Table 4), visiting and music were not mediating variables.

*Reading Comprehension.* The effect of first/second generation on the passage comprehension test score was negative and statistically significant (Table 6, Model 1). First and second generation children scored lower than third generation children by 3.52 points. The negative coefficient declined after the age and gender of the child were added in Model 2. After SES was added in Model 3, the coefficient became positive; the  $R^2$  also increased substantially. In Model 4, with added controls for race/ethnicity, the coefficient rose to 3.19, but was not quite statistically significant ( $p = .11$ ). In Model 5, the generation coefficient declined 3% once children's activities were included. First and second generation children studied and watched television more, and these activities were associated with higher reading scores. The effect of studying was significant and that of television viewing was marginally significant. Thus there was an indirect effect of generation on reading test score through studying and television watching. Music was consistently related to a higher reading score; however, again, there was no indirect effect because generation was not linked to music.

(Table 6 about here)

*Problem Solving.* First/second generation was also negatively associated with the applied problems test score; first and second generation children had test scores lower by 4.5 points compared with third generation children (Table 7, Model 1). The coefficient declined slightly once controls for child age and gender (Model 2) and then SES were included; the  $R^2$  increased substantially with controls for SES (Model 3). After all the control variables were included (Table 6, Model 4), the association was close to zero and no longer statistically significant. Greater parental education was associated with higher test scores. The reason for the negative association with generation was that first and second generation children had parents

with lower levels of education. When these differences in SES were controlled, first and second generational disadvantage declined.

(Table 7 about here)

Interestingly, the association of generation with applied problems score became positive once activities were added, though the coefficient was still not significant. First and second generation children were less likely to play video games, and playing video games was associated with a significantly higher score on the applied problems test. Controlling for their disadvantage on video games increased the test score of first and second generation children, though not to significance. Music and music lessons were consistently related to test scores but had no indirect effect because they were not linked to generation.

#### Interaction between race/ethnicity and generation

We hypothesized that the association between generation and test score would differ across racial/ethnic groups. In particular, how different are the test scores of first generation White, Black, Latino and Asian children? We tested the interaction between generation and Black, generation and Latino, and generation and Asian. There was one significant interaction: between Latino ethnicity and generation but only for the applied problems test. First/second generation Latino children had applied problems scores much greater than third generation Latino children. The results for Latinos are shown in Table 8. Among Latinos, after controlling for background variables the coefficient for first/second generation was 5.14 and statistically significant. That coefficient increased to 6.71 once activities were controlled. First generation Latinos were much less likely to play computer games and playing games was associated with

greater applied problems scores. Controlling for this disadvantage increased the impact of first/second generation on the applied problems score.

(Table 8 about here)

## **Discussion and Conclusions**

Despite their greater socioeconomic disadvantage and their greater use of native languages at home, supporting Hypothesis 1, children of immigrant parents (first or second generation) achieve at levels at least equal to those of children of parents native to the United States (third generation). In the case of vocabulary, in this study they surpassed the achievement of their third generation peers, achieving 6.4 points higher on the letter word test, an effect size of about 33%, a moderate effect. This supports the perspective of immigrant parental optimism and selection and does not support the assimilation perspective.

Supporting Hypothesis 2, the most important factor leading to generational differences is socioeconomic status background, particularly minority status and parental education. Including controls for socioeconomic status and background reduces the initial disadvantage of immigrant children to nonsignificance (problem solving) or makes the coefficient positive (vocabulary and reading). Although for the most part immigrants are socioeconomically disadvantaged, they experience a family structure advantage; more children of immigrants live with both parents.

Supporting Hypothesis 3, racial/ethnic differences were present, but reduced when socioeconomic status controls were included in the models. Socioeconomic status greatly increased the proportion of variance explained on each of the achievement tests.

Hypothesis 4 was also supported. Immigrant children engaged in activities that were beneficial to their reading and vocabulary scores, in particular, they studied more. In spite of its

generally negative influence in majority white children, immigrant children tended to spend more time watching television, and watching more television was beneficial to their reading score. Research on Head Start, has shown clear benefits of educational programming for the reading skills of immigrant children (Fisch & Truglio, 2001). However, immigrant children did not engage as much in one activity that is beneficial – playing video games. Their advantage would be larger if they were to spend more time playing such games.

