What Holds Back the Second Generation? The Intergenerational Transmission of Language Human Capital Among Immigrants*

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ABSTRACT

Research on the effect of parental human capital on children's human capital is complicated by the endogeneity of parental human capital. This study exploits the phenomenon that younger children learn languages more easily than older children to construct an instrumental variable for language human capital. Thus, among U.S.-born children with childhood immigrant parents, those whose parents arrived to the U.S. as younger children tend to have more exposure to English at home. We find a significant positive effect of parent's English-speaking proficiency on children's English-speaking proficiency while the children are young, but eventually all children attain the highest level of English-speaking proficiency as measured by the Census. We find evidence that children with parents with lower English-speaking proficiency are more likely to drop out of high school, be below their age-appropriate grade, and not attend preschool. Strikingly, parental English-language skills can account for 60% of the difference in dropout rate between non-Hispanic whites and U.S.-born Hispanic children of immigrants. (JEL J13, J24, J62)

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I. Introduction

The children of immigrants lag behind the children of natives in economic and educational achievement. In a nation of immigrants, why this is the case becomes a question of major importance. Of particular concern are the disadvantages that the second generation inherits from its immigrant parents. These concerns are especially acute among immigrants from Latin America. Hispanic immigrants and their descendents do not converge to native levels of education as quickly as non-Hispanic immigrants and their descendents.[1] The dropout rate was 6.9% for non-Hispanic whites aged 16 to 24 according to October 2000 Current Population Survey data.[2] Among Hispanics, the dropout rate was 44.2% for the immigrants and 14.6% for the U.S.-born children of immigrants.[3] Among non-Hispanics, it was 7.4% and 4.6%, respectively.

The gap between the second generation and other natives appears to be linked to English-language proficiency. Among Hispanics aged 16 to 24, the dropout rate is more than three times higher for those who speak English not well or not at all compared to those who speak English well or very well.[4] Over eight percent of students enrolled in U.S. public schools are classified as limited English proficient (LEP), of which three-quarters are Hispanic.[5] Surprisingly, only

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[1] See recent work by Card, DiNardo and Estes (2000), Grogger and Trejo (2002) and Smith (2003). It should be noted that Hispanic immigrants enter the U.S. with much fewer years of schooling than other groups, and despite the fact that their descendents make larger gains, these descendents still have fewer years of schooling than natives.

[2] Kaufman, Alt and Chapman (2002). Dropout is defined as not currently attending school and not having completed high school (this is called status dropout by the U.S. National Center for Educational Statistics).

[3] For the purposes of this paper immigrant is defined as someone born outside the fifty states and the District of Columbia. This means that a person born in Puerto Rico is considered an immigrant, although legally he/she is a U.S. citizen at birth.

[4] McMillen, Kaufman and Klein (1997) find using October 1995 CPS data that the dropout rate is 32.5% for Hispanics overall, 21.4% for Hispanics who speak English well or very well and 68.0% for Hispanics who speak English not well or not at all.

[5] Zehler et al. (2003), using data provided by school districts, estimates 4.0 million LEP students in grades K-12 in U.S. public schools in the 2001-02 school year. Different school districts have different standards for classifying a student as LEP, but the commonality is that students classified as LEP are deemed to have inadequate English skills. Ruiz-de-Velasco et al. (2000) use CPS data and estimate 2.9 million LEP students in 1995. Children reported by their parents to speak English "well", "not well" or "not at all" are classified as LEP; non-LEP children either speak

half of these LEP students are foreign-born. The rest are U.S.-born, mostly the children of immigrants. Clearly, growing up and attending school in the U.S. are not sufficient for developing English-language proficiency. In this setting, parental English-language skills might play an important role in the educational (and therefore economic) assimilation of their children.

We are not aware of studies that rigorously examine the effect of immigrant parents' language skills on children's language and educational outcomes.[6] A number of studies have estimated the determinants of language and educational outcomes of the children of immigrants; parental English-language skills are not among the many individual, family, school and social capital characteristics considered in their regression models. Additionally, there are studies that describe language knowledge and preferences among immigrants, their children and their grandchildren; they do not attempt to quantify the roles of different mechanisms, such as parent-child language transmission, in the observed changes by immigrant generation.

A considerable challenge to estimating the causal effect of parental language skills on children's outcomes is the endogeneity of parental language skills. Parental English-language skills are correlated with many other variables that also affect child outcomes, such as parental ability, income, education and cultural attitudes. Additionally, reverse causality is possible. For example, as children become more English-proficient, they teach their parents English or force their parents to learn English. For these reasons, even when data are available on both parental language skills and children's outcomes, ordinary least squares regressions of a child outcome on parental language skills may not provide the causal effect of parental language skills.

In this study, we attempt to identify the causal effect by using variation in parental

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English "very well" or speak "English only".

[6] A possible exception is Leon (2003). Leon (2003) estimates the effects of ethnic capital and parental capital on children's school enrollment using 1910 and 1920 Census data. Parental capital is measured as the ability to read and write in any language interacted with the ability to speak English. The coefficient of this variable should therefore be interpreted as some mix of the effect of parental education and English-language skills.

English-language skills generated by the psychobiological phenomenon that younger children learn languages more easily than older children. This leads us to use an instrumental variable derived from immigrants' age at arrival. As we show below, there is a powerful association between immigrants' age at arrival and their English-language skills in the 2000 Census. Thus, among U.S.-born children with immigrant parents, those whose parents arrived in the U.S. as younger children tend to have more exposure to English at home. On the other hand, age at arrival probably affects immigrants through channels other than language. For example, those who arrive earlier may adapt better to American institutions. We therefore use immigrants from English-speaking countries to control for non-language-related age-at-arrival effects. The result is an instrumental-variables (IV) strategy using age at arrival interacted with a dummy for non-English-speaking country as the identifying instrument for parental language skills. We implement our instrumental-variables strategy based on parent's age at arrival to the U.S. using individual-level data from the 2000 U.S. Census.

We find that immigrants' English proficiency affects their children along several margins. The child outcomes we examine are English-language skills, high school dropout, grade-for-age and early school attendance. We find a significant positive effect of parent's English-speaking proficiency on children's English-speaking proficiency while the children are young, but eventually all children attain the highest level of English-speaking proficiency as measured by the Census. We find evidence that children with parents with lower English-speaking proficiency are more likely to drop out of high school, be below their age-appropriate grade, and not attend preschool. Strikingly, parental English-language skills can account for 60% of the difference in dropout rate between non-Hispanic whites and U.S.-born Hispanic children of immigrants.

The rest of the paper is organized as follows. Section II discusses the related literature and describes the data used in our empirical analysis. We then present the basic estimates of the effect of parental English-language skills on language skills (Section III) and child educational outcomes (Section IV). Robustness checks and extensions are performed in Section V. Section VI concludes.

II. Background

A. Related Literature

We are not aware of studies that estimate the effect of immigrant parents' English-language skills on children's language and educational outcomes, let alone attempt to isolate the causal effect. There are numerous papers, however, on the determinants of educational outcomes of the children of immigrants using regression techniques. They consistently find that family income and parental education are among the most important determinants of children's academic success. Children with richer or more educated parents get higher grades and test scores (Portes and MacLeod (1999)), are more likely to enroll in school (Hirschman (2001)), are more likely to complete high school (Grogger and Trejo (2002)) and have higher educational attainment and earnings (Card, DiNardo and Estes (2000)). Some of these studies include children's English-language proficiency as an explanatory variable, and this tends to have large effects. Children who have better English-language skills tend to have higher test scores (Portes and MacLeod (1999)) and more years of schooling (Bleakley and Chin (2004)). A few studies also include a home language background measure as an explanatory variable (e.g., Grogger and Trejo (2002), Glick and White (2003)). The measures of home language background are usually based on the language the child uses at home.[7] It is debatable whether they measure parental English-language skills since which language is used and which languages are known could be

[7] For example, to measure home language environment, Grogger and Trejo use a dummy for child speaks language other than English with parents, and Glick and White use four dummies characterizing language use at home: only English, only non-English language, both with English dominating and both with non-English language dominating.

different things.[8]

Some studies have studied the determinants of language outcomes of the children of immigrants. They tend to be more concerned with the maintenance of the heritage language than the acquisition of English. In fact, a major theme of these papers is that proficiency in the heritage language skills is rapidly lost (almost gone by the third generation), and if society values multilingualism it should deemphasize English-only approaches at school. An example is Portes and Hao (1998), who estimate the effect of various individual and family characteristics on second-generation children's language outcomes. The study finds that parental use of heritage language has a large positive effect on child being proficient in the heritage language as well as child being bilingual. This analysis leaves unanswered the effect of parental English-language skills on child's English-language skills.

Other studies on the language outcomes of childhood immigrants tend to be more descriptive. For each immigrant generation (the immigrants themselves (1st), their U.S.-born children (2nd) and their U.S.-born grandchildren (3rd)), these studies might report the proportion who use the heritage language or English (e.g., Hernandez and Charney (1998), Suro and Passel (2003)). These studies help us understand how quickly members of a certain ethnicity adopt English (often at the expense of the heritage language). However, they tend to leave open the question of what channels mediate this growth of English use generation by generation. Is English spreading through the parent-child link per se, or because the entire ethnic community is adopting English which affects the children in that community irrespective of their parents, or because of other variables that are changing generation by generation?

Although there has not been research on the effect of parental English-language skills on

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[8] A child may speak to his parent in a language other than English for a variety of reasons: (1) he himself does not speak English; (2) his parents do not understand English; or (3) the parents understand English but want to enforce using the heritage language at home.

the children of immigrants, there is good reason to believe it is an important mechanism for their assimilation into U.S. society. Some of the studies discussed earlier have found that children's English-language skills are an important determinant of academic performance, but of course children are not born speaking English. Research in child language development has shown that parental literacy skills and practices have measurable effects on their children's cognitive abilities. For example, when parents read to their children, use a larger vocabulary, or discuss more complex ideas, children's language and educational outcomes improve (e.g., Hart and Risley (1995) and Farkas and Beron (2001)). The type of parental language skills considered in these studies is more subtle than the type considered in the present paper. One would expect whether a parent knows a language at all would have more pronounced effects on children than, say, whether a parent knows eight thousand English words or ten thousand.

Our paper is the first to estimate the effect of parental English-language skills on the language and educational outcomes of the children of immigrants. It is difficult to estimate the causal effect of parental English-language skills on child outcomes because parental English-language skills are correlated with many other variables that also affect child outcomes, such as parental ability, income, education and cultural attitudes. We attempt to identify the causal effect by using variation in parental English-language skills generated by the psychobiological phenomenon that younger children learn languages more easily than older children. Thus, among parents who immigrated to the U.S. as children, those who arrived younger will tend to have better English-language skills.

The use of an instrumental-variables strategy to identify the effects of parental human capital has been used by several recent studies examining the intergenerational transmission of education among natives, including Currie and Moretti (2003), Black, Devereux and Salvanes (2003) and Oreopoulos, Page and Stevens (2003). The tenor of these studies is that parents and children share many factors, the researcher can rarely control for all these factors, and in consequence OLS estimates of the effects of parental characteristics on child characteristics are likely to be biased. The IV strategies are used to address the endogeneity problem.

B. Data and Descriptive Statistics

We implement our empirical strategy using microdata from the 2000 U.S. Census, specifically the Integrated Public Use Microsample Series (IPUMS) files (Ruggles, et al. (2003)). This is one of the only data sets with measures of English-language skills for both parents and children.[9] These measures are self-reported, and many researchers studying the relationship between language and earnings have used them. Another attractive feature of the 2000 IPUMS is that for individuals born outside the fifty states and the District of Columbia, there is also information on exact year of arrival to the U.S.; previous censuses provided year of arrival in multi-year intervals, making our instrumental-variables strategy less precise. A well-known disadvantage of the Census data, though, is the lack of rich measures of child school performance. For the children we study, however, high school dropout and grade-for-age—which are possible to construct based on the Census data—are quite relevant outcomes.[10] As discussed earlier, children of immigrants are at high risk for dropping out, and a chief domestic

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[9] The Census question based on which the English-ability measures in this paper are constructed is: "How well does this person speak English? " with the four possible responses "very well," "well," "not well" and "not at all." This question is only asked of individuals responding affirmatively to "Does this person speak a language other than English at home?" We have coded immigrants who do not answer "Yes" to speaking another language as speaking English "very well." Other studies have used this question to study English proficiency, and have likewise coded immigrants who speak only English as speaking English very well (*e.g.*, Chiswick and Miller (1995)). The English-speaking ability ordinal measure is coded as 0 for not speaking English at all, 1 for speaking English not well, 2 for speaking English well and 3 for speaking English very well.

[10] We examine dropout and grade retention for children currently aged 15-17. Dropout is defined as not currently attending school and not having received a high school degree (this is called status dropout by the U.S. National Center for Education Statistics). Grade retention is more difficult to define since there is no quarter of birth variable in the 2000 Census, but this is generally used in conjunction with year of birth to determine a child's on-schedule grade. In this paper, we define a measure called "below age-appropriate grade" which is dummy equal to one if the child is: age 15 but attending below grade 9, age 16 but attending below grade 10, and age 17 but attending below grade 11. This is a rough measure, and likely understates the number of children who are behind a grade. A 17-year old child in the 11th grade observed on Census day in April might be on-schedule because he was born in the fourth quarter and unable to enroll in first grade until he was six years plus nine months old, or he might be behind schedule because he was born in the third quarter, entering school at exactly six years and should be aged 16 at the end of 11th grade.

policy concern has been the high Hispanic dropout rate.

Our main analysis is conducted using the U.S.-born children under age 18 and whose parents were childhood immigrants. School attendance variables are available for individuals aged 3 and above, and language variables are available for individuals aged 5 and above. We define a childhood immigrant as an immigrant who was under age 18 upon arrival to the U.S. For these immigrants, age at arrival is not a choice variable since they did not time their own immigration but merely followed their parents to the U.S.[11] We chose the age range for the parents to be 25 to 50—these individuals would be old enough to have spent years in the U.S. but young enough to still have children living in the same household.[12] The census is a cross-sectional data set, and parents can be linked to children only if they reside in the same household. We merged data from the 5 percent State sample with the 1 percent Metro sample. We stack data on children whose biological father is a childhood immigrant with data on children whose biological mother is a childhood immigrant. Children with two childhood-immigrant biological parents are matched to the mother only.

We divide our sample into three mutually exclusive language categories: children with parents from non-English-speaking countries of birth, countries of birth with English as an official language that have English as the predominant language, and other countries of birth with English as an official language.[13] The first category is our "treatment" group and the

[11] According to the U.S. Immigration and Naturalization Service, immigrating parents may bring any unmarried children under age 21. We use a more restricted set of childhood immigrants: immigrants who were under 18 upon arrival (i.e., maximum age at arrival is 17).

