Published in final edited form as:

J Marriage Fam. 2016 February ; 78(1): 75–90. doi:10.1111/jomf.12268.

Adoption, Foreign-Born Status, and Children's Progress in School

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Abstract

Using recent data from the American Community Survey, the author investigated how the dynamics of immigration influence our understanding of the adoption–schooling relationship. The results suggest that implications of immigrant and adoption statuses could be understood within specific familial contexts. Thus, no statistical differences were found in the outcomes of foreign-born adoptees in U.S. native families and their peers with immigrant parents. Instead, the most favorable patterns of schooling progress were found among U.S.-born adoptees living in immigrant families. Among immigrants, the analysis indicated similar patterns of achievement among Hispanic and White adoptees that are inconsistent with the predictions of segmented assimilation theory. However, there was a Hispanic disadvantage relative to Whites among immigrant children living with biological and stepparents. The article concludes with a discussion of the implications of these findings for kinship selection and assimilation processes and the contention that alternative theoretical frameworks should be used to understand the implications of adoption status.

Keywords

adoption; adoptive families; education; immigrants

At no time in U.S. history have we witnessed the types of transformations now occurring in adoptive families. The unprecedented growth in the size of the adoptee population is indisputable (Selman, 2009; Stolley, 1993). In the second half of the 20th century, the number of adoptees increased from about 50,000 in the mid-1940s to more than 110,000 in 1990 (Stolley, 1993). Along with other transformations in children's living arrangements, these changes have attracted significant attention in the literature. New studies on the health, social, and psychological outcomes of adopted children have provided a useful portrait of how well they adapt to life in their new families (L. Hamilton, Cheng, & Powell, 2007; Hellerstedt et al., 2008). However, despite this increasing body of work, lingering questions remain concerning whether adopted children have similar levels of socioeconomic attainment as their peers who live with biological parents (Rueter & Koerner, 2008; Van Londen, Juffer, & van IJendoorn, 2007).

In this study I used data from the American Community Survey (ACS; <https://www.census.gov/programs-surveys/acs/>) to provide a nuanced perspective on the relationship between adoption and child well-being. I focused on disparities in schooling

progress, conditional on adoption status, and paid attention to three specific issues. First, I investigated whether the relationship between adoption status and schooling progress differs among foreign-born and U.S.-born children. Second, I examined whether foreign-born adoptees are more likely to lag behind in school compared to U.S.-born adoptees. Third and finally, I examined whether adoption status results in differentiated patterns of educational incorporation among immigrant children. In the process, I examined whether these variations are associated with differences in racial and ethnic characteristics.

Background

Research on adoption status, which often takes one of two perspectives, generally yields contrasting findings on its implications for the well-being of children. The first perspective indicates that adopted children experience significant social and developmental disadvantages compared to their non-adopted peers. These disadvantages are typically explained using insights from *kinship selection theory* and its prediction of a positive relationship between parental investment in children and degrees of biological relatedness (Gibson, 2009; W. D. Hamilton, 1964). According to this perspective, disparities in child well-being are interpreted as resulting from the fact that parents invest *less* in the well-being of nonbiological children, such as adoptees and foster children, than they do in their biological kin (Gibson, 2009; W. D. Hamilton, 1964). Support for this hypothesis has been found across several disciplines. In the health literature, for example, adoptees have been found to have worse health outcomes compared to non-adoptees (Miller, Fan, Christensen, Grotevant, & Van Dulmen, 2000). A similar pattern of adoptee disadvantage underlies much of the findings reported in the educational literature. Accordingly, adopted children have been found to have lower levels of achievement, more problems in school, and less positive feelings about school compared to other children (Miller, Fan, Grotevant, et al., 2000; Plug & Vijverberg, 2003; Raleigh & Kao, 2013).

A second perspective on the implications of adoption status suggests that adoptees do not experience systematic socioeconomic disadvantages compared to other children (e.g., Borders, Black, & Pasley, 1998; Van Londen et al., 2007). Proponents of this perspective argue that parents deliberately act to mitigate biases in their investment in children by adopting a range of compensatory behaviors that can help to eliminate disparities among children (L. Hamilton et al., 2007). Indeed, several studies have provided evidence showing that adoption status does not necessarily result in negative implications for children. For example, in their sociological analysis of the implications of adoption, L. Hamilton and colleagues (2007) found that adopted children in two-parent families were more likely to have higher levels of parental investment in their schooling than children in other types of families. Psychologists further reported that there are no differences in IQ and self-esteem between adoptees and non-adoptees and that, in some cases, adoptees have more favorable indicators compared to their non-adopted siblings (Juffer & van IJzendoorn, 2007). Yet the available psychological evidence is not conclusive. Other psychologists have provided mixed evidence indicating that adoptees have lower levels of functioning in some measures of adjustment and higher levels in others (Sharma, McGue, & Benson, 1998).