Immigrant youth also spent less time playing sports. In contrast to other research on majority American youth, there was no evidence for a benefit of participation in sports for the achievement of immigrant children, though the ages of these children were young. Thus, even though children of immigrants spend less time playing sports, lower participation does not appear to be detrimental to achievement on tests in middle childhood. Children who played music had significantly higher test scores, but immigrant children did not differ from other children in time spent in music. In contrast to reading and studying, parental education was strongly and significantly associated with children's involvement in music. Immigrant parenting practices are limited to promotion of academic success, not extracurricular skills and talent.

Contrary to some beliefs, children of immigrants do not appear to spend larger amounts of time in household work than children of natives and such work does not reduce their achievement. There is some evidence that children of immigrants spend more time reading than other children, but, controlling for other activities and SES, increased reading does not appear to influence achievement.

Immigrant children are characterized by activity patterns that benefit academic performance. Their greater study time matters to achievement, particularly in vocabulary and reading. When studying was included in the analysis, the coefficient for generation on reading

and vocabulary declined, supporting Hypothesis 5. Playing sports does not appear to be an avenue for achievement for immigrant children. They are less likely to play sports and would not benefit if they did. They would benefit from music, however, but that is strongly SES-based. The single activity they do not engage in but could benefit from is playing video games. Children who played such games did better on the applied problems test. Although most of the findings are consistent with the Tiger mother approach of monitoring and promoting studying to improve children's achievement, they indicate that children could benefit from some activities that immigrant children eschew - video game play in particular. Computer game play may also be beneficial to Latino children. In addition, the results suggest that there is an educational benefit to television viewing for some immigrant children.

#### Study Limitations

This study takes advantage of a unique recent set of data on the achievement and activities of a representative sample of children of immigrants and a comparison group of children of native families. The sample size was comparable to most studies of immigrant children. The major disadvantage is that only the sample of Latinos included balanced representation of three generations of immigrant children. Results of separate analyses of the Latino sample were consistent with the hypotheses and with the results for the full sample, so the failure to have an equal number of families in the generation categories does not appear to have distorted or biased the results. The characteristics of our sample are consistent with the characteristics and origins of immigrants during the 1980s and 1990s, when most of these families arrived in the U.S. Sample sizes were small because the sample was designed to supplement an existing survey.

#### Unique Aspects of this Study

What is unique about this study is the inclusion of detailed information from time diaries on the actual time children spend in different activities. Time diary measures have been shown to be relatively more objective than parent reports (Hofferth, 2008). To date no other national study has used time use data to examine how immigrant children's activities relate to their academic achievement. Even so, this study examined only a small set of activities in which children engaged. In future research more activities could be added to fill out the picture of the remarkable successes of immigrant children and parental contributions to these successes.

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**Table 1. Means of Child Test Scores, Family Background, and Activities**