[12] The range of year of arrival for the parents is 1964 to 1992. For children aged 5 to 17, three-quarters of the parents arrived by 1980. For children aged 16 and 17, 95% arrived by 1980. We have performed all the analysis with a narrower range of years of arrival and the results are qualitatively unchanged.

[13] We used *The World Almanac and Book of Facts, 1999*, to determine whether English was an official language of each country. Recent adult immigrants from the 1980 Census were used to provide empirical evidence of the prevalence of English in countries with English as an official language. English-speaking countries are defined as those countries from which more than half the recent adult immigrants did not speak a language other than English at home. The remaining countries with English as an official language are excluded from the main analysis. We made two exceptions to this procedure. First, despite the fact that Great Britain was not listed as having an official language, we included it in the list of English-speaking countries. Second, we classified Puerto Rico as non-English

second is our "control" group. The last category is omitted from the main analysis, since we are not sure how much exposure to the English language immigrants from these countries would have had before immigrating. Table 1 provides the descriptive statistics for the treatment and control groups, with decompositions by parental age at arrival. Appendix Table 1 shows the decomposition of the sample by parents' country of origin, and also presents our classification of countries by English-speaking status.

III. Effect on English-Language Proficiency

We show in this section that the English proficiency of U.S.-born children is strongly influenced by the English-language skills of their immigrant parents. Consider the regression model

(1) $y_{ija} = \alpha + \beta\ \text{PARENT\_ENG}_{ija} + \delta_a + \gamma_j + \mathbf{w}_{ija}'\rho + \varepsilon_{ija}$

for U.S.-born child i with parent born in country j arriving to the U.S. at age a. y_{ija} is the child outcome, $PARENT\_ENG_{ija}$ is a measure of parental English-language skills (the endogenous regressor), δ_a is a set of parental age-at-arrival dummies, γ_j is a set of parental country-of-birth dummies and $\mathbf{w}_{ija}$ is a vector of exogenous explanatory variables (e.g., age and sex of the child).

To obtain a consistent estimate of the effect of parent English-language skills, β, we will use an instrumental variable based on the age at arrival of childhood immigrants. This instrument is based on the psycholinguistic phenomenon that younger children acquire language skills more easily than older children and adults (Lenneberg (1967), Newport (2002)). Immigrants from non-English-speaking countries will need to learn English to function in U.S. schools, workplace and other institutions. Those who arrive at a younger age have a language-learning advantage. On the other hand, younger arrivers likely differ from older arrivers along non-language dimensions that also affect outcomes. Thus, age at arrival by itself is unlikely to

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speaking even though English is an official language due to its colonial history.

be a valid exclusion restriction. Instead, the identifying instrument is an interaction between age at arrival and country of birth. Incorporating immigrants from English-speaking countries into the analysis enables us to partial out the non-language effects of age at arrival. This is because upon arrival to the U.S., immigrants originating from English-speaking countries encounter everything that immigrants from non-English-speaking countries encounter except a new language. Thus, any difference in child outcome between young and old arrivers from non-English-speaking countries that is over and above the difference from English-speaking countries can plausibly be attributed to language.

A. Graphical Evidence

In our sample of children with at least one childhood immigrant parent, the relationship between immigrants' age at arrival and their English-language skills is strong. This can be seen in Figure 1, which plots for each age at arrival the difference in mean English-speaking ability between parents from non-English-speaking countries and parents from English-speaking countries. Parents who arrived at age ten or earlier from non-English-speaking countries speak English at least as well as their counterparts from English-speaking countries.[14] After age at arrival ten, parents from non-English-speaking countries have significantly lower English-speaking proficiency, and indeed the disadvantage is increasing almost linearly with age at arrival. The 95% confidence interval is within the two dotted lines—among childhood-immigrant parents from non-English-speaking countries, those who arrive at a younger age have statistically significantly better English-language skills, after partialling out non-language effects of age at arrival.

Figure 2 shows the relationship between parent's age at arrival and child's English-

[14] The significantly higher language skill among early arrivers from non-English-speaking countries is an artifact of controlling for Hispanic status, a conventional demographic control variable. The curves in both Figures 1 and 2 are shifted down if the Hispanic dummy is excluded, but the shapes of the curves are essentially unchanged.

speaking ability. The y-axis scale is identical between Figures 1 and 2, underscoring the point that the negative relationship effect of age of arrival on English-language proficiency is much stronger for oneself than for one's child. Nonetheless, there is still a statistically significant negative effect on English-speaking ability for children of parents who arrived age eight and later. It is striking that the age at arrival at which the line turns from flat to downward-sloping is the same between Figures 1 and 2 (after age at arrival 7). This is supportive of our assertion that the observed relationship between parent's age at arrival and child's English-speaking ability arises from parent's English-speaking ability.

The effect of parent's English-language skills appears to be the strongest for younger children, as Figure 3 shows. In Figure 3, instead of constraining the difference in mean by age at arrival to be the same for all children aged 5 to 17, we allow it to differ by children's age groups. The negative relationship between parent's age at arrival and children's English-speaking ability is especially pronounced for the younger children. This makes sense because the younger the child, the greater the share of the child's time spent in activities in the home or with the family. A five or six year old with a parent who does not speak English well would have just started school and not yet learned English. As he attends school for more years, and as he participates in more activities outside the home and family, he learns more English. Figure 3 suggests that by the time the child reaches age 13, his English-speaking skills cease to depend on his parent's English-speaking, at least as far as the rough measures of English-language skills afforded by the Census questionnaire can detect.

<u>B. Instrumental-variables Estimation</u>

We summarize the relationship between parent's age at arrival and language skills in Figures 1-3 in a simple regression framework. In the analysis below, instead of estimating eighteen difference in means (for each age at arrival, 0 to 17), we estimate a single difference that is allowed to vary by age at arrival. In particular, we impose the restriction that the difference is zero between parents from non-English-speaking countries and parents from English-speaking countries up through age at arrival seven, but has a linear relationship with age at arrival thereafter. This captures most of the co-movement between age at arrival and own English-language skills displayed in Figure 1. That is, we use the following parameterization for the identifying instrument:

(2) $k_{ija} = \max(0,a-7)*I(j \text{ is a non-English-speaking country})$

where *a* is parent's age at arrival and *j* is parent's country of birth, as before.

The first-stage equation relates the endogenous regressor to the instrument k_{ija}:

(3) $PARENT\_ENG_{ija} = \alpha_1 + \pi_1 k_{ija} + \delta_{1a} + \gamma_{1j} + \mathbf{w}_{ija}'\rho_1 + \varepsilon_{1ija}$,

and the reduced-form equation is:

(4) $y_{ija} = \alpha_{RF} + \pi_{RF}\, k_{ija} + \delta_{RF\,a} + \gamma_{RF\,j} + \mathbf{w}_{ija}'\rho_{RF} + \varepsilon_{RF\,ija}$.

Because there are no longer endogenous variables on the right-hand side, Equations 3 and 4 can be consistently estimated using OLS.

In Table 2, left panel, we present the results of estimating Equation 3. In the odd columns, for purposes of exposition, we control for main effects using only dummy for being born in a non-English country and a piecewise linear control for age at arrival, max(0,a-7). In the even columns, we control for main effects in a more detailed way using a full set of country-of-birth dummies and age-at-arrival dummies. In Column 1, for each year past age seven that a parent from a non-English-speaking country arrives, the ordinal measure of English-speaking ability is worse by 0.095 points. Arriving from a non-English-speaking country has a positive effect; this is counterintuitive, but can be understood by the fact that the race dummies and Hispanic dummy absorb much of the mean differences between English-speaking and non-English-speaking countries. The piecewise linear age at arrival term has a small negative effect.

An age-at-arrival effect may be present for immigrants from English-speaking countries because even these countries have people who speak other languages, for example, the Quebecois from Canada. In Column 2, controlling more fully for main effects, we get a coefficient of -0.0913 for the instrument.

The right panel of Table 2 shows the results of estimating Equation 4 with child's English-speaking ability as the outcome. The effects on child's English-speaking ability, although statistically significant, are of a much lower magnitude than effects on own English-speaking ability. For example, comparing Columns 1 and 3, the own effect of the instrument on English-speaking ability is about six times as much as the effect on one's child. Controlling more fully for main effects reduces the magnitude of the reduced-form coefficient. This is related to the heterogeneity in effects of parental country of birth—non-English-speaking countries are not monolithic blocks, nor are English-speaking countries. In subsequent analysis we will always use the finer controls for main effects. Additionally, we will examine whether the effect of parental language varies by geographic area of origin.

We put these estimates together to find a strong effect of parents' English-language proficiency on that of the children. In Table 3, we present OLS and two-stage least squares estimates of Equation 1. Since we have one exclusion restriction (k_{ija} affects the child outcome only through its effect on parent's language skills after conditioning on all the control variables), Equation 1 is just identified. In the first row of Table 3, we see that the 2SLS estimate of the effect of parental English-speaking ability on child's English-speaking ability is 0.1365. This is lower than the estimate suggested by OLS estimation of Equation 1, 0.1832. For children aged 5 to 17 as a group, OLS is upward-biased. This is consistent with the ability-bias story.

Younger children's English-language skills are much more sensitive to their parent's English proficiency. As suggested by Figure 3, the effect of parent's English-speaking ability on child's English-speaking ability varies by the age of the child. In the remaining rows of Table 3, we estimate the effect of parent's English-speaking ability on child's English-speaking ability separately for each child age. There is a common pattern in the estimated β's as we look down each column. In Column 2, the OLS coefficients are always positive and significant, but decreasing as child age increases. In Column 3, the 2SLS coefficients are initially positive and significant and then become zero. For example, for 5-year-olds, for each unit increase in parental English-speaking ability, child's English-speaking ability increases by 0.5185 units. In contrast, for a 10-year-old, for each unit increase in parental English-speaking ability, child's English-speaking ability increases by only 0.0565 units.

By the time the child reaches age 11, parent's English-speaking skills would have ceased to matter for child's English-speaking skills, as Column 3 shows. At the 99% level of confidence, better parental English-language skills increases the probability of speaking English not well, well or very well for children aged 5 to 6, the probability of speaking English well or very well for children aged 5 to 7, and the probability of speaking English very well for children aged 5 to 10.[15] For 11- and 12-year-olds, the probability of speaking English very well is reduced, but this is significant only at the 90% level of confidence. Thus, in spite of deficiencies in parental English-language skills, children will learn some English by age 7, learn to speak it well by age 8, and learn to speak it very well by age 13.

C. Alternative Measures of English Proficiency

Some education researchers define limited English proficient (LEP) students as those that speak English less than very well.[16] By this definition, parents' English-language skills influence whether their children are LEP throughout the elementary school years. Furthermore,

[15] These results are not reported. They come from estimating Equation 2 by child age, but instead of using the ordinal measure of child's English-speaking ability as the dependent variable, the probability that he is at a particular level of English-speaking ability is used.
[16] See Ruiz-de-Velasco et al. (2000).

it is argued that even "speaks English very well" might be an overstatement of a student's level of English-language proficiency because oral language proficiency develops more easily than the wider range of language skills needed for success in high school and thereafter.[17]

The "language gap" may well extend beyond the elementary school years, but we are unable to detect this because of the bluntness of the English-language measure provided by the Census. That is, there may be meaningful differences in the quality of English-language skills even among individuals reporting that they speak English very well. To assess this, we consider more detailed language measures from two other data sets. The first is the 1992 National Adult Literacy Survey (NALS) and the second is the National Longitudinal Survey of Youth 1979 (NLSY). Since we cannot replicate our instrumental-variables strategy with either dataset, we present these results as suggestive only.

The NALS covers a nationally representative sample of adults in 1992. Respondents took a 45-minute literacy test developed by Educational Testing Services. We use the test score measuring prose literacy, which "involves the knowledge and skills to understand and use information from text" (U.S. Department of Education (2001)). As well, respondents answered various questions about their language ability, including the Census language question verbatim. Data were not collected on the country of birth of parents, however a question on language the individual spoke before starting school helps divide individuals whose parents used only English at home from those whose childhood home used a foreign language at home. In Figure 4, we graph the distribution of the prose literacy test score by language spoken before school for U.S.-born individuals *who report speaking English very well*. In Panel A, there is visibly more mass in the lower scores for individuals who spoke a foreign language before school compared to individuals who spoke only English before school. In Panel B, we control for differences in age,

[17] See Collier (1995) and Hakuta, Butler and Witt (2000).

race and parental education, making the scores more compressed. However, it remains the case that test scores are lower for individuals who spoke a foreign language before school.

We find similar results using broader measures of aptitude from the NLSY. The NLSY is a nationally representative sample of individuals aged 14 to 22 in 1979. The Armed Services Vocational Aptitude Battery (ASVAB) was administered to these individuals in 1980. The ASVAB contains ten subtests, including ones that assess English-language skills. We find that among second-generation immigrants in the NLSY (i.e., U.S.-born individuals with at least one immigrant parent), those who grew up in homes where a foreign language was spoken tend to perform worse on subtests most related to English-language skills. This is shown in Figure 5, which displays estimated densities of scores of four subtests by whether a foreign language was spoken at the respondent's childhood home.[18] Panel A contains the results for the vocabulary test and Panel B shows them for the reading comprehension test. Among the subtests in the ASVAB, these two are the most evidently language-oriented. The estimated distributions are markedly different, with those from foreign-language childhood homes having more mass in the lower end. Panel C plots the densities for the arithmetic test. While it is sometimes said that mathematics is the universal language, the observed differences between the two distributions is consistent with the importance of English proficiency at younger ages. Arithmetic is taught in the early grades, precisely when we saw above that the second generation's English proficiency is most affected by parental English. Moreover, the subject is typically taught by rote repetition and memorization, in English, of key phrases ("two plus two is four," etc.). The coding-speed test, summarized in Panel D, is a measure of processing speed that consists of matching items (numbers, names, etc.) in two different lists. This is perhaps the most language-content-free test, and it shows the least difference between the two groups. In fact, there is more mass in the lower

[18] These densities are based on the residualized scores, as in Panel B of Figure 4. The densities of the raw scores exhibit much more dramatic differences.

scores for those from foreign-language childhood homes.

The evidence from NALS and NLSY, then, supports the idea that although U.S.-born children poor English eventually catch up in terms of the Census measure of English-language skills (which is rough and relates to speaking ability only), they continue to lag behind in terms of richer measures of English-language skills. As teenagers and adults, individuals with less-English-proficient parents continue to have worse English-language skills.