Recent increases in international adoptions by U.S. parents introduce even more uncertainty into our understanding of the implications of adoption. In the past four decades, the United States has emerged as the leading destination for children adopted from foreign countries (Selman, 2012). However, few studies have assessed the educational incorporation of foreign-born adoptees, although an increasing number of studies have been examining their health outcomes (e.g., Fischer et al., 2008; Hostetter et al., 1991). In contrast to the limited research on the education of foreign-born adoptees, the general literature on the educational outcomes of the foreign born is extensive. This body of work indicates, among other things, that foreign-born children face significant challenges to success in school. These challenges include low levels of English proficiency (Gandara & Rumberger, 2009), the disadvantage of racial and ethnic minority status (Kao & Tienda, 1995), and challenges associated with variations in their age at arrival in the United States (Gonzalez, 2003).

The existing research has not systematically examined whether these factors mediate the educational incorporation of immigrant adoptees. However, as foreign-born children, they are likely to face some of these challenges, and this could result in achievement gaps between immigrant and U.S.-born adoptees. Furthermore, the high degree of racial diversity among foreign-born adoptees (Kreider, 2003; Kreider & Lofquist, 2010) raises other important questions. Although an extensive body of research has examined transracial adoptions (Hansen & Simon, 2005; Lee, 2003) very little is known about how racial minority status could constrain the educational attainment of foreign-born adoptees. *Segmented assimilation theory*, for example, would predict that racial/ethnic minority status will result in particularly adverse consequences for the educational achievement of immigrant adoptees from racial minority groups compared to that of their White peers (Portes & Zhou, 1993).

In summary, despite progress in research on adoption status in the United States, recent increases in foreign-born adoptions raise a number of questions concerning what we know about the implications of adoption status for children's schooling. One of these is the question of whether schooling disparities between adoptees and non-adoptees differ among immigrant and U.S.-born children. Another is the question of whether foreign-born adoptees face unique challenges to schooling that would constrain their educational achievement relative to that of their U.S.-born peers. Finally, the dynamics of foreign-born adoption raise new questions about the robustness of the educational incorporation patterns found among foreign-born children in previous research. Altogether, these questions point to a need for new studies to examine the relationship among immigration, adoption status, and children's schooling.

The Current Study

The current study extends the existing literature in at least two important ways. First, I argue that the incorporation of immigration processes into research on adoption can result in a more nuanced understanding of the implications of adoption status. Second, I suggest that when immigration status is considered, the question of whether there is an adoption disadvantage is less debatable, at least with regard to children's progress in school. I pursued these arguments by testing four hypotheses.

Hypothesis 1: Adopted children have a schooling disadvantage compared to their biological peers, but this disadvantage is smaller among immigrants than among U.S. natives.

Immigrants are expected to have smaller disparities in schooling progress than natives, for several reasons. Given the large number of foreign-born adoptees in U.S.-born families (Gunnar & Van Dulmen, 2007), *compensation theory* will point to increased forms of compensatory behavior among foreign-born adoptees that will mitigate the foreign-born adoption disadvantage relative to their biological peers. On the other hand, kinship selection theory suggests that, as a result of differences in biological relatedness, adopted children will be disadvantaged relative to biological children. To fully test this claim, I compared biological children not only with adoptees but also with children who have other nonbiological relationships with parents (e.g., foster children). My second and third hypotheses examined the specific influence of immigrant status on achievement among adoptees.

Hypothesis 2: Adopted children with immigrant parents are more likely to fall behind in school compared to their peers with U.S.-born parents.

Hypothesis 3: Foreign-born adoptees have less favorable schooling outcomes compared to adoptees born in the United States.