| Variables                | All    |       | All Children |       |        |          |
|--------------------------|--------|-------|--------------|-------|--------|----------|
|                          | Mean   | SD    | 1st/2nd      |       | 3rd    |          |
|                          |        |       | Mean         | SD    | Mean   | SD       |
| <b>Test Scores</b>       |        |       |              |       |        |          |
| Letterword               | 104.51 | 18.23 | 105.03       | 18.69 | 104.05 | 17.82    |
| N                        | 456    |       | 216          |       | 240    |          |
| Passage Comprehension    | 103.69 | 14.95 | 101.87       | 14.74 | 105.39 | 14.98 *  |
| N                        | 431    |       | 208          |       | 223    |          |
| Applied Problems         | 103.60 | 18.15 | 101.23       | 18.75 | 105.72 | 17.36 ** |
| N                        | 455    |       | 215          |       | 240    |          |
| <b>Family Background</b> |        |       |              |       |        |          |
| 1st generation           | 10.4%  | 0.30  |              |       |        |          |
| 2nd generation           | 39.6%  | 0.49  |              |       |        |          |
| 3rd generation           | 50.0%  | 0.50  |              |       |        |          |
| Child age                | 9.94   | 3.31  | 10.78        | 3.60  | 9.09   | 2.76 *** |
| Girl                     | 50.0%  | 0.50  | 55.9%        | 0.50  | 44.1%  | 0.50 **  |
| Parent education         |        |       |              |       |        |          |
| less than high school    | 39.6%  | 0.49  | 57.0%        | 0.50  | 22.3%  | 0.42 *** |
| high school              | 23.6%  | 0.43  | 16.8%        | 0.37  | 30.5%  | 0.46 *** |
| Some college or more     | 36.7%  | 0.48  | 26.2%        | 0.44  | 47.3%  | 0.50 *** |
| Poverty                  | 18.9%  | 0.39  | 25.0%        | 0.43  | 12.9%  | 0.34 *** |
| Two parents              | 77.5%  | 0.42  | 84.4%        | 0.36  | 70.7%  | 0.46 *** |
| No English use at home   | 43.0%  | 0.50  | 85.9%        | 0.35  | 0.0%   | 0.00 *** |
| Year 2003                | 66.2%  | 0.47  | 84.0%        | 0.37  | 48.4%  | 0.50 *** |
| N                        | 512    |       | 256          |       | 256    |          |
| <b>Child Activities</b>  |        |       |              |       |        |          |
| Weekly Hours:            |        |       |              |       |        |          |
| Videogames               | 1.75   | 4.28  | 1.38         | 3.29  | 2.12   | 5.05 *   |
| Computer games           | 0.78   | 3.33  | 0.69         | 3.17  | 0.87   | 3.48     |
| Watching TV              | 14.89  | 11.43 | 16.12        | 12.51 | 13.66  | 10.10 *  |
| Reading                  | 1.21   | 2.28  | 1.41         | 2.57  | 1.00   | 1.93 *   |
| Study                    | 4.09   | 5.33  | 5.19         | 6.05  | 2.98   | 4.22 *** |
| Household work           | 2.52   | 3.58  | 2.53         | 3.64  | 2.51   | 3.52     |
| Visits                   | 2.85   | 6.05  | 2.58         | 5.46  | 3.11   | 6.58     |
| Sports                   | 2.69   | 5.21  | 2.11         | 4.10  | 3.27   | 6.08 *   |
| Music                    | 0.27   | 1.21  | 0.27         | 1.29  | 0.27   | 1.12     |
| N                        | 512    |       | 256          |       | 256    |          |