IV. Effect on Child Educational Outcomes

In this section, we show that parental English-language skills also affect the education of their children. We consider three childhood educational outcomes: the probability of being a high school dropout, the probability of being below the age-appropriate grade and the probability of entering school on time. (Specific channels through which parental English-language skills might be affecting child educational outcomes are examined in subsection V.B.) In each case, we find that poor parental English leads to less human-capital formation through formal schooling.

A. High School Dropout Status of Children Aged 15-17

In Columns 1 and 2 of Table 4, the OLS and 2SLS estimates of β in Equation 1 are shown for the child outcome, probability of dropping out of high school. This analysis is restricted to children currently aged 15 to 17. These children are close to the legal school-leaving age but generally still live with their parents. In Row 1, with the 15 to 17-year-olds pooled, both the OLS and 2SLS estimates are negative and significant. Does the effect on dropout vary by age? Rows 2-4 show that the effect is insignificant for 15-year olds but becomes negative and significant for the older teens. Almost all 15-year-olds are still in school—15 is below the legal school-leaving age in all states—consequently we restrict our analysis to 16- and 17-year olds in the last row. In Column 2, we see the 2SLS effect is negative and significant at the 95% level of confidence. A one unit increase in parental English-speaking ability (e.g., from speaking well to speaking very well) reduces the probability of child high school dropout by 4.60 percentage points. This is larger than the effect estimated by OLS.[19]

We address several potential problems with the foregoing estimates of the effect of parental language skills on high school dropout. First, the negative effects derive primarily from children with parents who arrived to the U.S. at 8 or later from English-speaking countries having much lower dropout rates than the children with parents who arrived earlier from English-speaking countries (see Table 1). There is less of a difference in dropout between the younger arrivers and older arrivers from non-English-speaking countries. However, two mitigating factors should be noted. On the one hand, younger arrivers have much higher educational attainment than older arrivers and might therefore be expected to produce more educated children. On the other hand, when children with parents from Mexico are excluded, children of older arrivers have lower dropout rates than children of younger arrivers in the subsample from non-English-speaking countries, just like in the subsample from English-speaking countries. Taking our difference-in-differences identification strategy literally, the larger difference in dropout rate between younger and older arrivers from English-speaking countries means that the non-language effect on dropout of arriving early is actually positive (so subtracting this non-language effect from the total effect of zero would lead to a negative language effect); a story consistent with this might be that less assimilated parents are stricter or care more about education, so their children have lower dropout rates. However, there are reasons for being less literal, such that these difference-in-differences estimates would be biased. For example, immigrants from English-speaking countries might be poor controls for the non-

[19] While bias from omitting "ability" is usually thought to generate the opposite pattern of coefficients, in an application to wage regressions with a Census-type variable on the right-hand side, both Dustmann and van Soest (2002) and Bleakley and Chin (2004) show that the measurement-error bias is large enough to more than offset ability bias.

language effects of age at arrival. In subsection V.A, we pursue several strategies to enhance the comparability between immigrants from English- and non-English-speaking countries.[20]

Second, the high school dropout results could also be biased due to sample selection. Children who have dropped out of high school are less likely to still live their parents than children who are still attending school, thus there may be too few high school dropouts in our sample. This alone would not bias our estimates. For there to be bias, the difference in the probability of dropouts forming their own households between children with parents who arrived from a non-English-speaking country at age 7 or earlier and children with parents who arrived from a non-English-speaking country at age 8 or later must be different from the difference for children with parents from English-speaking countries. A plausible scenario for bias is for dropouts forming their own households to be disproportionately represented among children with parents who arrived at age 8 or later from non-English-speaking countries, in which case the results in Table 4 would underestimate the impact of parent's English-language proficiency on dropout behavior. The first stage result would be unaffected (still negative: higher parental age at arrival leads to worse parental English), but the reduced-form effect on dropout rate would be too low (less positive or even negative), such that the 2SLS estimate would be wrong (it will be not negative enough, or even positive). If these dropouts forming their own households were included, we would observe a more positive reduced-form effect, and the effect of parental English on child's dropout would be more negative.

Given the likely direction of bias, we can assert based on Column 2 of Table 4 that higher parental English proficiency has a negative impact on the dropout rate of 16-17-year olds. Because children 18 years old and older are less likely to live with their parents and moving out

[20] It should be noted that the probability that a childhood immigrant has a 15-17-year old does not depend on the identifying instrument (that is, the reduced-form coefficient is insignificant and close to zero). This suggests that differential fertility behavior is not driving the dropout result.

is not random, we cannot estimate the effect of parental English-language skills on the probability of dropout for these older children. The effect is likely greater, since at those older ages everyone would be of legal school-leaving age. Children can leave school without getting into trouble with truancy officers, and parents may have less incentive to misreport their dropout child's status.

To what extent can parental English account for the difference in dropout rate between non-Hispanic whites and U.S.-born Hispanic children of immigrants? To answer this, we perform a back-of-the-envelope calculation. The dropout rate of these Hispanic children is higher by 7.7 percentage points.[21] The English-speaking ability of the parents of these Hispanic children is lower by one unit.[22] Based on the 2SLS estimate for 16-17 year olds, a one-unit increase in parental English decreases child dropout by 4.6 percentage points. Thus, parental English-language skills account for 60% (= 4.6/7.7) of the difference in dropout rate between non-Hispanic whites and U.S.-born Hispanic children of immigrants.

B. Grade-for-Age of Children Aged 15-17

In Columns 3 and 4 of Table 4, we present the OLS and 2SLS estimates of β in Equation 1 for the child outcome, probability of being below the age-appropriate grade. As discussed in subsection II.B, our measure of this outcome is very rough and likely fails to capture some students who are only one grade behind vis-à-vis their on-schedule school progression based on their year of birth, quarter of birth and relevant compulsory schooling laws. We have restricted this analysis to children currently aged 15 to 17. It is not possible to study grade retention for younger children because the Census data does not provide data on specific grades of attendance

[21] Kaufman, Alt and Chapman (2002) report a dropout rate of 14.6% for U.S.-born Hispanic children of immigrants currently aged 16 to 24, and 6.9% of non-Hispanic whites.

[22] The average English-speaking ability of the parents of U.S.-born Hispanic children of immigrants aged 16-17 from the IPUMS is 2. The highest value of the English ordinal measure is 3, which is the level at which natives speak. We assume that the 16-24 year olds in the 2000 CPS would have grown up with parents whose English-language ability is like the 16-17-year-olds in the 2000 IPUMS.

or attainment for grades one through eight. Instead, they report two broad categories, grades 1-4 and 5-8, which are too rough to define grade retention for younger students. (We examine the youngest students, grade one and below, in the next subsection.)

The OLS estimates down Column 3 show that parental English has a negative and often significant effect on the probability of the child falling behind their appropriate grade-for-age. The 2SLS estimates (Column 4) are negative also, though significant at the 95% level of confidence only for 17-year-olds. This suggests that sometime toward the end of high school, children with parents with lower English-language proficiency have to repeat a grade. Presumably, they have not amassed the passing grades in various subjects which are required for a high school degree. Perhaps teachers and school administrators do not monitor the progress a given student is making toward completing his high school degree requirements until the student is already close to his scheduled graduation date. Then we would not observe a student being held back in 9th or 10th grade. Instead, the student would have to repeat 11th or 12th grade until the requirements are met. Some repeaters will eventually become dropouts.

C. The School Attendance of Very Young Children

Having just examined the educational outcomes for the oldest children, we now turn to the younger children. The school attendance rate is 99% among those aged 8 to 14, so there is no variation there. We examine the attendance of children aged 3 to 7 in Table 5. For this age group as a whole, both the OLS and 2SLS estimates suggest that the probability of school attendance is higher for children with higher English-language proficiency (see Row 1). This positive effect comes entirely from 3- and 4-year-olds (see Rows 2 to 6). In fact, by the time the child is age five or older, all parents are as likely to send their children to school. The differential probability of attending preschool may be partially responsible for the earlier finding that young children with more English-proficient parents speak English better since preschool is typically conducted in English. That is, preschool attendance reinforces the pre-existing difference in exposure to English between children with more English-proficient parents and less English-proficient parents.

We do not find evidence that children with less English-proficient parents start elementary school at a later age. Six-year-olds with less English-proficient parents are as likely to be attending kindergarten or higher (the correct grade-for-age for a child who is aged six in April 2000 is kindergarten or grade 1, and Table 5, Column 4 does not show significant results). Seven year olds with less English-proficient parents are as likely to be attending first grade or higher (the correct grade-for-age for a 7-year-old is grade 1 or grade 2, and Column 6 does not show significant results).

V. Extensions

A. Sensitivity Analysis

In this subsection, we consider and discard several alternative hypotheses for the results from above on child language skill and school dropout. We interpret the age-at-arrival effect for immigrants from non-English-speaking countries that is in excess of the age-at-arrival effect for immigrants from English-speaking countries as the causal effect of English-language proficiency. However, if non-language age-at-arrival effects differ between the two groups of immigrants, then our strategy to identify the effect of English-language proficiency is invalid. To assess this potential problem, we perform a variety of specification checks, displayed in Tables 6 and 7 for children's language and dropout status, respectively.

1. Migrant workers to the United States

Many low-educated young men migrate on their own to the U.S. from Mexico and Central America to look for work. Among the older arrivers from non-English-speaking countries, there may be a disproportionate number of low-educated immigrants who never intended (or were never able) to attend school in the U.S., and moreover who differ along other dimensions as well since they chose to migrate on their own. There is no way of identifying which immigrants were "loner migrants," as we have a cross-section in which all childhood immigrants are currently adults. Instead, we redo our analysis eliminating the oldest arrivers. The idea is that childhood immigrants in their late teens are more likely to be loner migrants, whereas younger ones likely migrated with their parents. Panels B and C of Tables 6 and 7 display results from estimating the models with lower parental age at arrival. The remaining data set has much fewer observations, but the estimated effects are similar in magnitude to those above. In both cases, the estimated effects actually rise with the narrower age-at-arrival restrictions.

2. How comparable are treatment and control countries?

English-speaking countries and non-English-speaking countries may differ in ways that affect the assimilation process in the U.S. of emigrants. First, it is possible that immigrants from non-English-speaking countries exhibit a stronger age-at-arrival effect simply because immigrants from poorer countries face additional barriers to adaptation and that these barriers increase in severity as a function of age at arrival. This is plausible because non-English-speaking countries tend to be poorer than English-speaking countries. Richer countries might have better school systems. If there are different returns associated with the schooling obtained in a non-English-speaking country versus an English-speaking one, the 2SLS estimate may reflect not only differential English-language skills but also differential returns to origin-country schooling.[23] To address this, we incorporate data on per capita GDP in 1980 from the Penn

[23] Immigrants who arrived at a younger age systematically receive a lower share of their schooling in their origin country. Friedberg (2000) finds that, among immigrants to Israel, there is a lower return to schooling obtained abroad than to schooling obtained in Israel. This, in and of itself, provides a strong additional justification for including a main effect of age at arrival. However, for this to impact our strategy, the effect has to vary between the control and treatment groups.

World Tables (Summers and Heston (1988)). We include as a control variable an interaction between parental age at arrival and per capita GDP in the parental country of birth.[24] The estimation results are shown in Tables 6 and 7, Panel D. There is little difference in the first-stage, OLS and 2SLS estimates (compare to Panel A).

Second, English-speaking countries might have greater cultural and institutional similarity to the U.S., making adjustment easy for immigrants from these countries irrespective of age at arrival. In contrast, immigrants from non-English-speaking countries encounter both a foreign language and foreign culture, so even ignoring the language, there is more for the older arrivers to adjust to. To address this concern, we restrict analysis to groups of countries that might be more similar to each other. In Panel E of Tables 6 and 7, we drop children of immigrants from Canada. These children account for one-quarter of the observations of children of immigrants from English-dominant countries, yet they may be poor controls for the assimilation process of the average immigrant due to Canada's geographic proximity to the U.S. Panel E shows that although the 2SLS point estimate is lower is absolute value, nonetheless there is still a detrimental effect of poor parental English on English proficiency and high school completion. In Panel F, we drop children of immigrants from Mexico. These children account for half of the observations of children of immigrants from non-English-speaking countries. By dropping them, we can explore whether the entire effect of English is driven by the children of Mexicans alone, or whether the effect is common to other groups as well. Panel F shows that the effect on dropout is at least as strong even when ignoring children of Mexican immigrants, while the effect on language is slightly reduced. In Panel G, we restrict analysis to children of parents who emigrated from the Caribbean. For dropout, the 2SLS estimate for this much smaller sample is similar to that for the whole sample. On the other hand, the language-on-language

[24] We have also estimated specifications that allow parental language and the interaction between GDP and age at arrival to differ for richer and poorer countries. The results are similar.

effect is substantially smaller among Caribbean countries, but still significantly different from zero. (We present further regional differences below in subsection V.B.) Finally, in Panel H, we incorporate in the analysis average differences in educational attainment among first-generation immigrants, by countries of origin. We use the average education of the young arrivers from our sample to avoid contamination from language effects. This might proxy immigrant quality from each country of origin. Since we are concerned with differential age-at-arrival effects between English- and non-English-speaking countries, we interact this average with our piece-wise linear instrument for age at arrival. (The first-order effect of this variable is absorbed by the country-of-origin effects.) The estimates of the effect parental English obtained with this controls are within a standard error of the baseline estimates.

B. Effects of Parental English-Language Skills by Region of Origin

Are the effects of parental English heterogeneous by parental region of origin? In Table 8, we report the 2SLS estimates for different blocs of non-English-speaking countries. We look at both child language and schooling outcomes restricting to children's ages that had significant effects in earlier analysis. The comparison group, English-speaking countries, is the same throughout. The most striking result in this table is the similarity of the effects of parental English across regions. Better parental English reduces the probability of dropping out (column 2), reduces the probability of being below the age-appropriate grade (column 4), increases the English-language skills of young children (column 6) and increases the probability of attending school for 3-4-year-olds (column 8). This suggests that parental English-language skills are an important factor to the assimilation of children of all immigrants, not only those from particular regions. Regardless of where their parents immigrated from, children have better educational outcomes when their parents have better English-language skills.

Nonetheless Table 8 does show some regional variation in the point estimates. The largest point estimates for the effect of parental English on dropping out and being below grade are for children whose parent emigrated from Central and South America (Panels B4 and B5). Although children whose parents emigrated from Asia have a low mean dropout rate, nonetheless their dropout behavior is sensitive to parental English. These variations across regions, although not statistically significant, raise questions about the specific channels in which parental language affects children's educational outcomes. These questions are the subject of the next subsection.