Although a significant number of foreign-born adoptees have U.S.-born parents (Ishizawa, Kenney, Kubo, & Stevens, 2006), recent ACS data indicate that the parental characteristics of adoptees are more diverse (Sobek et al., 2010). Foreign-born adoptees, for example, are adopted by both foreign-born and U.S.-born parents; likewise, U.S.-born adoptees are also adopted by both types of parents. In most cases, immigrant and U.S.-born parents also have their own biological children as well as adopted children within the same family. In addition, as shown in the subsequent analysis, immigrant and U.S.-born parents sometimes have foster children and children with other relationships living in the same household. Immigrant and U.S.-born families with adoptees are likely to be characterized by different levels of selectivity. For example, U.S.-born parents adopting foreign children are possibly likely to have higher levels of socioeconomic status (SES) than their peers who adopt only U.S.-born children. The likely patterns of selection among adoptees with foreign-born parents are unclear. One possibility is that these parents could have low levels of SES if they adopted their children before coming to the United States, whereas those who adopt foreign-born kids after they arrive may have higher levels of SES.

Adoptees with immigrant parents are, however, likely to face a number of unique, schooling-related barriers, such as the lack of interpreters in U.S. schools that could facilitate parental communication with teachers (Ramirez, 2003). Furthermore, foreign-born adoptees are expected to experience a double disadvantage stemming from both adoption status and immigrant status that will contribute to low levels of achievement relative to the outcomes of U.S.-born adoptees. This led me to my fourth hypothesis:

Hypothesis 4: As generational status increases, the expected gains in schooling will be lower among immigrant adoptees from racial minority groups relative to their White peers. The dynamics of educational incorporation among foreign-born

adoptees are thus expected to be circumscribed by race. Black immigrant adoptees, in particular, are expected to experience the least gains to schooling given the fact that Black students face significant barriers of prejudice and discrimination in the U.S. educational system (Farkas, 2003).

Data and Method

Many existing studies on adopted children have been criticized on the grounds that they are based on convenience samples, and a considerably large number of them are based on relatively small numbers of observations (Brodzinsky, 1993; Shiao & Tuan, 2008). In this study I avoided these limitations by using data from the ACS, available in the Integrated Public Use Microdata Series (Sobek et al., 2010). The pooled sample of ACS data for the years 2008–2012 in particular provides information on the relationship between household heads and all individuals living within their households. It is thus possible to identify adopted children and children with other types of relationships with their household heads. Using household relationship codes in the data, I focused my analysis on five specific groups of children: (a) adoptees, (b) biological children, (c) foster children, (d) stepchildren, and (e) a residual category of children with other relationships with their household heads.

Educational measures in the ACS are used to create the study's key outcome of interest—low grade for age—which is a proxy measure of grade retention, and thus schooling progress, among currently enrolled children between ages 10 and 17. Other scholars have used similar measures, including delayed schooling progress, to examine educational achievement among adolescents (Thomas, 2009). Theoretically, the utility of these measures lies in their ability to predict subsequent test scores, schooling dropout, and poor labor force outcomes (Alexander, Entwisle, & Horsey, 1997; Dauber, Alexander, & Entwisle, 1996; Jimerson, 1999). Although previous research on the well-being of adopted children mostly focuses on socioemotional outcomes, ACS data impose significant constraints to the examination of similar outcomes in this study. Moreover, in the analysis of schooling outcomes, the present study was limited to the use of explicit and proxy measures of educational attainment found in the ACS.

To create the measure of grade for age, I exploited the availability of data on the grades of currently enrolled students now available in single years in the ACS. To be specific, the proxy measure of grade retention, low grade for age, is measured as a dummy variable equal to 1 if children's current age minus their current grade is > 6 and equal to 0 if the difference is ≤ 6 . Eleven-year-olds enrolled in the fifth grade are thus assumed to be making adequate progress in school and coded as 0, whereas their age counterparts enrolled in the fourth grade assumed to have experienced retention and are coded as 1. Additional tests using a cutpoint of 7 showed patterns remarkably similar to those estimated when using a cutpoint of 6. In general, however, such measures capture delays in children's schooling progress due to either grade retention or delayed schooling entry, although a strong positive relationship has been found to exist between grade retention and high grade for age among children in data from the Current Population Survey.

In the ACS, information on country of birth is used to distinguish the foreign born from U.S. natives; thus, U.S.-born and foreign-born adoptees are defined as adopted children born in

the United States and in other countries, respectively. Foreign-born children are further distinguished into three generational cohorts using information on their age at arrival (Rumbaut, 2004). Children in the *1.75 generation* are defined as those who arrived between ages 0 and 5, *1.5 generation* children are defined as their peers who arrived between ages 6 and 12, and *1.25 generation* children are defined as foreign-born children who arrived in United States between ages 13 and 17. In addition, English proficiency is measured as an ordinal variable that ranks immigrants' ability to speak English as follows: 0 = not at all, 1 = not well, 2 = well, 3 = very well, and 4 = only English.