\*\*\* p< .001, \*\* p< .01, \* p< .05, + p<.10 two-tailed test

**Table 2. Means of Child Test Scores and Family Background by Race/Ethnicity and Generation**

| Variables                | White   |       |        |          | Black   |       |        |          | Latino  |       |       |          | Asian   |       |        |          |
|--------------------------|---------|-------|--------|----------|---------|-------|--------|----------|---------|-------|-------|----------|---------|-------|--------|----------|
|                          | 1st/2nd |       | 3rd    |          | 1st/2nd |       | 3rd    |          | 1st/2nd |       | 3rd   |          | 1st/2nd |       | 3rd    |          |
|                          | Mean    | SD    | Mean   | SD       | Mean    | SD    | Mean   | SD       | Mean    | SD    | Mean  | SD       | Mean    | SD    | Mean   | SD       |
| <b>Test Scores</b>       |         |       |        |          |         |       |        |          |         |       |       |          |         |       |        |          |
| Letterword               | 112.67  | 19.73 | 108.73 | 17.44    | 106.78  | 17.39 | 100.54 | 16.81    | 102.58  | 17.79 | 95.21 | 18.09 *  | 113.20  | 20.32 | 111.67 | 6.86     |
| N                        | 12      |       | 116    |          | 9       |       | 85     |          | 160     |       | 33    |          | 35      |       | 6      |          |
| Passage Comprehension    | 109.00  | 10.23 | 109.45 | 15.75    | 102.33  | 18.59 | 102.70 | 13.00    | 99.30   | 13.95 | 97.78 | 13.97    | 110.79  | 14.73 | 109.83 | 6.82     |
| N                        | 12      |       | 106    |          | 9       |       | 79     |          | 153     |       | 32    |          | 34      |       | 6      |          |
| Applied Problems         | 113.50  | 13.67 | 112.42 | 17.22    | 87.22   | 26.40 | 99.24  | 15.19    | 98.56   | 14.92 | 96.48 | 11.65    | 112.77  | 26.03 | 118.67 | 17.65    |
| N                        | 12      |       | 116    |          | 9       |       | 85     |          | 159     |       | 33    |          | 35      |       | 6      |          |
| <b>Family Background</b> |         |       |        |          |         |       |        |          |         |       |       |          |         |       |        |          |
| Child age                | 11.14   | 3.30  | 8.88   | 2.79 **  | 12.40   | 3.20  | 9.27   | 2.53 *** | 10.79   | 3.66  | 9.30  | 3.16 *   | 10.28   | 3.53  | 8.33   | 1.63     |
| Girl                     | 78.6%   | 0.43  | 43.0%  | 0.50 *   | 60.0%   | 0.52  | 48.3%  | 0.50     | 53.5%   | 0.50  | 42.5% | 0.50     | 57.4%   | 0.50  | 16.7%  | 0.41 +   |
| Parent education         |         |       |        |          |         |       |        |          |         |       |       |          |         |       |        |          |
| less than high school    | 7.1%    | 0.27  | 14.9%  | 0.36     | 20.0%   | 0.42  | 23.6%  | 0.43     | 66.5%   | 0.47  | 42.5% | 0.50 **  | 42.6%   | 0.50  | 16.7%  | 0.41     |
| high school              | 35.7%   | 0.50  | 25.6%  | 0.44     | 40.0%   | 0.52  | 39.3%  | 0.49     | 15.7%   | 0.36  | 30.0% | 0.46 +   | 10.6%   | 0.31  | 0.0%   | 0.00 *   |
| Some college or more     | 57.1%   | 0.51  | 59.5%  | 0.49     | 40.0%   | 0.52  | 37.1%  | 0.49     | 17.8%   | 0.38  | 27.5% | 0.45     | 46.8%   | 0.50  | 83.3%  | 0.41 +   |
| Poverty                  | 0.0%    | 0.00  | 5.0%   | 0.22 *   | 20.0%   | 0.42  | 23.6%  | 0.43     | 29.2%   | 0.46  | 15.0% | 0.36 +   | 17.0%   | 0.38  | 0.0%   | 0.00 **  |
| Two parents              | 78.6%   | 0.43  | 84.3%  | 0.37     | 50.0%   | 0.53  | 48.3%  | 0.50     | 85.9%   | 0.35  | 75.0% | 0.44     | 87.2%   | 0.34  | 100%   | 0.00 *   |
| No English use at home   | 71.4%   | 0.47  | 0.0%   | 0.00 *** | 50.0%   | 0.53  | 0.0%   | 0.00 *   | 86.5%   | 0.34  | 0.0%  | 0.00 *** | 95.7%   | 0.20  | 0.0%   | 0.00 *** |
| Year 2003                | 85.7%   | 0.36  | 47.1%  | 0.50 **  | 90.0%   | 0.32  | 42.7%  | 0.50 **  | 85.9%   | 0.35  | 60.0% | 0.50 **  | 74.5%   | 0.44  | 83.3%  | 0.41     |
| N                        | 14      |       | 121    |          | 10      |       | 89     |          | 185     |       | 40    |          | 47      |       | 6      |          |