C. Channels of the Effects of Parent's English-Language Skills

The story that emerges from the analysis of child educational outcomes is that children with less English-proficient parents progress from kindergarten through the middle of high school at the same pace as children with more English-proficient parents. At age 16 and 17, they encounter a bottleneck. They are more likely to lack the qualifications for high school graduation. Some drop out immediately; others stay in school and repeat a grade. Given two children who enter first grade and drop out at the same time, the one with the less English-proficient parent would have been exposed to less content in the classroom. This is because this person was taking some of the same courses over. More generally, the same years of schooling may encapsulate quite distinct skills and knowledge developed for children whose parents differ in English-language proficiency. English is the language of instruction and interaction in U.S. public schools, and command of English enhances the ability of the child to learn and follow directions. Children who start school with limited English-language skills will learn less given the same instruction, and may even be relegated to less rigorous instruction.

What are the specific ways in which parental English-language skills is affecting children's educational outcomes? First, it is possible that the English-language skills of children with less English-proficient parents never catch up to the level of the children with more

English-proficient parents. The Census language measure is likely too rough to capture all the types of English-language skills that are useful for school and the workplace; it only measures one skill (speaking ability) in a few categories. Consequently, even although all children have the highest value of this measure (i.e., they all speak English very well) by the time they become teenagers, the children with less English-proficient parents may nonetheless have qualitatively worse English-language skills than the children with more English-proficient parents; evidence from the NALS and NLSY presented in subsection III.C supported this notion. This makes children learn less and do worse in school.

Second, even if the English-language skills of children with less English-proficient parents did catch up in all meaningful ways to the level of the children with more English-proficient parents, nonetheless it may be impossible to undo the accumulated damage of spending the elementary school years labeled as limited English proficient. For example, while LEP, these children could have been placed in less rigorous classes, such that they do not develop the subject knowledge or wider range of language skills that are needed to succeed in secondary school and beyond.

Third, more English-proficient parents might be able to provide higher quality help to their children. For instance, they can help on with children's school assignments, enabling the children to learn more, get better grades and progress through school on a timely basis. For reading and writing assignments, having a parent with English-language skills may be especially useful; a parent with low English-language proficiency cannot help as much, even if he has many years of education or great enthusiasm. Also, more English-proficient parents might be better able to get their children into the classes, programs and schools that position their children to succeed. Less English-proficient parents may be less unable to obtain information and resources that could help their children.

Additionally, the effects of parental English-language skills on child educational outcomes could be mediated through indirect channels such as parental education, household income, fertility, family structure and location of residence. First, parents with better English-language skills have significantly higher educational attainment (Bleakley and Chin (2004)). This may inspire children to pursue more education and enable parents to help with even the difficult school assignments. Second, parental language skills may improve child outcomes through increasing earnings (e.g., Chiswick and Miller (1995), Angrist and Lavy (1997), Dustmann and van Soest (2002) and Bleakley and Chin (2004)). Children grow up with greater financial security in neighborhoods with better schools. Third, parental language skills may affect fertility. Due to the greater value of market time for women who possess higher English-language proficiency, families with these women may choose to have fewer children of higher quality. Fourth, parental language skills may affect family structure, which in turn might affect child outcomes. For example, for childhood immigrants, higher English-language proficiency increases the probability of divorce and decreases the probability of marrying someone from the same country of origin.[25] Fifth, the effects of parental language skills may be mediated through location of residence. More English-proficient parents may be more likely to set up households outside ethnic enclaves. School and neighborhood quality might be better outside the enclaves. Also, living outside the enclaves may foster development of child English-language skills. In this subsection, we will attempt to quantify how much of the effect on child educational outcomes is through these five indirect channels as opposed to the previous channels which seem more linked to parental or child English-language skills per se.

In Table 9, we present 2SLS estimates of the effect of parent's English language skills on the high school dropout status of 16 to 17-year olds which control for parental education, family

[25] These results are not reported. They come from estimating Equation 3 using family structure measures as the dependent variable.

income, number of children in the family, family structure and super Public Use Microdata Area (PUMA) of residence.[26] The goal of this exercise is get a rough idea of how much these five indirect channels matter as opposed to the direct impact of parental language on child dropout. We would like to say how much each channel contributes to the overall effect of parental English on child dropout, but we recognize that regression-adjusting for these variables is problematic. On the one hand, these variables are likely to be endogenous. On the other hand, including them on the right-hand-side of Equation 1 would constitute "over-controlling" since we know that they are in part affected by parental language. That is, parental English-language ability has causal effects on parental education, household earnings, parental fertility, family structure and location of residence, thus by partialling out the effect of these variables we would be left with an effect of parental English that ignores those intermediate effects.

Column 1 repeats the specification from Table 4, Column 2, last row. In Columns 2 and 3, we add parental educational attainment as, respectively, linear years of schooling and dummies for each year. Years of schooling does not have a linear effect on probability of dropout, and roughly speaking dropout is lowest for children with parents who have either very low or very high levels of schooling.[27] Including parental education controls actually makes the effect of parental English more negative (it decreases from -4.60 percentage points to -5.31 percentage points). In Column 4, we add log family income. Children from poorer households are weakly more likely to drop out. The inclusion of family income does not seem to affect the effect of parental English. Similarly, the inclusion of controls for the number of parent's own children in household (Column 5) and whether the child lives with both biological parents

[26] A similar analysis for the child-language results is presented in Appendix Table 2. In that case, too, the channel variables account for a relatively small fraction of the parental-language effect. Regional decompositions of the channels analysis is found in Appendix Table 3.

[27] Perhaps parents who themselves have no or little education never had the chance to complete their desired level of education, and so encourage their children to stay in school. In contrast, the parents with intermediate ranges of schooling had the opportunity to complete high school, but chose not to.

(Column 6) does not materially affect the 2SLS estimate of parental English even though these variables do affect dropout. We include a control in Column 7 for whether the other parent is born in the U.S., and again the coefficient estimate for parent's language skill is basically the same. In Column 8, we add controls for neighborhood characteristics in the form of dummies for super-PUMA of residence. This reduced the effect size by almost 15% (to -4.04 percentage points). In Column 9, we control for all the channels and obtain a coefficient of -4.66 percentage points. Parental English continues to have sizable effects even after controlling for some potentially important indirect channels.

D. Comparison with Alternative Mechanisms

To provide further context for these results, we compare the estimates of parental English with several conventional variables in explaining immigrant assimilation. We show an asymmetry between parental English and these other variables: controlling for the parent's English proficiency reduces the estimated effect of the new variable, but controlling for the new variable does not significantly alter the estimate of parental language skill. These results are found in Table 10.

The effect of standard socioeconomic variables—parental education and income—are substantially lower when parental English is controlled for, but the opposite is not the case. In Panel A, we compare parental English proficiency with parental education. In the parental language-on-child language results, the estimated effect of education drops by almost two-thirds upon inclusion of the parental-English variable, and drops to statistical insignificance in the dropout regressions (compare Columns 2 and 3, and Columns 6 to 7). On the other hand, the estimate on parental language skill is changed only slightly when parental education is included (compare Columns 1 and 3, and Columns 5 and 7). Similarly, in Panel B, the inclusion of parental English reduces substantially the estimated effect of household income on both outcomes, but the inclusion of income does not change appreciably the estimates of the first generation's English skill.

We also estimate important interactions between parental English and both fertility and marriage to a native. These results are found in Table 10, Panels C and D. The inclusion of parental English reduces by about one half and one quarter the estimated effects of, respectively, the number of children in the family and whether the immigrant's spouse is native. On the other hand, these additional variables do not significantly influence dropout status. As above, the estimates on parental English are not materially affected by these family controls. We also find that adding more natives to the household diminishes the language-on-language effect, which is likely due there being more native speakers in the family. This is shown by the positive point estimates on the interaction terms in Column 4 of Panels C and D.

Finally, we compare parental English proficiency with an indicator of whether the family lives in an ethnic enclave (Panel E). Using the 2000 5% PUMS sample, we construct the share of immigrants from the immigrant's country of origin in his or her PUMA of residence.[28] Enclaves (i.e., places with higher share from parental country of origin) appear to slow adoption of English, a result consistent with our priors since one can get by with the native language. On the other hand, the enclave measure is associated with less dropout behavior. For both outcomes, the inclusion of parental English changes the enclave estimates towards a less deleterious effect of ethnic concentration. As above, including this concentration measure has little effect on the estimated effect of parental language skill. Curiously the interaction of enclave and parental English is not a statistically significant determinant of child English skill, but there is a significantly positive interaction in the case of dropout. The effect of parental English on dropout is reduced when the family lives in an area with more co-ethnics, perhaps because more

[28] A PUMA is a geographic area with at least 100,000 residents whereas a super-PUMA is four times as large. Only the 5% PUMS sample identifies PUMA, thus the analysis in Panel F drops individuals from the 1% PUMS sample.

resources are directed toward LEP students in these areas.

Parental English explains substantially more of the variance in the studied child outcomes than the enclave variable. The standard deviation of parental English in both samples is approximately 0.9, whereas the same statistic for the enclave variable is around 0.1. Therefore a one-standard-deviation change in parental English would result in an effect on child language and dropout status over four times larger than from a comparable change in the share of co-ethnics in same area.

VI. Conclusions

Children whose parents have lower English-language proficiency have significantly worse English-language skills for at least the first ten years of their lives. Although they eventually catch up in English-speaking ability to the children whose parents are more English-proficient by their teenage years at least as measured by the Census, nonetheless there appear to be permanent detrimental effects of poor parental English-language skills. We find evidence that these children are more likely to drop out of high school and to repeat grades. Based on back-of-the-envelope calculations, parental English can account for over half of the difference in dropout rate between non-Hispanic whites and the U.S.-born Hispanic children of immigrants.

Parental English-language skills may affect children's outcomes directly, or through indirect channels. Five indirect channels which we a priori thought were important—parental education, household income, family size, family structure and location of residence—appear to be unimportant relative to the total effect. Although we cannot rule out other indirect channels mattering, it seems like the direct effect of parental English-language skills on child outcomes is large. Direct channels include teaching the child English-language skills, helping the child with school assignments and maneuvering to get the child into the right classes and schools. This suggests that adult English classes, which may impart limited private returns (to the extent that

English-language skills raise earnings through years of schooling, then earnings may not be much affected), may nevertheless provide significant social returns. These classes should be taken before having children or while the children are young. The children will go on to develop better English language skills, complete more years of schooling and learn more per year of schooling. The grandchildren will also benefit, as they will be growing up with parents who are more proficient in English.

School-based English-learning programs for older childhood immigrants upon their arrival to the U.S. from non-English-speaking countries would have greater social returns than adult English classes. The payoff of possessing English-language skills while in middle school or high school are much greater—the private returns are higher, and from a social perspective the benefits for the children are accrued without having to incur the costs of adult English classes.

Even if there is no way to teach immigrants English-language skills, it may be possible to help their U.S.-born children directly by placing them into preschool programs. Preschool programs may be an important way in which children gain exposure to English; we found that children with more English-proficient parents were significantly more likely to attend preschool. Subsidizing preschool for children from non-English-speaking homes may be a less costly alternative for society than leaving these children alone and allowing a significant number to become limited-English-proficient and low-educated adults. (This need not imply a grandiose scheme. If the linguistic isolation of the first generation prevents parents from knowing about preschool programs, then the subsidy could be simply an information campaign to parents in their native language.)

In future research we will attempt to evaluate different programs targeted toward limited-English-proficient children. The benefits of finding programs that raise English proficiency are even higher than previously thought.

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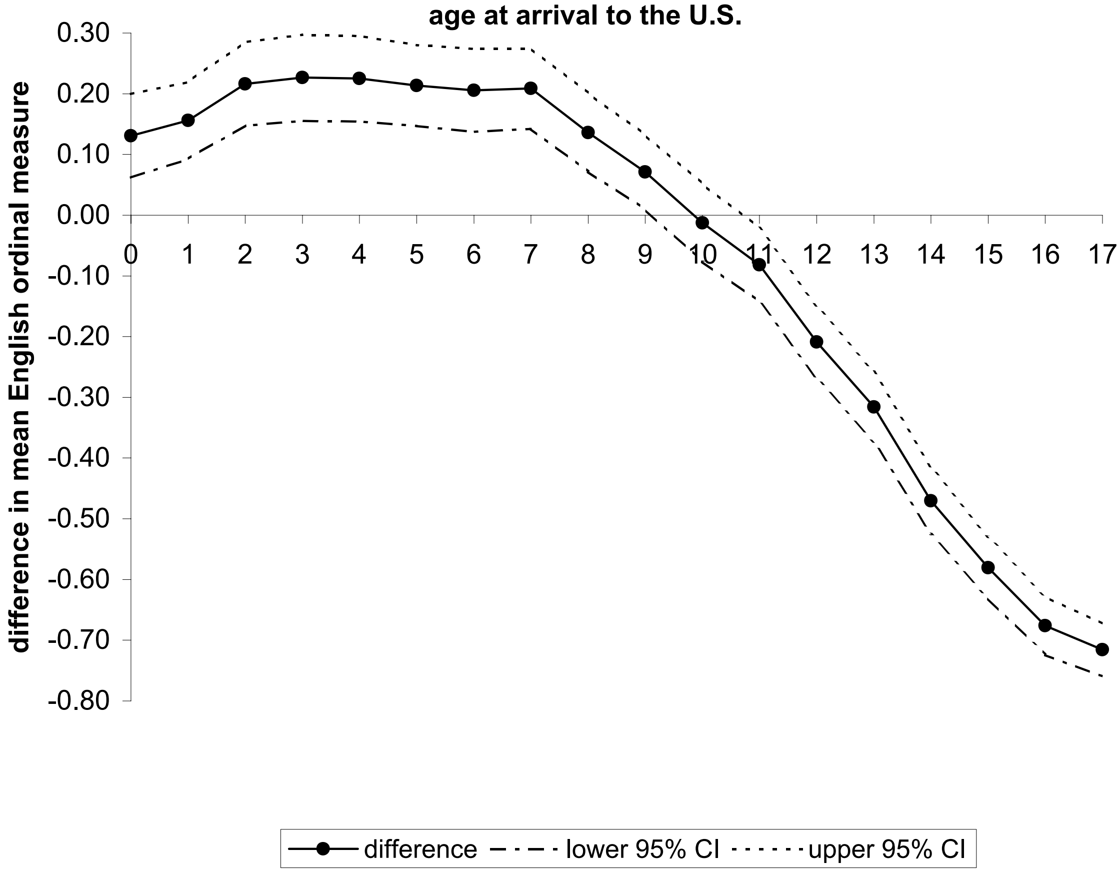
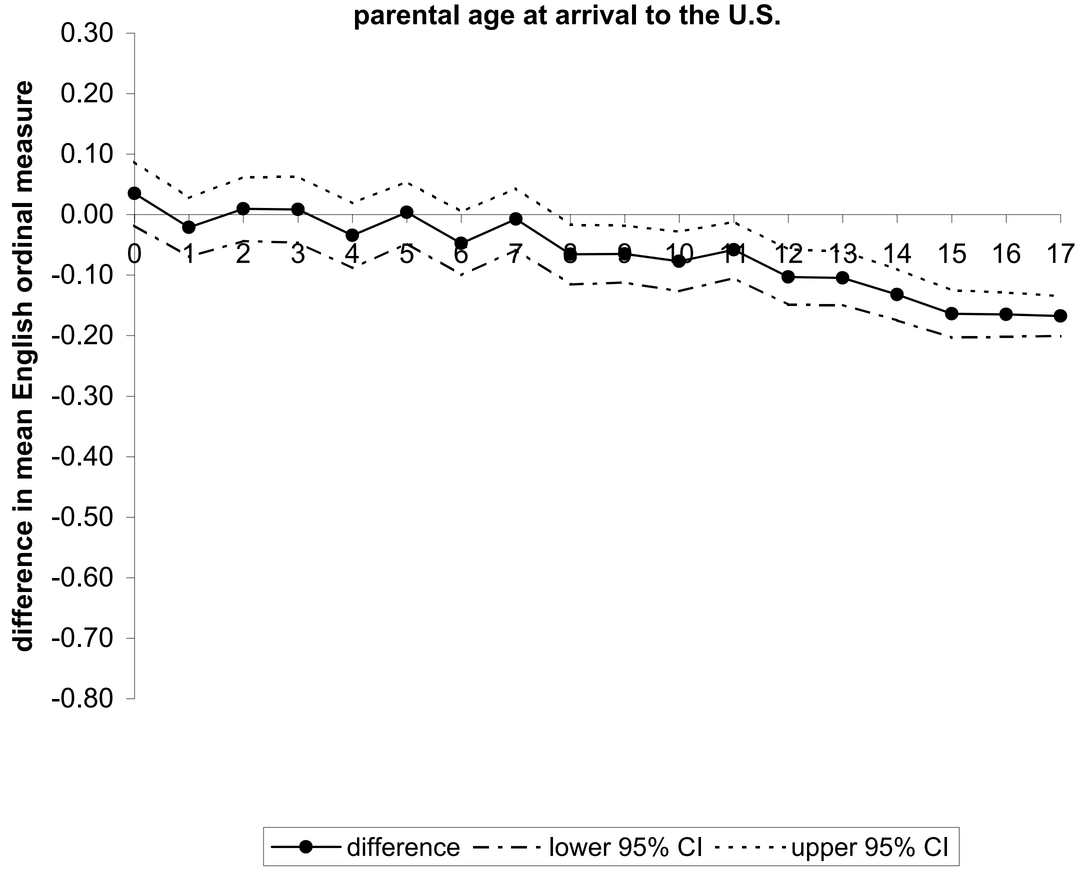
Figure 1. Parental English-Speaking Ability by Age at Arrival