I examined the relationship among adoption, foreign-born status, and low grade for age using multiple regression models. I chose this process to account for the nested structure of the data because all children in the sample are located within households. The basic estimation strategy can be described as follows:

$$\text{logit}(\pi_{ij}) = \beta_0 + \beta_1 X_{ij} + \beta_2 F_j + \mu_j + \varepsilon_{ij},$$

where π_{ij} is the implied probability of experiencing grade retention for each child i in household j . This outcome is predicted by X_{ij} and F_j , which respectively capture child- (e.g., adoption status) and household-level (e.g., household income) indicators, and μ_j , a measure of other household-level influences that are unobserved. The models are thus able to account for unmeasured household-level characteristics, such as differences in parenting styles, that could potentially affect schooling progress but are unobserved. The final term in the model is an error term, ε_{ij} , which is assumed to be logistically distributed. In estimating the regression models, I therefore used logistic regression with household-level random effects. These models were estimated using Stata 13. As I discuss later, the main findings from the analysis largely prevailed during robustness tests accounting for the possible role of selection into the parent–adoptee relationship.

Results

Differences in the profiles of the five groups included in the sample are summarized in Table 1. In general, children who lacked close biological relationships with their parents were particularly likely to come from racial minority groups. Children in foster care and their peers with “other” relationships (e.g., niece, grandchild) were disproportionately Black and Hispanic and less likely to be White compared to children living with their biological parents. Adopted children were also somewhat racially diverse and included comparatively higher percentages of Asians and Blacks compared to either biological or stepchildren. Several distinctive demographic characteristics also were observed among adoptees. Of the five adolescent groups, they had the highest percentage of females and also were distinguished in terms of their immigration status. In part as a result of the increase in foreign-born adoptions in recent decades, immigrants were highly overrepresented among adopted adolescents. Moreover, foreign-born adoptees were distinct from all their foreign-born peers by the fact that they arrived in the United States much earlier in childhood—approximately 2 years younger than biological children—and had the highest scores on the ordinal measure of English proficiency.

Important variations were found in the household characteristics of adolescents. With the exception of stepchildren, for example, most nonbiological children lived in households where they were less likely to compete for resources with biological children. Despite these overall differences in coresidence patterns, however, there were modest variations in sibship sizes across groups. As a consequence, even though sibship size is negatively associated with parental investments in children (Downey, 1995), the results suggest that, across families, variations in these effects are likely to be small. More important variations were found in adolescent residential instability, measured by whether children had lived in the same residence for at least a year. Except among adopted children, residential instability was very high among children with nonbiological relationships with their parents. Foster children in particular had the highest levels of residential instability, suggesting that they are most vulnerable to the adverse effects of residential changes on educational attainment (Aldgate, Colton, Ghate, & Heath, 1992).

Beyond these differences, there were clear disparities in the availability of parental and familial socioeconomic resources across groups. For example, the most notable socioeconomic advantage was found not among biological children but among their adopted peers. The adopted children in this sample thus lived in families with the highest incomes and were the most likely to have parents who graduated from college. Yet these estimates hide substantial variations in the socioeconomic contexts of foreign-born and U.S.-born adoptees. For example, foreign-born adoptees tended to live in households with substantially higher annual incomes (\$131,000) than those of their native peers (\$87,600). In families with foreign adoptees the income differences ranged from a high of \$145,000/\$137,000 for families with children from Europe/Asia, to a low of \$102,000/\$95,000 for those who adopted children from Africa/Central America, respectively.

Foster children, in contrast, were highly concentrated at the bottom of the socioeconomic distribution. As such, they were the most likely to live in households with acute income constraints and had female household heads, and were one of two groups of children most likely to live in single-parent households.

Schooling progress distributions are presented in Table 2 to provide preliminary insights into the schooling disparities that exist among currently enrolled children. For the most part, these estimates are similar to the estimated grade retention rates reported in previous studies (e.g., Warren & Saliba, 2012). As predicted by kin selection theory, there was a substantial association between low grade for age and degrees of relatedness between parents and their children. As shown in Table 2, biological children were the least likely to fall behind in school; in addition, although retention levels increased with age, the relative increases were slower for biological children than for children with weaker relationships with parents. Stepchildren were also less likely to fall behind in school than either adopted, foster, or other children. From the perspective of kinship selection, stepchildren benefit from having biological relationships with at least the spouses of household heads. It is interesting, however, that although foster and adopted children usually come from similar circumstances (i.e., adoption is in many cases preceded by foster care), the former are less likely to experience low grade for age than the latter. Adoptees appear to be better off than their

foster peers, possibly because of the stronger legal obligations undertaken by their parents and the fact that they are more likely to reside in favorable socioeconomic environments.