\*\*\* p< .001, \*\* p< .01, \* p< .05, + p<.10 two-tailed test

**Table 3. Means of Child Activities by Race/Ethnicity and Generation**

| Variables            | White   |       |       |         | Black   |       |       |        | Latino  |       |       |        | Asian   |       |      |         |
|----------------------|---------|-------|-------|---------|---------|-------|-------|--------|---------|-------|-------|--------|---------|-------|------|---------|
|                      | 1st/2nd |       | 3rd   |         | 1st/2nd |       | 3rd   |        | 1st/2nd |       | 3rd   |        | 1st/2nd |       | 3rd  |         |
|                      | Mean    | SD    | Mean  | SD      | Mean    | SD    | Mean  | SD     | Mean    | SD    | Mean  | SD     | Mean    | SD    | Mean | SD      |
| <b>Weekly Hours:</b> |         |       |       |         |         |       |       |        |         |       |       |        |         |       |      |         |
| Videogames           | 0.81    | 1.62  | 1.94  | 3.91 +  | 0.40    | 0.97  | 1.78  | 5.26 * | 1.46    | 3.45  | 2.83  | 7.14   | 1.43    | 3.31  | 6.18 | 4.94 ** |
| Computer games       | 0.77    | 1.45  | 0.90  | 3.42    | 0.25    | 0.79  | 0.32  | 2.40   | 0.37    | 1.48  | 1.31  | 4.55   | 1.99    | 6.63  | 5.28 | 6.59    |
| Watching TV          | 7.27    | 4.60  | 12.58 | 9.47 ** | 14.43   | 11.34 | 15.86 | 10.94  | 16.88   | 12.52 | 13.22 | 9.46 * | 16.10   | 13.53 | 5.53 | 7.52 +  |
| Reading              | 1.55    | 1.62  | 1.31  | 2.13    | 1.85    | 2.78  | 0.71  | 1.83   | 1.03    | 2.18  | 0.76  | 1.46   | 2.77    | 3.56  | 0.78 | 1.41 *  |
| Study                | 8.46    | 10.18 | 2.45  | 4.00 *  | 10.25   | 11.94 | 3.42  | 4.50   | 4.51    | 4.95  | 3.86  | 4.31   | 5.82    | 6.06  | 1.46 | 2.55 +  |
| Household work       | 2.33    | 2.99  | 2.88  | 3.68    | 1.30    | 1.88  | 2.14  | 3.72   | 2.97    | 3.95  | 2.24  | 2.66   | 1.11    | 2.18  | 2.20 | 1.70    |
| Visits               | 5.15    | 6.46  | 3.06  | 6.73    | 3.96    | 5.37  | 2.58  | 5.38   | 2.57    | 5.60  | 3.93  | 7.89   | 1.57    | 4.38  | 6.54 | 10.14   |
| Sports               | 2.18    | 4.02  | 3.52  | 5.77    | 2.62    | 6.31  | 3.28  | 6.95   | 2.24    | 3.99  | 2.48  | 5.26   | 1.47    | 4.07  | 3.19 | 3.73    |
| Music                | 0.42    | 1.56  | 0.34  | 1.31    | 0.00    | 0.00  | 0.19  | 0.94 + | 0.15    | 0.96  | 0.13  | 0.57   | 0.76    | 2.14  | 0.86 | 2.11    |
| N                    | 14      |       | 121   |         | 10      |       | 89    |        | 185     |       | 40    |        | 47      |       | 6    |         |

\*\*\* p< .001, \*\* p< .01, \* p< .05, + p<.10 two-tailed test

**Table 4. Regression of Activities on Generation and Control Variables <sup>a</sup>**

| Variables            | Video games |           |           | Computer games |         |         | Television |           |           | Child's reading |          |         |
|----------------------|-------------|-----------|-----------|----------------|---------|---------|------------|-----------|-----------|-----------------|----------|---------|
|                      | Model 1     | Model 2   | Model 3   | Model 1        | Model 2 | Model 3 | Model 1    | Model 2   | Model 3   | Model 1         | Model 2  | Model 3 |
| <b>Constant</b>      | 2.12 ***    | 2.07 ***  | 1.91 +    | 0.87 ***       | -0.18   | -0.71   | 13.66 ***  | 12.81 *** | 15.93 *** | 1.00 ***        | 1.22 *** | 1.11 ** |
| 1st/2nd Generation   | -0.75 +     | -0.66     | -1.32 +   | -0.18          | -0.36   | -0.99   | 2.46 *     | 2.35 +    | 1.01      | 0.41 +          | 0.44 *   | 0.56 *  |
| Age                  |             | 0.14 +    | 0.14 +    |                | 0.13 +  | 0.15 *  |            | 0.17      | 0.14      |                 | -0.04    | -0.02   |
| Girl                 |             | -2.75 *** | -2.72 *** |                | -0.41   | -0.38   |            | -1.49     | -1.55     |                 | 0.26     | 0.27    |
| Black                |             |           | -0.12     |                |         | -0.48   |            |           | 2.13      |                 |          | -0.45   |
| Latino               |             |           | 0.91      |                |         | 0.41    |            |           | 0.70      |                 |          | -0.61 + |
| Asian                |             |           | 1.34      |                |         | 2.27 *  |            |           | 1.11      |                 |          | 0.78    |
| Parents education    |             |           |           |                |         |         |            |           |           |                 |          |         |
| High school          |             |           | 0.36      |                |         | 0.51    |            |           | -2.19     |                 |          | -0.06   |
| Some college or more |             |           | -0.04     |                |         | 0.33    |            |           | -5.38 *** |                 |          | 0.48 +  |
| Poverty              |             |           | -0.61     |                |         | -0.30   |            |           | 1.48      |                 |          | 0.28    |
| Two parents          |             |           | -0.02     |                |         | 0.25    |            |           | -1.02     |                 |          | -0.02   |
| N                    | 512         | 512       | 512       | 512            | 512     | 512     | 512        | 512       | 512       | 512             | 512      | 512     |
| R <sup>2</sup>       | 0.01        | 0.12      | 0.13      | 0.00           | 0.02    | 0.07    | 0.01       | 0.02      | 0.08      | 0.01            | 0.01     | 0.07    |