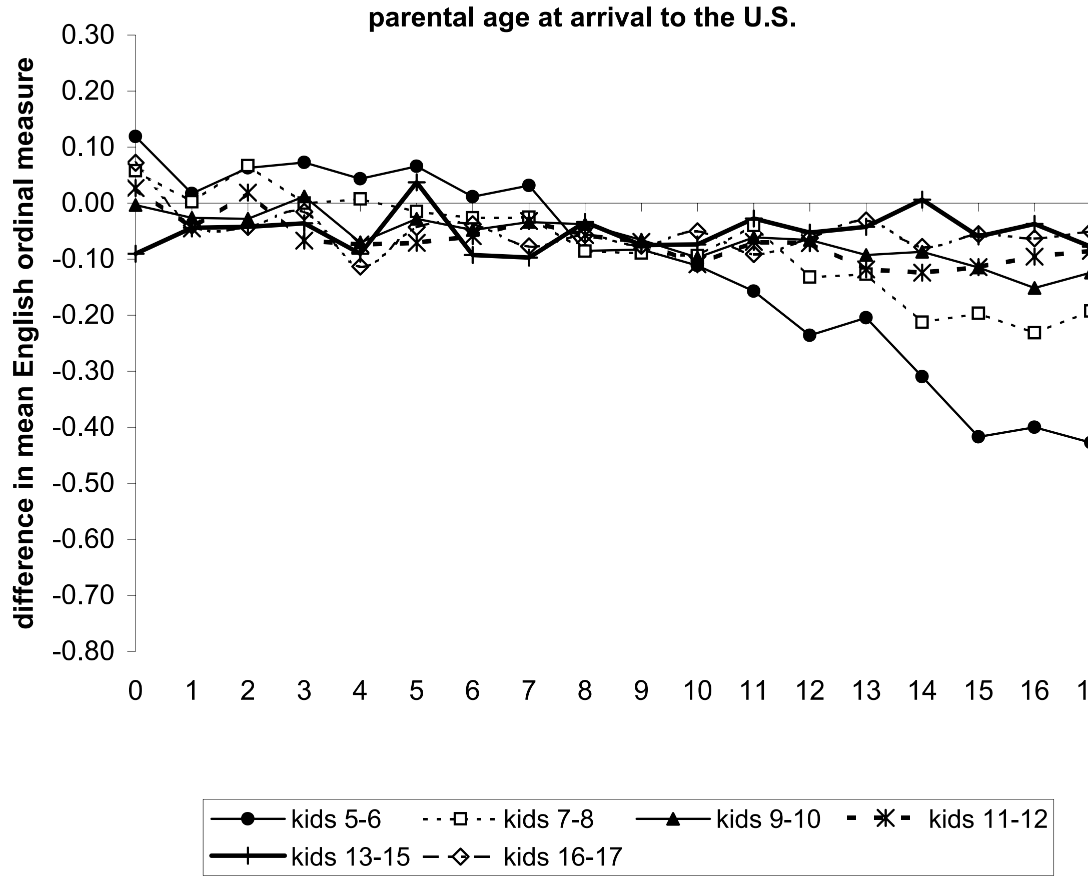
Notes: Data from 2000 IPUMS. Sample size is 138,916 (composed of children who were born in the U.S., currently aged 5-17, living with at least one birth parent who immigrated to the U.S. before age 18 and is currently aged 25-50, and nonmissing language variable for both child and parent). Displayed for each age at arrival is the difference in mean English-speaking ability between parents from non-English-speaking countries and parents from English-speaking countries. Regression weighted by IPUMS children's weights. Additional controls: age, race, Hispanic and sex dummies for parent and age and sex dummies for child. English ordinal measure: 0 = no English, 1 = not well, 2 = well and 3 = very well. The race categories used were White, Black, Asian & Pacific Islander, Multiracial and Other.

Figure 2. Child's English-Speaking Ability by Parental Age at Arrival



Notes: Data from 2000 IPUMS. Sample size is 138,916 (composed of children who were born in the U.S., currently aged 5-17, living with at least one birth parent who immigrated to the U.S. before age 18 and is currently aged 25-50, and nonmissing language variable for both child and parent). Displayed for each age at arrival is the difference in mean English-speaking ability between between children with parents from non-English-speaking countries and children with parents from English-speaking countries. Regression weighted by IPUMS children's weights. Additional controls: age, race, Hispanic and sex dummies for parent and age and sex dummies for child. English ordinal measure: 0 = no English, 1 = not well, 2 = well and 3 = very well. The race categories used were White, Black, Asian & Pacific Islander, Multiracial and Other.

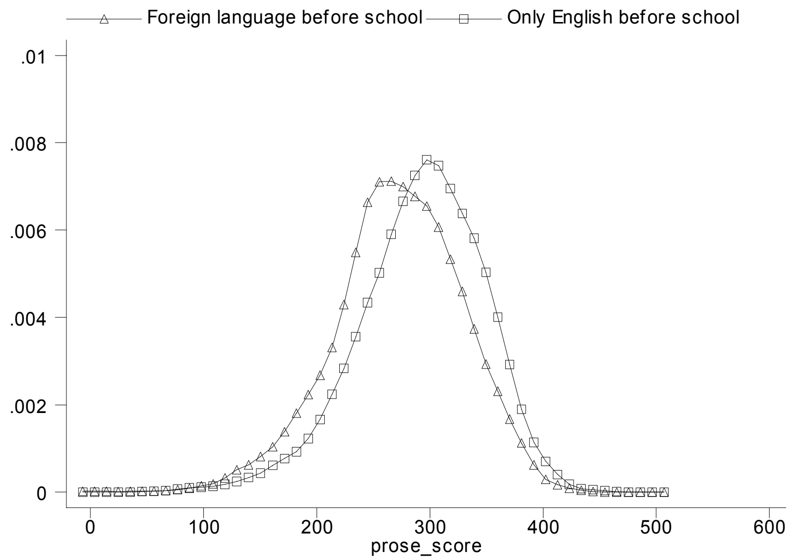
Figure 3. Child's English-Speaking Ability by Parental Age at Arrival & Child's Age



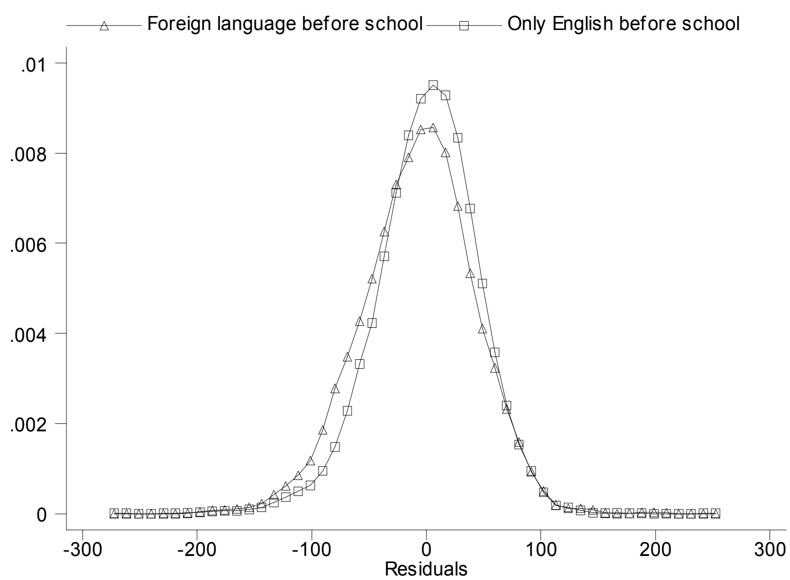
Notes: Data from 2000 IPUMS. Sample is composed of children who were born in the U.S., currently aged 5-17, living with at least one birth parent who immigrated to the U.S. before age 18 and is currently aged 25-50, and nonmissing language variable for both child and parent. Displayed for each child age group and parental age at arrival is the difference in mean English-speaking ability between children with parents from non-English-speaking countries and children with parents from non-English-speaking countries and children with parents from English-speaking countries. Regression weighted by IPUMS children's weights. Additional controls: age, race, Hispanic and sex dummies for parent and age and sex dummies for child. English ordinal measure: 0 = no English, 1 = not well, 2 = well and 3 = very well. The race categories used were White, Black, Asian & Pacific Islander, Multiracial and Other.

Figure 4. Density Estimates of NALS Prose Literacy Test Scores for Individuals Who Speak English Very Well, By Language Spoken Before School

Panel A. Raw Test Scores

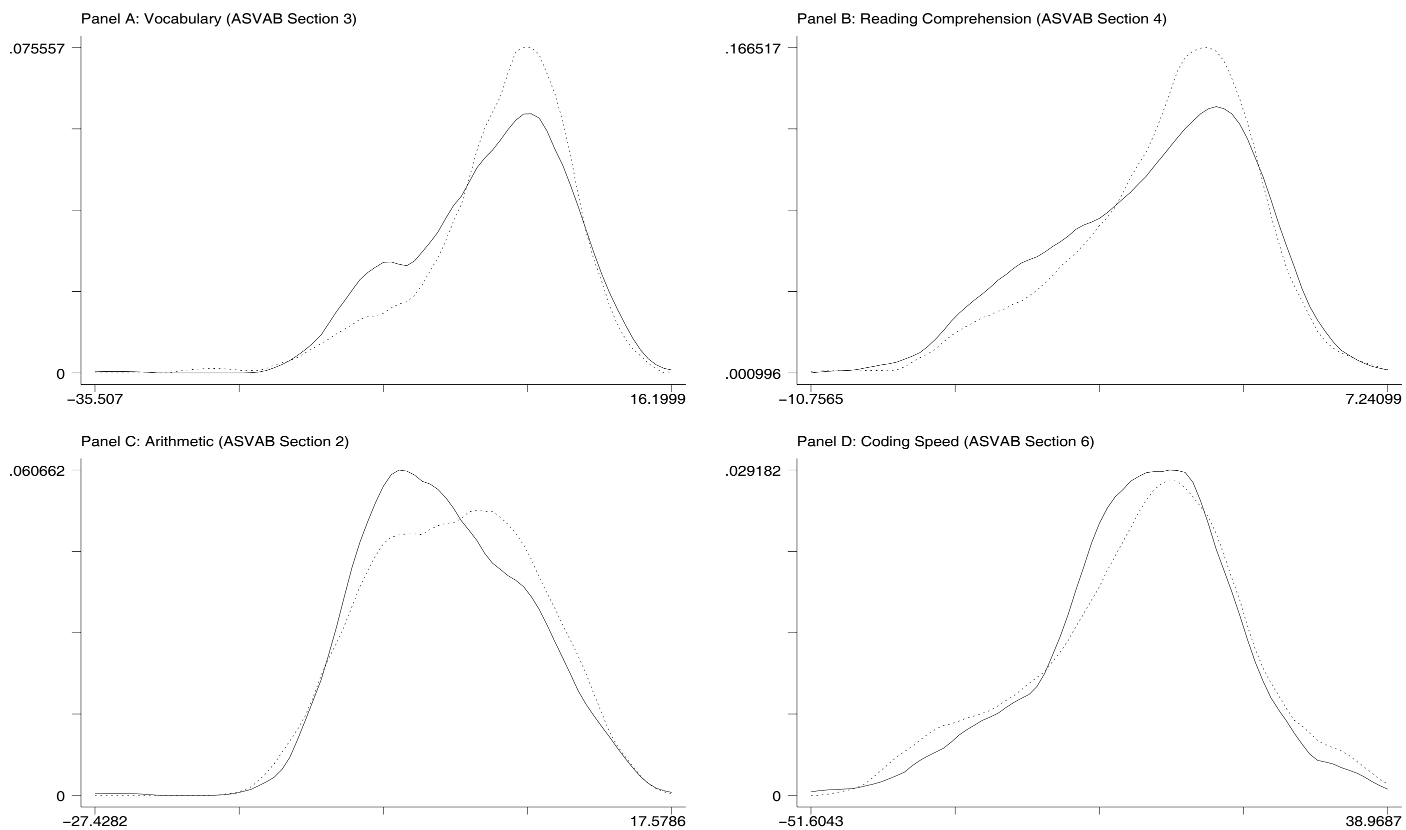


Panel B. Residualized Test Scores



Notes: Data from the 1992 NALS. Sample size is 16,775 (composed of adults who were born in the U.S. and self-report speaking English very well). Displayed in each panel is the kernel density estimate for the prose literacy test score, decomposed by whether a foreign language was spoken before individual started school. The residualized test scores are computed from a regression of the raw score on quadratics in the highest grade completed for each parent, dummies if the parental education variables are missing, and indicator variables for black and year of birth. The mean differences in test score between the two groups estimated by including a dummy for speaking a foreign language before school in a regression) is -20.3 (standard error: 1.67) in Panel A and -8.59 (standard error: 1.40) in Panel B.

Figure 5. Density Estimates of Residualized ASVAB Scores, by Home Language



Solid line: Foreign Language Spoken at Home Dashed line: English Spoken at Home

Notes: Data from the NLSY-1979. Sample size is 751 (composed of children who were born in the U.S. with at least one foreign-born parent and with nonmissing ASVAB scores). Displayed in each panel is the kernel density estimate for the indicated ASVAB subtest, decomposed by whether a foreign language was spoken at the respondent's childhood home (solid line for yes, dashed line for no). The residualized ASVAB scores are computed from a regression of the raw score on quadratics in the highest grade completed for each parent, dummies if the parental education variables are missing, and indicator variables for black and year of birth. The mean differences in ASVAB subtests between the two groups (measured by including the foreign-language-at-home indicator variable in the regression) in Panels A through D have p values of 0.059, 0.120, 0.139, and 0.783, respectively.

Table 1. Descriptive Statistics

	parent from non-Eng-spking ctries			parent from Eng-spking ctries		
	overall	arrived aged 0-7	arrived aged 8-17	overall	arrived aged 0-7	arrived aged 8-17
	(1)	(2)	(3)	(4)	(5)	(6)
parent's characteristics						
ordinal measure (scale of 0 to 3, 3=best)	2.3024	2.8624	2.1253	2.9819	2.9847	2.9805
	(0.8984)	(0.4264)	(0.9350)	(0.1573)	(0.1360)	(0.1675)
age	35.3362	33.5407	35.9041	36.6886	35.2586	37.4485
	(5.4414)	(4.1349)	(5.6767)	(5.0729)	(3.6993)	(5.5205)
years of schooling	10.9171	12.7153	10.3357	14.0081	14.0148	14.0046
	(4.0276)	(2.6907)	(4.2121)	(2.2986)	(2.1505)	(2.3737)
child immigrant parent is female	0.6667	0.7084	0.6535	0.7009	0.6686	0.7181
	(0.4714)	(0.4545)	(0.4758)	(0.4579)	(0.4708)	(0.4499)
white	0.4565	0.5534	0.4258	0.4766	0.7269	0.3436
	(0.4981)	(0.4971)	(0.4945)	(0.4995)	(0.4456)	(0.4749)
black	0.0270	0.0341	0.0248	0.4198	0.2099	0.5313
	(0.1621)	(0.1816)	(0.1554)	(0.4935)	(0.4073)	(0.4991)
Asian/Pacific Islander	0.0820	0.0445	0.0938	0.0316	0.0144	0.0408
	(0.2743)	(0.2062)	(0.2916)	(0.1750)	(0.1190)	(0.1978)
multiracial	0.3803	0.3159	0.4007	0.0210	0.0098	0.0269
	(0.4855)	(0.4649)	(0.4900)	(0.1433)	(0.0988)	(0.1618)
other race	0.0542	0.0521	0.0549	0.0510	0.0389	0.0574
	(0.2265)	(0.2221)	(0.2278)	(0.2200)	(0.1935)	(0.2326)
Hispanic	0.7246	0.6067	0.7619	0.0123	0.0123	0.0123
	(0.4467)	(0.4885)	(0.4259)	(0.1103)	(0.1101)	(0.1104)
child's characteristics						
age	9.8840	9.3397	10.0561	9.9742	9.4937	10.2296
	(3.5038)	(3.3043)	(3.5473)	(3.5242)	(3.3077)	(3.6083)
female	0.4866	0.4907	0.4854	0.4834	0.4900	0.4799
	(0.4998)	(0.4999)	(0.4998)	(0.4997)	(0.5000)	(0.4996)
ordinal measure (scale of 0 to 3, 3=best)	2.6906	2.8162	2.6509	2.9813	2.9822	2.9809
	(0.6231)	(0.4944)	(0.6536)	(0.1773)	(0.1696)	(0.1813)
speaks English not well or better	0.9920	0.9981	0.9900	0.9994	0.9995	0.9994
	(0.0893)	(0.0430)	(0.0995)	(0.0244)	(0.0230)	(0.0251)
speaks English well or better	0.9288	0.9565	0.9200	0.9946	0.9954	0.9942
	(0.2572)	(0.2040)	(0.2713)	(0.0731)	(0.0673)	(0.0759)
speaks English very well	0.7698	0.8615	0.7408	0.9873	0.9872	0.9873
	(0.4209)	(0.3454)	(0.4382)	(0.1121)	(0.1122)	(0.1120)
Number of observations	127,478	30,822	96,656	11,438	4,075	7,363
child educational outcomes for restricted ages						
dropped out of h.s., for those age 15-17	0.0258	0.0249	0.0259	0.0139	0.0305	0.0086
	(0.1585)	(0.1559)	(0.1590)	(0.1172)	(0.1722)	(0.0926)
below age-appropriate grade for age 15-17	0.0589	0.0608	0.0585	0.0357	0.0462	0.0324
	(0.2354)	(0.2390)	(0.2346)	(0.1857)	(0.2101)	(0.1772)
child attending school, for those age 3-7	0.7227	0.7388	0.7161	0.7988	0.7807	0.8113
	(0.4477)	(0.4393)	(0.4509)	(0.4009)	(0.4138)	(0.3914)

Notes: Weighted by IPUMS children's weights. Sample is as follows: 2000 IPUMS, children who were born in the U.S., currently aged 5 to 17, living with at least one natural born parent who immigrated to the U.S. before age 18 and is currently aged 25-50, and nonmissing language variable for both child and parent. For families in which both parents are child immigrants, the mother's characteristics have been assigned. The number of observations for young children's attendance, teen dropout and teen grade-for-age is much less because these variables apply to restricted ages.

Table 2. Reduced-form Effect on English-Language Skills

	Parental English		Child English	
	(1)	(2)	(3)	(4)
k = max (0, parent's at arrival - 7)* parent from non-English-speaking country of birth	-0.0950 ***	-0.0913 ***	-0.0165 ***	-0.0125 ***
	(0.0156)	(0.0180)	(0.0028)	(0.0039)
max (0, parent's age at arrival - 7)	-0.0061 **		-0.0113 ***	
	(0.0030)		(0.0025)	
Parent from non-English-speaking country of birth	0.2172 ***		-0.0133	
	(0.0577)		(0.0108)	
Parent is female	-0.1016 **	-0.1265 ***	0.0120 ***	0.0051
	(0.0472)	(0.0419)	(0.0040)	(0.0054)
Child is female	-0.0082 ***	-0.0066 ***	0.0067 **	0.0070 ***
	(0.0025)	(0.0024)	(0.0026)	(0.0027)
Parent is Hispanic	-0.4095 ***	-0.0823 ***	-0.1951 ***	-0.0699 ***
	(0.0777)	(0.0263)	(0.0262)	(0.0174)
Parent race dummies (relative to White)				
Black	0.1239 ***	0.0343 **	0.0416 ***	0.0112
	(0.0364)	(0.0157)	(0.0110)	(0.0087)
Asian and Pacific Islander	-0.1148	0.0208	-0.1264 ***	-0.0614 **
	(0.0792)	(0.0578)	(0.0364)	(0.0265)
Multiracial	0.0448 **	0.0157	0.0313	0.0268 ***
	(0.0221)	(0.0161)	(0.0112)	(0.0082)
Other	-0.0462	0.0043	-0.0034	0.0146 **
	(0.0448)	(0.0086)	(0.0174)	(0.0070)
Parental age dummies	Yes	Yes	Yes	Yes
Child age dummies	Yes	Yes	Yes	Yes
Parental age-at-arrival dummies	No	Yes	No	Yes
Parental country-of-birth dummies	No	Yes	No	Yes
Adjusted R-squared	0.3114	0.3547	0.1386	0.1502
Number of observations	138,916	138,916	138,916	138,916

Notes: Weighted by IPUMS children's weights. Robust standard errors from clustering by parental country of birth shown in parentheses. Single asterisk denotes statistical significance at the 90% level of confidence, double 95%, triple 99%. English-speaking ability ordinal measure is defined as: 0 = no English, 1 = not well, 2 = well and 3 = very well. Sample is as described in Table 1 notes. The country-of-birth controls are based on IPUMS detailed birthplace codes.

Table 3. Effect of Parental English on Child's English by Child's Age

	1st stage (1)	OLS (2)	2SLS (3)	N (4)
all children (age 5 to 17)	-0.0913 *** (0.0180)	0.1832 *** (0.0104)	0.1365 *** (0.0202)	138,916
child is age 5	-0.0924 *** (0.0207)	0.4010 *** (0.0121)	0.5185 *** (0.0268)	14,362
child is age 6	-0.0994 *** (0.0199)	0.3233 *** (0.0154)	0.3621 *** (0.0250)	14,240
child is age 7	-0.0975 *** (0.0192)	0.2691 *** (0.0165)	0.2043 *** (0.0250)	14,335
child is age 8	-0.1003 *** (0.0197)	0.2224 *** (0.0158)	0.1517 *** (0.0239)	13,902
child is age 9	-0.0972 *** (0.0187)	0.1717 *** (0.0098)	0.0925 *** (0.0269)	13,339
child is age 10	-0.0958 *** (0.0180)	0.1361 *** (0.0107)	0.0565 *** (0.0213)	12,417
child is age 11	-0.0857 *** (0.0173)	0.1068 *** (0.0081)	0.0409 (0.0333)	10,813
child is age 12	-0.0844 *** (0.0146)	0.0859 *** (0.0070)	0.0139 (0.0318)	9,765
child is age 13	-0.0831 *** (0.0175)	0.0712 *** (0.0050)	-0.0410 (0.0367)	8,777
child is age 14	-0.0840 *** (0.0150)	0.0600 *** (0.0072)	-0.0265 (0.0384)	8,097
child is age 15	-0.0824 *** (0.0185)	0.0598 *** (0.0090)	-0.0144 (0.0421)	7,080
child is age 16	-0.0901 *** (0.0162)	0.0411 *** (0.0076)	0.0076 (0.0324)	6,168
child is age 17	-0.0831 *** (0.0142)	0.0352 *** (0.0045)	-0.0249 (0.0186)	5,621

Notes: Each cell is from a separate regression. The "1st stage" column displays the coefficient for the identifying instrument k, i.e., max(parent's age at arrival - 7)*parent from non-English-speaking country of birth, from the first stage equation. The "OLS" and "2SLS" columns report the coefficient for parental English-language skills. All regressions contain dummies for the age at arrival, country of birth, age, sex, race and Hispanic status of the parent who is the childhood immigrant, and dummies for age and sex of the child. Weighted by IPUMS children's weights. Robust standard errors from clustering by parental country of birth shown in parentheses. Single asterisk denotes statistical significance at the 90% level of confidence, double 95%, triple 99%. Sample is as described in Table 1 notes. The country-of-birth controls are based on IPUMS detailed birthplace codes.

Table 4. Effect of Parental English on Child's High School Dropout Status and Grade Retention, Children Aged 15-17

	Effect of Parental English on:								
	Dropped Out of High School				Below Age-Appropriate Grade				
	OLS		2SLS		OLS		2SLS		N
	(1)		(2)		(3)		(4)		(5)
children aged 15-17	-0.0050	***	-0.0332	***	-0.0174	***	-0.0297		17,386
	(0.0019)		(0.0100)		(0.0034)		(0.0212)		
child is age 15	-0.0019	*	-0.0138		-0.0002		-0.0098		6,545
	(0.0011)		(0.0120)		(0.0006)		(0.0083)		
child is age 16	-0.0095	*	-0.0364	**	-0.0258	***	-0.0115		5,678
	(0.0049)		(0.0147)		(0.0069)		(0.0330)		
child is age 17	-0.0042		-0.0547	**	-0.0312	***	-0.0928	**	5,163
	(0.0031)		(0.0247)		(0.0062)		(0.0424)		
children aged 16-17	-0.0070	**	-0.0460	***	-0.0277	***	-0.0433		10,841
	(0.0035)		(0.0138)		(0.0052)		(0.0293)		

Notes: See notes for Table 3. Dropout is defined as child not having a high school degree but not currently attending school. Child is considered to be below age-appropriate grade if he is age 15 and currently attending below grade 9, age 16 grade 10 and age 17 grade 11 in April 2000. The current grade is set equal to the highest grade completed plus one if the individual is currently attending school, otherwise it is set equal to the highest grade completed.

Table 5. Effect of Parental English on Child's School Attendance, Children Aged 3-7

	Effect of Parental English on:						
	Currently Attending School		Currently in kindergarten or higher		Currently in 1st grade or higher		
	OLS	2SLS	OLS	2SLS	OLS	2SLS	N
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
children aged 3-7	0.0130 ***	0.0458 **					65,910
	(0.0034)	(0.0191)					
child is age 3	0.0325 ***	0.1328 *					12,619
	(0.0101)	(0.0696)					
child is age 4	0.0312 ***	0.1707 ***					13,023
	(0.0076)	(0.0480)					
child is age 5	0.0058 **	-0.0118	-0.0073	-0.0285			13,337
	(0.0024)	(0.0342)	(0.0051)	(0.0475)			
child is age 6	0.0015	-0.0009	0.0015	-0.0009	-0.0110 **	0.0176	13,302
	(0.0015)	(0.0088)	(0.0015)	(0.0088)	(0.0053)	(0.0576)	
child is age 7	0.0011	-0.0002	0.0012	0.0009	0.0069 ***	0.0209	13,629
	(0.0011)	(0.0087)	(0.0012)	(0.0085)	(0.0018)	(0.0132)	

Notes: See notes for Table 3. Sample has been expanded to include 3 and 4-year olds, for whom the language question is not asked.