  

| Variables            | Study    |          |          | Household work |         |          | Visits   |         |         | Sports   |           |           |
|----------------------|----------|----------|----------|----------------|---------|----------|----------|---------|---------|----------|-----------|-----------|
|                      | Model 1  | Model 2  | Model 3  | Model 1        | Model 2 | Model 3  | Model 1  | Model 2 | Model 3 | Model 1  | Model 2   | Model 3   |
| <b>Constant</b>      | 2.98 *** | -0.36    | -1.13    | 2.51 ***       | 1.22 *  | 1.29     | 3.11 *** | 2.56 *  | 1.53    | 3.27 *** | 2.52 ***  | 2.51 *    |
| 1st/2nd Generation   | 2.21 *** | 1.56 *** | 2.44 *   | 0.02           | -0.24   | -0.19    | -0.53    | -0.66   | -0.64   | -1.16 *  | -1.20 **  | -0.56     |
| Age                  |          | 0.33 *** | 0.33 *** |                | 0.11 *  | 0.11 +   |          | 0.03    | 0.03    |          | 0.21 **   | 0.22 ***  |
| Girl                 |          | 0.72     | 0.68     |                | 0.68 *  | 0.71 *   |          | 0.61    | 0.61    |          | -2.74 *** | -2.75 *** |
| Black                |          |          | 1.03     |                |         | -0.70    |          |         | -0.41   |          |           | -0.08     |
| Latino               |          |          | -0.37    |                |         | 0.27     |          |         | 0.25    |          |           | -0.77     |
| Asian                |          |          | 0.25     |                |         | -1.47 ** |          |         | -0.49   |          |           | -1.38     |
| Parents education    |          |          |          |                |         |          |          |         |         |          |           |           |
| High school          |          |          | 0.64     |                |         | 0.16     |          |         | 1.25    |          |           | -0.42     |
| Some college or more |          |          | 1.04 +   |                |         | 0.49     |          |         | 0.63    |          |           | 0.55      |
| Poverty              |          |          | -0.44    |                |         | -0.39    |          |         | 0.12    |          |           | 0.36      |
| Two parents          |          |          | -0.17    |                |         | -0.07    |          |         | 0.65    |          |           | 0.03      |
| N                    | 512      | 512      | 512      | 512            | 512     | 512      | 512      | 512     | 512     | 512      | 512       | 512       |
| R <sup>2</sup>       | 0.04     | 0.09     | 0.11     | 0.00           | 0.02    | 0.05     | 0.00     | 0.00    | 0.01    | 0.01     | 0.09      | 0.10      |

**Table 4 (cont.). Regression of Activities on Generation and Control Variables <sup>a</sup>**

| Variables            | Music    |         |         |
|----------------------|----------|---------|---------|
|                      | Model 1  | Model 2 | Model 3 |
| Constant             | 0.27 *** | 0.05    | -0.30 + |
| 1st/2nd Generation   | 0.00     | -0.04   | -0.03   |
| Age                  |          | 0.02 +  | 0.03 *  |
| Girl                 |          | 0.04    | 0.05    |
| Black                |          |         | -0.09   |
| Latino               |          |         | -0.04   |
| Asian                |          |         | 0.49    |
| Parents education    |          |         |         |
| High school          |          |         | 0.21    |
| Some college or more |          |         | 0.42 ** |
| Poverty              |          |         | -0.01   |
| Two parents          |          |         | 0.10    |
| N                    | 512      | 512     | 512     |
| R <sup>2</sup>       | 0.00     | 0.00    | 0.05    |

\*\*\* p< .001, \*\* p< .01, \* p< .05, + p<.10 two-tailed test

<sup>a</sup> Robust standard errors adjusted for multiple children in a family were used to obtain significance levels