Table 6. Effect of Parental English on Child's English, Children Aged 5-10, Alternative Samples and Specifications

	1st stage (1)	OLS (2)	2SLS (3)	N (4)
Panel A. Whole Sample	-0.0968 ***	0.2567 ***	0.2438 ***	82,595
	(0.0193)	(0.0133)	(0.0194)	
Panel B. Parental age at arrival < 16	-0.0973 ***	0.2640 ***	0.2673 ***	59,929
	(0.0223)	(0.0102)	(0.0164)	
Panel C. Parental age at arrival < 14	-0.0893 ***	0.2706 ***	0.2677 ***	45,335
	(0.0252)	(0.0113)	(0.0288)	
Panel D. Control for GDP in Parental Country of Birth				75,058
Parental English		0.2557 ***	0.2511 ***	
		(0.0143)	(0.0169)	
k = max (0, parent's age at arrival - 7) x parent from non-Eng-spking ctry	-0.1033 ***			
	(0.0207)			
max (0, parent's age at arrival - 7) x ln 1980 GDP in parent's ctry of birth / 100	-1.4479	-0.1382	-0.1414	
	(1.1819)	(0.1674)	(0.1654)	
Panel E. Exclude Parents from Canada	-0.0975 ***	0.2568 ***	0.2437 ***	80,890
	(0.0189)	(0.0133)	(0.0199)	
Panel F. Exclude Parents from Mexico	-0.0553 ***	0.2095 ***	0.1713 ***	42,718
	(0.0059)	(0.0203)	(0.0390)	
Panel G. Caribbean Only	-0.0695 ***	0.1193 ***	0.0643 **	11,098
	(0.0071)	(0.0148)	(0.0236)	
Panel H. Average Parental Schooling for each Country of Origin				82,589
Parental English		0.2557 ***	0.1963 ***	
		(0.0140)	(0.0515)	
k = max (0, parent's age at arrival - 7) x parent from non-Eng-spking ctry	-0.0479 ***			
	(0.0065)			
max (0, parent's age at arrival - 7) x average parental schooling of young arrvers from parent's ctry of birth	0.0307 ***	0.0008	0.0029	
	(0.0033)	(0.0009)	(0.0024)	

Notes: See notes for Table 3. Each panel is from a separate regression.
In Panel D, 1980 GDP is taken from the Penn World Tables and measured in per-capita and PPP terms.
In Panel G, the Caribbean is comprised of all countries with IPUMS general country code 260 as well as Cuba, U.S. Virgin Islands and Puerto Rico.
In Panel H, mean education by county of origin is constructed for the parents in the base sample that arrived younger that age 8.

Table 7. Effect of Parental English on Child's High School Dropout Status, Children Aged 15-17, Alternative Samples and Specifications

	1st stage	OLS	2SLS	N
	(1)	(2)	(3)	(4)
Panel A. Whole Sample	-0.0841 ***	-0.0050 ***	-0.0332 ***	17,386
	(0.0165)	(0.0019)	(0.0100)	
Panel B. Parental age at arrival < 16	-0.0888 ***	-0.0061	-0.0397 ***	12,092
	(0.0188)	(0.0045)	(0.0125)	
Panel C. Parental age at arrival < 14	-0.0875 ***	-0.0093 **	-0.0474 **	8,350
	(0.0212)	(0.0040)	(0.0209)	
Panel D. Control for GDP in Parental Country of Birth				15,861
Parental English		-0.0044 ***	-0.0307 ***	
		(0.0017)	(0.0096)	
k = max (0, parent's age at arrival - 7) x parent from non-Eng-spking ctry	-0.0850 ***			
	(0.0196)			
max (0, parent's age at arrival - 7) x ln 1980 GDP in parent's ctry of birth / 100	0.1438	-0.1113	-0.0847	
	(1.1615)	(0.0810)	(0.0716)	
Panel E. Exclude Parents from Canada	-0.0839 ***	-0.0048 ***	-0.0231 **	16,986
	(0.0158)	(0.0019)	(0.0108)	
Panel F. Exclude Parents from Mexico	-0.0547 ***	-0.0079 *	-0.0350 *	9,397
	(0.0072)	(0.0042)	(0.0178)	
Panel G. Caribbean Only	-0.0769 ***	-0.0193 **	-0.0346 **	3,164
	(0.0140)	(0.0072)	(0.0159)	
Panel H. Average Parental Schooling for each Country of Origin				17,385
Parental English		-0.0048 ***	-0.0548 ***	
		(0.0021)	(0.0189)	
k = max (0, parent's age at arrival - 7) x parent from non-Eng-spking ctry	-0.0484 ***			
	(0.0099)			
max (0, parent's age at arrival - 7) x average parental schooling of young arrvers from parent's ctry of birth	0.0239 ***	-0.0002	0.0012 *	
	(0.0055)	(0.0004)	(0.0006)	

Notes: See notes for Table 3. Each panel is from a separate regression.
In Panel D, 1980 GDP is taken from the Penn World Tables and measured in per-capita and PPP terms.
In Panel G, the Caribbean is comprised of all countries with IPUMS general country code 260 as well as Cuba, U.S. Virgin Islands and Puerto Rico.
In Panel H, mean education by county of origin is constructed for the parents in the base sample that arrived younger that age 8.

Table 8. Effects of Parental English by Parental Geographic Region of Origin

sample of non-English-speaking countries used in comparison to all English-dominant countries:	**Dropped Out Children Aged 16-17**		**Behind Grade Children Aged 17**		**English Children Aged 5-10**		**Attending School Children Aged 3-4**	
	non-eng mean (sd)	2SLS Estimate	non-eng mean (sd)	2SLS Estimate	non-eng mean (sd)	2SLS Estimate	non-eng mean (sd)	2SLS Estimate
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A. All countries	0.0352	-0.0460 ***	0.1113	-0.0928 **	2.5883	0.2438 ***	0.3746	0.1081 **
	(0.1843)	(0.0138)	(0.3145)	(0.0424)	(0.7045)	(0.0194)	(0.4840)	(0.0474)
Panel B. The Americas								
B1. All countries in the Americas	0.0396	-0.0444 ***	0.1270	-0.0930 **	2.5131	0.2344 ***	0.3304	0.1004 **
	(0.1950)	(0.0117)	(0.3330)	(0.0409)	(0.7462)	(0.0213)	(0.4704)	(0.0403)
B2. Mexico	0.0393	-0.0428 ***	0.1278	-0.0606 **	2.4222	0.2550 ***	0.2804	0.0843 **
	(0.1944)	(0.0089)	(0.3339)	(0.0274)	(0.7858)	(0.0055)	(0.4492)	(0.0336)
B3. Caribbean	0.0472	-0.0330	0.1525	-0.1345 *	2.7372	0.0555 **	0.4777	0.1598
	(0.2120)	(0.0228)	(0.3598)	(0.0690)	(0.5787)	(0.0216)	(0.4996)	(0.0976)
B4. Central America	0.0271	-0.0860	0.0767	-0.1696	2.6216	0.2514 ***	0.3714	0.1513 *
	(0.1624)	(0.0625)	(0.2666)	(0.1631)	(0.6723)	(0.0288)	(0.4833)	(0.0786)
B5. South America	0.0274	-0.0778 **	0.0670	-0.2402 **	2.8048	0.0105	0.4947	0.1890
	(0.1634)	(0.0367)	(0.2508)	(0.0933)	(0.5259)	(0.0772)	(0.5002)	(0.2150)
Panel C. Outside the Americas								
C1. All countries outside the Americas	0.0219	-0.0452	0.0642	-0.0231	2.8146	0.2338 ***	0.4831	0.1949
	(0.1465)	(0.0425)	(0.2453)	(0.0898)	(0.4963)	(0.0583)	(0.4998)	(0.1194)
C2. Europe	0.0241	-0.0561	0.0715	0.0309	2.9410	0.1031	0.5137	0.3295
	(0.1534)	(0.0622)	(0.2579)	(0.1120)	(0.2895)	(0.0745)	(0.4999)	(0.2646)
C3. Asia	0.0209	-0.0404	0.0589	-0.0351	2.7012	0.2705 ***	0.4537	0.1730
	(0.1430)	(0.0494)	(0.2357)	(0.0995)	(0.6047)	(0.0700)	(0.4979)	(0.1056)
C4. Africa and Oceania	0.0000	NM	0.0040	NM	2.9375	0.3053	0.5799	NM
	(0.0000)		(0.0638)		(0.2811)	(0.1961)	(0.4947)	

Notes: See notes for Table 3. "NM" denotes not meaningful, as there is no significant first stage. It must be emphasized that the same children with parents from an English-dominant country are being used as controls in every row.

Table 9. Channels for the Effect of Parental English on Child's High School Dropout Status, Children Aged 16-17

		2SLS, with additional controls for the following channel:							
	Baseline Results	**Years of Schooling**	**Schooling Dummies**	**Log of Family Income**	**Number of Parent's Kids in HH**	**Lives with Biological Parents**	**Other Parent is Native**	**Super-PUMA Dummies**	**Previous Six Columns**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Panel A: Two Stage Least Squares Estimates				
Parental English	-0.0460 ***	-0.0496 **	-0.0531 **	-0.0452 ***	-0.0463 ***	-0.0451 ***	-0.0458 ***	-0.0404 **	-0.0466
	(0.0138)	(0.0198)	(0.0209)	(0.0142)	(0.0139)	(0.0148)	(0.0141)	(0.0187)	(0.0292)
Years of Schooling		0.0002							
		(0.0022)							
Relative to no schooling:									
Parent has 1-4 years of schooling			0.0111 *						0.0110
			(0.0058)						(0.0062)
Parent has 5-8 years of schooling			-0.0013						-0.0038
			(0.0076)						(0.0083)
Parent has 9 years of schooling			0.0185						0.0163
			(0.0130)						(0.0146)
Parent has 10 years of schooling			0.0399 ***						0.0367
			(0.0144)						(0.0180)
Parent has 11 years of schooling			0.0151						0.0140
			(0.0237)						(0.0274)
Parent has high school degree			0.0138						0.0114
			(0.0272)						(0.0291)
Parent has some college or associate degree			0.0074						0.0021
			(0.0312)						(0.0333)
Parent has at least Bachelor's degree			0.0069						0.0010
			(0.0310)						(0.0322)
Log Family Income				-0.0037					0.0009
				(0.0062)					(0.0063)
Relative to one child:									
Parent has 2 children					-0.0106 *				-0.0007
					(0.0054)				(0.0049)
Parent has 3 children					-0.0184 ***				-0.0068
					(0.0051)				(0.0066)
Parent has 4 children					-0.0065				0.0017
					(0.0057)				(0.0096)
Parent has at least 5 children					-0.0049				0.0067
					(0.0091)				(0.0094)
Lives with both biological parents						-0.0285 ***			-0.0267 ***
						(0.0047)			(0.0053)
Other parent is native born							-0.0017		0.0069
							(0.0100)		(0.0085)
Super-PUMA dummies	No	No	No	No	No	No	No	Yes	Yes
					Panel B: First Stage Estimates				
k = max (0, parent's at arrival - 7)* parent from non-English-speaking country of birth	-0.0851 ***	-0.0638 ***	-0.0603 ***	-0.0831 ***	-0.0848 ***	-0.0851 ***	-0.0835 ***	-0.0812 ***	-0.0563 ***
	(0.0156)	(0.0088)	(0.0083)	(0.0150)	(0.0150)	(0.0157)	(0.0149)	(0.0162)	(0.0085)
					Panel C: Reduced Form Estimates				
k = max (0, parent's at arrival - 7)* parent from non-English-speaking country of birth	0.0039 ***	0.0032 ***	0.0032 **	0.0038 ***	0.0039 ***	0.0038 ***	0.0038 ***	0.0033 *	0.0026
	(0.0014)	(0.0014)	(0.0013)	(0.0013)	(0.0013)	(0.0014)	(0.0014)	(0.0017)	(0.0017)
Number of observations	10,526	10,526	10,526	10,746	10,841	10,841	10,841	10,841	10,436

Notes: See notes for Table 3. Each column is from a separate regression in which the variable named in the column heading is added as a control variable (the other controls are listed in the notes for Table 3).

Table 10. Comparison with Alternative Mechanisms, 2SLS Estimates

	Dependent variables and samples:							
	Child's English Skill; Children Aged 5-10				Child's Dropout Status; Children Aged 16-17			
Independent variables:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Comparison with Parental Education							
Parental English	0.2438 ***		0.2214 ***	0.2241 ***	-0.0460 ***		-0.0496 **	-0.0557 ***
	(0.0194)		(0.0195)	(0.0216)	(0.0138)		(0.0198)	(0.0190)
Parental Education (years of schooling)		0.0264 ***	0.0090 ***	0.0099 ***		-0.0035 ***	0.0002	-0.0023
		(0.0032)	(0.0022)	(0.0029)		(0.0011)	(0.0022)	(0.0027)
Parental Education x Parental English				0.0028				-0.0085
				(0.0027)				(0.0050)
	Panel B: Comparison with Family Income							
Parental English	0.2438 ***		0.2335 ***	0.2331 ***	-0.0460 ***		-0.0452 ***	-0.0487 ***
	(0.0194)		(0.0197)	(0.0199)	(0.0138)		(0.0142)	(0.0140)
Log of Family Income		0.0598 ***	0.0329 ***	0.0328 ***		-0.0103 **	-0.0037	-0.0052
		(0.0141)	(0.0086)	(0.0081)		(0.0048)	(0.0062)	(0.0045)
Income x Parental English				-0.0030				-0.0235 ***
				(0.0068)				(0.0083)
	Panel C: Comparison with Number of Children							
Parental English	0.2438 ***		0.2429 ***	0.2446 ***	-0.0460 ***		-0.0459 ***	-0.0452 ***
	(0.0194)		(0.0189)	(0.0194)	(0.0138)		(0.0139)	(0.0142)
Number of Children in Family		-0.0289 ***	-0.0131 ***	-0.0144 ***		0.0036	0.0007	0.0001
		(0.0042)	(0.0034)	(0.0038)		(0.0024)	(0.0025)	(0.0020)
Number of Children x Parental English				-0.0088 ***				-0.0040
				(0.0033)				(0.0026)
	Panel D: Comparison with Nativity of Spouse							
Parental English	0.2438 ***		0.2231 ***	0.2323 ***	-0.0460 ***		-0.0458 ***	-0.0412 ***
	(0.0194)		(0.0189)	(0.0180)	(0.0138)		(0.0141)	(0.0139)
Spouse is Native		0.1987 ***	0.1510 ***	0.4374 ***		-0.0114	-0.0017	0.1232
		(0.0474)	(0.0337)	(0.0578)		(0.0080)	(0.0100)	(0.0700)
Spouse is Native x Parental English				-0.1071 ***				-0.0473
				(0.0275)				(0.0273)
	Panel E: Comparison with Enclave							
Parental English	0.2401 ***		0.2405 ***	0.2381 ***	-0.0566 ***		-0.0572 ***	-0.0614 ***
	(0.0186)		(0.0200)	(0.0240)	(0.0167)		(0.0168)	(0.0185)
Share of Origin-Country Immigrants in PUMA		-0.7295 ***	-0.5191 ***	-0.5028 ***		-0.0347	-0.0982 ***	-0.0672 **
		(0.1305)	(0.0945)	(0.1210)		(0.0254)	(0.0369)	(0.0314)
Share x Parental English				0.0490				0.1023 **
				(0.1109)				(0.0498)

Notes: See notes for Tables 3 and 4. Variables are de-meaned before interaction to facilitate the interpretation of the main effects in Columns 4 and 8. The share of origin-country immigrants in the PUMA is computed using authors' calculations from the 2000 PUMS.

Appendix Table 1. Children by Parental Country of Birth

Panel A. Countries with English as an official language

1. English-speaking countries (=Control Group)

Rank by N	country	N	share of total N
1	Canada	2,943	25.7%
2	Jamaica	2,411	21.1%
3	England	1,932	16.9%
4	Trinidad & Tobago	850	7.4%
5	Guyana/British Guiana	717	6.3%
6	United Kingdom, ns	339	3.0%
7	Belize/British Honduras	294	2.6%
8	Scotland	281	2.5%
9	Barbados	236	2.1%
10	Bahamas	203	1.8%
11	U.S. Virgin Islands	169	1.5%
12	Ireland	168	1.5%
13	Australia	154	1.3%
14	South Africa (Union of)	135	1.2%
15	Antigua-Barbuda	87	0.8%
16	Grenada	78	0.7%
17	Bermuda	73	0.6%
18	Liberia	72	0.6%
19	St. Vincent	69	0.6%
20	New Zealand	66	0.6%
21	St. Kitts-Nevis	65	0.6%
22	St. Lucia	36	0.3%
23	Zimbabwe	27	0.2%
24	Northern Ireland	20	0.2%
25	Wales	13	0.1%
26	Anguilla	2	0.0%
	Total English-spking obs	*11,440*	*100.0%*
	As % of total obs		*8.2%*

2. Other English-official countries (excluded from main analysis)

Rank by N	country	N	share of total N
1	Hong Kong	153	43.8%
2	Philippines	110	31.5%
3	India	30	8.6%
4	American Samoa	18	5.2%
5	Pakistan	9	2.6%
6	Guam	8	2.3%
7	Tonga	5	1.4%
8	Singapore	5	1.4%
9	Dominica	3	0.9%
10	Sierra Leone	3	0.9%
11	Nigeria	2	0.6%
12	Kenya	1	0.3%
13	Senegal	1	0.3%
14	Fiji	1	0.3%
	Total other Eng-official obs	*349*	*100.0%*
	As % of total obs		*0.3%*

Notes: Table continues on next page.

Appendix Table 1. Children by Parental Country of Birth (continued)

Panel B. Non-English-speaking countries (=Treatment Group)

Rank by N	country	N	share of total N	Rank by N	country	N	share of total N
1	Mexico	65,810	51.6%	31	Thailand	454	0.4%
2	Puerto Rico	7,053	5.5%	32	North Korea	424	0.3%
3	Germany	5,170	4.1%	33	Argentina	422	0.3%
4	Cuba	4,608	3.6%	34	Brazil	416	0.3%
5	El Salvador	4,114	3.2%	35	Yugoslavia	387	0.3%
6	Dominican Republic	3,298	2.6%	36	Iraq	351	0.3%
7	Vietnam	3,240	2.5%	37	Costa Rica	322	0.3%
8	Italy	2,521	2.0%	38	Venezuela	319	0.3%
9	Laos	1,853	1.5%	39	Azores	317	0.2%
10	Guatemala	1,837	1.4%	40	Africa, ns/nec	314	0.2%
11	Portugal	1,667	1.3%	41	Jordan	310	0.2%
12	Korea	1,657	1.3%	42	Egypt/United Arab Rep.	287	0.2%
13	Colombia	1,615	1.3%	43	Chile	275	0.2%
14	Japan	1,563	1.2%	44	Turkey	269	0.2%
15	Haiti	1,382	1.1%	45	Indochina, ns	238	0.2%
16	Ecuador	1,111	0.9%	46	Netherlands	231	0.2%
17	Nicaragua	985	0.8%	47	Western Samoa	200	0.2%
18	Iran	918	0.7%	48	Romania	189	0.1%
19	Cambodia (Kampuchea)	908	0.7%	49	West Indies, ns	180	0.1%
20	Greece	889	0.7%	50	Other USSR/Russia	172	0.1%
21	Honduras	810	0.6%	51	Syria	163	0.1%
22	China	746	0.6%	52	Armenia	151	0.1%
23	Poland	721	0.6%	53	Cape Verde	143	0.1%
24	France	618	0.5%	54	Croatia	135	0.1%
25	Taiwan	586	0.5%	55	Ukraine	133	0.1%
26	Peru	577	0.5%	56	Bolivia	128	0.1%
27	Israel/Palestine	574	0.5%		Subtotal, top 56 countries	125,279	98.3%
28	Panama	570	0.4%		Subtotal, other (74) countries	2,227	1.7%
29	Lebanon	481	0.4%		*Total non-Eng-spking obs*	*127,506*	*100.0%*
30	Spain	467	0.4%		*As % of total obs*		*91.5%*

Notes: Information on each country's official languages from the World Almanac. Recent adult immigrants from the 1980 IPUMS were used to divide English-official countries into English-speaking (at least 50% of recent adult immigrants did not speak a language other than English at home) or Other. Above tabulations by country of birth use following sample: 2000 IPUMS, children who were born in the U.S., currently aged 5-17, living with at least one birth parent who immigrated to the U.S. before age 18 and is currently aged 25-50, and nonmissing language variable for both child and parent. For families in which both parents are child immigrants, the mother's characteristics have been assigned.

Appendix Table 2. Channels for the Effect of Parental English on Child's English, Children Aged 5-10

	Baseline Results	Add additional controls for the following channel: Years of Schooling	Schooling Dummies	Log of Family Income	Number of Parent's Kids in HH	Lives with Biological Parents	Other Parent is Native	Super-PUMA Dummies	Previous Six Columns
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Two-Stage Least Squares Estimates									
Parental English	0.2438 ***	0.2214 ***	0.2124 ***	0.2335 ***	0.2428 ***	0.2438 ***	0.2231 ***	0.2427 ***	0.1916 ***
	(0.0194)	(0.0195)	(0.0211)	(0.0197)	(0.0190)	(0.0195)	(0.0189)	(0.0202)	(0.0207)
Parental Education (years)		0.0090 ***							
		(0.0022)							
Parental Education (dummies)			Yes						Yes
Log Family Income				0.0329 ***					0.0233 ***
				(0.0086)					(0.0083)
Relative to one child:									
Parent has 2 children					0.0018				-0.0047
					(0.0084)				(0.0090)
Parent has 3 children					-0.0136				-0.0161 *
					(0.0090)				(0.0085)
Parent has 4 children					-0.0190				-0.0106
					(0.0124)				(0.0099)
Parent has at least 5 children					-0.0444 **				-0.0358 *
					(0.0189)				(0.0188)
Lives with both biological parents						0.0212 ***			-0.0445 ***
						(0.0047)			(0.0064)
Other parent is native born							0.1510 ***		0.1449 ***
							(0.0337)		(0.0282)
Super-PUMA dummies	No	No	No	No	No	No	No	Yes	Yes
Panel B: First Stage Estimates									
k = max (0, parent's at arrival - 7)* parent from non-English-speaking country of birth	-0.0968 ***	-0.0763 ***	-0.0700 ***	-0.0932 ***	-0.0963 ***	-0.0968 ***	-0.0941 ***	-0.0974 ***	-0.0691 ***
	(0.0193)	(0.0139)	(0.0127)	(0.0186)	(0.0188)	(0.0193)	(0.0185)	(0.0197)	(0.0128)
Panel C: Reduced Form Estimates									
k = max (0, parent's at arrival - 7)* parent from non-English-speaking country of birth	-0.0236 ***	-0.0169 ***	-0.0149 ***	-0.0218 ***	-0.0234 ***	-0.0236 ***	-0.0210 ***	-0.0236 ***	-0.0132 ***
	(0.0063)	(0.0041)	(0.0037)	(0.0059)	(0.0061)	(0.0063)	(0.0056)	(0.0065)	(0.0035)
Number of observations	82,595	80,333	80,333	81,449	82,595	82,595	82,595	82,595	79,222

Notes: See notes for Table 3. Each column is from a separate regression in which the variable named in the column heading is added as a control variable (the other controls are listed in the notes for Table 3).

Appendix Table 3. Channels for the Effect of Parental English, by Parental Geographic Region of Origin

sample of non-English-speaking countries used in comparison to all English-dominant countries:	2SLS, Base Specification	2SLS, with additional controls for the following channel: Schooling Dummies	Log of Family Income	Number of Parent's Kids in HH	Lives with Biological Parents	Super-PUMA Dummies	Previous Five Columns
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Panel A: Effect on Child's Language, Children Aged 5-10						
Sample: All countries	0.2438 ***	0.2124 ***	0.2335 ***	0.2428 ***	0.2438 ***	0.2427 ***	0.1916 ***
	(0.0194)	(0.0211)	(0.0197)	(0.0190)	(0.0195)	(0.0202)	(0.0207)
Sample: The Americas							
B1. All countries in the Americas	0.2344 ***	0.1939 ***	0.2229 ***	0.2332 ***	0.2344 ***	0.2354 ***	0.1793 ***
	(0.0213)	(0.0228)	(0.0216)	(0.0209)	(0.0215)	(0.0214)	(0.0212)
B2. Mexico	0.2552 ***	0.2156 ***	0.2450 ***	0.2538 ***	0.2549 ***	0.2522 ***	0.1942 ***
	(0.0055)	(0.0093)	(0.0065)	(0.0057)	(0.0055)	(0.0063)	(0.0118)
B3. Caribbean	0.0555 **	0.0431 *	0.0444 **	0.0588 ***	0.0546 **	0.0561 **	0.0380
	(0.0216)	(0.0257)	(0.0212)	(0.0196)	(0.0215)	(0.0261)	(0.0297)
B4. Central America	0.2514 ***	0.2275 ***	0.2346 ***	0.2489 ***	0.2516 ***	0.2372 ***	0.1988 ***
	(0.0288)	(0.0347)	(0.0318)	(0.0294)	(0.0289)	(0.0141)	(0.0251)
B5. South America	0.0105	-0.0125	-0.0113	0.0199	0.0102	0.0119	-0.0040
	(0.0772)	(0.0834)	(0.0737)	(0.0755)	(0.0779)	(0.0767)	(0.0833)
Sample: Outside the Americas							
C1. All countries outside the Americas	0.2176 ***	0.2191 ***	0.2181 ***	0.2234 ***	0.2293 ***	0.1941 ***	0.1641 **
	(0.0624)	(0.0752)	(0.0624)	(0.0625)	(0.0801)	(0.0557)	(0.0673)
C2. Europe	0.1031	0.0943	0.0852	0.1070	0.1043	0.1052	0.0666
	(0.0745)	(0.1011)	(0.0732)	(0.0739)	(0.0751)	(0.0775)	(0.1059)
C3. Asia	0.2705 ***	0.2601 ***	0.2630 ***	0.2709 ***	0.2704 ***	0.2331 ***	0.1979 **
	(0.0700)	(0.0874)	(0.0710)	(0.0734)	(0.0699)	(0.0620)	(0.0748)
	Panel B: Effect on Child's Dropout Status, Children Aged 16-17						
Sample: All countries	-0.0460 ***	-0.0531 **	-0.0452 ***	-0.0463 ***	-0.0451 ***	-0.0404 **	-0.0462
	(0.0138)	(0.0209)	(0.0142)	(0.0139)	(0.0148)	(0.0187)	(0.0287)
Sample: The Americas							
B1. All countries in the Americas	-0.0444 ***	-0.0483 **	-0.0438 ***	-0.0447 ***	-0.0435 ***	-0.0382 **	-0.0416
	(0.0117)	(0.0189)	(0.0123)	(0.0118)	(0.0126)	(0.0159)	(0.0257)
B2. Mexico	-0.0428 ***	-0.0494 ***	-0.0424 ***	-0.0426 ***	-0.0419 ***	-0.0449 ***	-0.0504 **
	(0.0089)	(0.0125)	(0.0091)	(0.0091)	(0.0096)	(0.0121)	(0.0192)
B3. Caribbean	-0.0330	-0.0259	-0.0311	-0.0327	-0.0335	-0.0177	-0.0083
	(0.0228)	(0.0289)	(0.0227)	(0.0221)	(0.0234)	(0.0258)	(0.0308)
B4. Central America	-0.0860	-0.1082	-0.0908	-0.0903	-0.0849	-0.0598	-0.0515
	(0.0625)	(0.0996)	(0.0639)	(0.0640)	(0.0624)	(0.0775)	(0.1465)
B5. South America	-0.0778 **	-0.1174 *	-0.0776 **	-0.0766 *	-0.0778 **	-0.0116	-0.0019
	(0.0367)	(0.0651)	(0.0365)	(0.0386)	(0.0378)	(0.0495)	(0.0605)
Sample: Outside the Americas							
C1. All countries outside the Americas	-0.0452	-0.0707	-0.0481	-0.0438	-0.0454	-0.0354	-0.0518
	(0.0425)	(0.0576)	(0.0422)	(0.0432)	(0.0443)	(0.0664)	(0.0960)
C2. Europe	-0.0561	-0.0778	-0.0568	-0.0545	-0.0538	-0.0451	-0.0524
	(0.0622)	(0.0923)	(0.0629)	(0.0627)	(0.0623)	(0.0701)	(0.1084)
C3. Asia	-0.0404	-0.0798	-0.0433	-0.0381	-0.0432	0.0375	0.0054
	(0.0494)	(0.0617)	(0.0482)	(0.0486)	(0.0508)	(0.0693)	(0.0840)

Notes: See notes for Tables 3 and 8. The region Africa and Oceania has been excluded because there is not a significant first stage.
It must be emphasized that the same children with parents from an English-dominant country are being used as controls in every row.