**Table 5. Regression of Letter Word Score on Generation, Controls, and Activities<sup>a</sup>**

| <b>Variables</b>     | <b>Model 1</b> | <b>Model 2</b> | <b>Model 3</b> | <b>Model 4</b> | <b>Model 5</b> |
|----------------------|----------------|----------------|----------------|----------------|----------------|
| <b>Constant</b>      | 104.05 ***     | 106.39 ***     | 96.06 ***      | 100.47 ***     | 99.50 ***      |
| 1st/2nd Generation   | 0.99           | 1.46           | 3.01           | 6.43 **        | 6.02 *         |
| Age                  |                | -0.43          | -0.30          | -0.28          | -0.56 +        |
| Girl                 |                | 3.46 *         | 3.60 *         | 3.70 *         | 4.76 **        |
| Parents' education   |                |                |                |                |                |
| High school          |                |                | 3.28           | 2.20           | 1.19           |
| Some college or more |                |                | 10.72 ***      | 8.49 ***       | 7.31 ***       |
| Poverty              |                |                | -0.89          | 0.52           | 0.69           |
| Two parents          |                |                | 4.32 *         | 3.81 +         | 3.73 +         |
| Black                |                |                |                | -5.01 *        | -5.08 *        |
| Latino               |                |                |                | -9.12 **       | -8.93 **       |
| Asian                |                |                |                | -0.91          | -2.69          |
| Video games          |                |                |                |                | 0.30           |
| Computer games       |                |                |                |                | 0.10           |
| Television           |                |                |                |                | 0.01           |
| Reading for pleasure |                |                |                |                | 0.08           |
| Study                |                |                |                |                | 0.44 *         |
| Household work       |                |                |                |                | -0.14          |
| Visits               |                |                |                |                | 0.28 *         |
| Sports               |                |                |                |                | 0.21           |
| Music                |                |                |                |                | 1.72 *         |
| N                    | 456            | 456            | 456            | 456            | 456            |
| R <sup>2</sup>       | 0.00           | 0.01           | 0.10           | 0.13           | 0.16           |

\*\*\* p< .001, \*\* p< .01, \* p< .05, + p<.10 two-tailed test

<sup>a</sup> Robust standard errors adjusted for multiple children in a family

**Table 6. Regression of Passage Comprehension Score on Generation, Controls, and Activities<sup>a</sup>**

| <b>Variables</b>     | <b>Model 1</b> | <b>Model 2</b> | <b>Model 3</b> | <b>Model 4</b> | <b>Model 5</b> |
|----------------------|----------------|----------------|----------------|----------------|----------------|
| <b>Constant</b>      | 105.39 ***     | 115.40 ***     | 103.68 ***     | 106.59 ***     | 103.93 ***     |
| 1st/2nd Generation   | -3.52 *        | -1.64          | 0.82           | 3.19           | 3.08           |
| Age                  |                | -1.16 ***      | -0.99 ***      | -0.98 ***      | -1.20 ***      |
| Girl                 |                | 2.22           | 2.46 +         | 2.59 *         | 3.64 **        |
| Parents' education   |                |                |                |                |                |
| High school          |                |                | 6.19 **        | 5.38 **        | 4.55 *         |
| Some college or more |                |                | 12.19 ***      | 10.46 ***      | 9.83 ***       |
| Poverty              |                |                | -2.56          | -1.38          | -1.41          |
| Two parents          |                |                | 3.66 *         | 3.51 *         | 3.44 *         |
| Black                |                |                |                | -3.13          | -3.23          |
| Latino               |                |                |                | -6.65 **       | -6.62 **       |
| Asian                |                |                |                | 0.34           | -2.69          |
| Video games          |                |                |                |                | 0.26           |
| Computer games       |                |                |                |                | 0.28           |
| Television           |                |                |                |                | 0.12 +         |
| Reading for pleasure |                |                |                |                | 0.32           |
| Study                |                |                |                |                | 0.29 +         |
| Household work       |                |                |                |                | -0.14          |
| Visits               |                |                |                |                | 0.18 +         |
| Sports               |                |                |                |                | 0.15           |
| Music                |                |                |                |                | 2.04 ***       |
| N                    | 431            | 431            | 431            | 431            | 431            |
| R <sup>2</sup>       | 0.01           | 0.07           | 0.23           | 0.25           | 0.30           |

\*\*\* p< .001, \*\* p< .01, \* p< .05, + p<.10 two-tailed test

<sup>a</sup> Robust standard errors adjusted for multiple children in a family

**Table 7. Regression of Applied Problems Score on Generation, Controls,  
and Activities<sup>a</sup>**

| <b>Variables</b>     | <b>Model 1</b> | <b>Model 2</b> | <b>Model 3</b> | <b>Model 4</b> | <b>Model 5</b> |
|----------------------|----------------|----------------|----------------|----------------|----------------|
| <b>Constant</b>      | 105.72 ***     | 106.97 ***     | 95.64 ***      | 103.68 ***     | 103.46 ***     |
| 1st/2nd Generation   | -4.48 *        | -4.21 *        | -1.56          | -0.21          | 0.99           |
| Age                  |                | -0.11          | 0.05           | 0.10           | -0.29          |
| Girl                 |                | -0.51          | -0.23          | 0.09           | 2.24           |
| Parents' education   |                |                |                |                |                |
| High school          |                |                | 4.78 +         | 4.19 +         | 2.70           |
| Some college or more |                |                | 13.82 ***      | 11.20 ***      | 9.34 ***       |
| Poverty              |                |                | -2.34          | -0.33          | 0.23           |
| Two parents          |                |                | 2.71           | 0.17           | -0.45          |
| Black                |                |                |                | -12.46 ***     | -12.02 ***     |
| Latino               |                |                |                | -9.70 ***      | -10.21 ***     |
| Asian                |                |                |                | 1.35           | -2.65          |
| Video games          |                |                |                |                | 0.58 *         |
| Computer games       |                |                |                |                | 0.42 *         |
| Television           |                |                |                |                | -0.03          |
| Reading for pleasure |                |                |                |                | 0.05           |
| Study                |                |                |                |                | 0.30           |
| Household work       |                |                |                |                | 0.04           |
| Visits               |                |                |                |                | 0.14           |
| Sports               |                |                |                |                | 0.27 +         |
| Music                |                |                |                |                | 3.47 ***       |
| N                    | 455            | 455            | 455            | 455            | 455            |
| R <sup>2</sup>       | 0.02           | 0.02           | 0.14           | 0.21           | 0.29           |

\*\*\* p< .001, \*\* p< .01, \* p< .05, + p<.10 two-tailed test

<sup>a</sup> Robust standard errors adjusted for multiple children in a family

**Table 8. Regression of Applied Problems Score on Generation, Controls, and Activities, Latinos<sup>a</sup>**

| <b>Variables</b>     | <b>Model 1</b> | <b>Model 2</b> | <b>Model 3</b> | <b>Model 4</b> |
|----------------------|----------------|----------------|----------------|----------------|
| <b>Constant</b>      | 96.48 ***      | 103.07 ***     | 91.52 ***      | 89.99 ***      |
| 1st/2nd Generation   | 2.07           | 2.80           | 5.14 *         | 6.71 *         |
| Age                  |                | -0.61 *        | -0.37          | -0.49          |
| Girl                 |                | -0.96          | -2.15          | -1.12          |
| Parents' education   |                |                |                |                |
| High school          |                |                | 6.94 **        | 6.38 **        |
| Some college or more |                |                | 14.22 ***      | 15.20 ***      |
| Poverty              |                |                | -0.56          | -0.63          |
| Two parents          |                |                | 4.05           | 2.70           |
| Video games          |                |                |                | 0.19           |
| Computer games       |                |                |                | 0.65 *         |
| Television           |                |                |                | 0.02           |
| Reading for pleasure |                |                |                | -0.25          |
| Study                |                |                |                | 0.44 *         |
| Household work       |                |                |                | -0.36          |
| Visits               |                |                |                | -0.29          |
| Sports               |                |                |                | 0.28           |
| Music                |                |                |                | 1.50 **        |
| N                    | 192            | 192            | 192            | 192            |
| R <sup>2</sup>       | 0.00           | 0.03           | 0.20           | 0.28           |

\*\*\* p< .001, \*\* p< .01, \* p< .05, + p<.10 two-tailed test

<sup>a</sup> Robust standard errors adjusted for multiple children in a family