Multiple Regression Results

Table 3 presents results from a multiple regression analysis that addressed the specific question of whether schooling disparities between biological and nonbiological children are greater among the U.S.-born than among immigrants. Initial findings presented in Models 1 and 3 indicate that the implied retention inequalities earlier observed in Table 2 are robust to whether children were either U.S. or foreign born and to the influence of demographic characteristics. Contrary to expectations, however, the demographically adjusted achievement gap between adopted and biological children was quite similar across nativity status (Models 1 and 3). In other words, controlling only for demographic differences, immigrant adoptees did not have a substantially smaller achievement gap relative to their biological peers compared to the respective gap observed among natives.

When the analysis accounted for the influence of factors such as parental characteristics and SES, however, notable changes in schooling disparities across groups were observed. Among the U.S. born (Model 2), the most important changes include the sizable decrease in the log odds of grade retention among foster children and children with other relationships with their parents. Much of the disadvantage of these children therefore appears to be explained by differences in familial and socioeconomic characteristics. In comparison, Model 4 shows particularly remarkable changes in the achievement gap among immigrant children; specifically, among the foreign born, the disadvantage of adoptees relative to their biological peers increased by more than 50% after these factors are controlled.

Three important implications can be drawn from the results presented in these analyses. First, immigrants do not necessarily have smaller schooling progress disparities between adoptees and biological children compared to U.S. natives. Second, in the absence of the more favorable household socioeconomic circumstances of foreign-born adoptees, their outcomes would have been considerably worse than the outcomes that are typically observed. Third, socioeconomic factors play a more important role in explaining the achievement gap between adopted and biological children among immigrants compared to that observed among natives.

Focusing on only the outcomes of adopted children, Table 4 turns attention to the question of whether there is an achievement gap between foreign-born and U.S.-born adoptees. Particular attention was given to the examination of whether schooling progress disparities were influenced by differences in parental nativity status and thus to the larger question of whether patterns of schooling progress were more favorable among adoptees with U.S.-born parents than among their peers with foreign-born parents. Beginning with children in two-parent families, Model 1 indicates that, after age and sex differences are controlled, foreign-born adoptees were more likely to fall behind in school than their U.S.-born peers, regardless of parental nativity status. I conducted a test for differences in coefficients for both groups, to examine the specific question of whether foreign-born adoptees have more favorable outcomes if they have U.S.-born rather than immigrant parents. The results showed no statistical difference in the log odds of delayed schooling progress of both groups

of foreign-born adoptees in Model 1 ($\chi^2 = 0.18, p = .64$). Instead, within two-parent families, the lowest implied likelihood of retention was observed among U.S.-born adoptees with immigrant parents. Furthermore, additional tests indicated that, among children with immigrant parents, U.S.-born adoptees were less likely to fall behind in school compared to foreign-born adoptees ($\chi^2 = 26.97, p < .05$).

Model 2 further shows that in two-parent families the favorable outcomes of U.S.-born adoptees with immigrant parents disappeared after other factors are controlled. Nevertheless, the disadvantage of foreign-born adoptees persisted regardless of whether they had either immigrant or U.S.-born parents. After testing for differences in the coefficients for both groups of immigrant adoptees in Model 2, the results continued to show that their outcomes were not statistically different ($\chi^2 = 1.59, p = .21$). In fact, the magnitude of the coefficients in Model 2 indicate that the log odds of delayed schooling progress were highest among foreign-born adoptees with U.S.-born parents, after other factors are controlled.

In single-parent families the adolescent schooling disparities were less distinct. For example, Model 3 shows that there were no significant differences between the demographically adjusted outcomes of foreign-born adoptees and their U.S.-born peers with U.S.-born parents (i.e., the reference group). As in two-parent families, however, the lowest log odds of lagging behind in school were found among U.S.-born adoptees with immigrant parents. In single-parent families this comparative advantage did not disappear after other factors are controlled (Model 4). At the same time, foreign-born adoptees with U.S.-born parents were found to have significantly higher levels of delayed schooling progress after other factors were controlled (Model 4). As in two-parent families, therefore, factors such as disparities in socioeconomic influences possibly explain the comparatively less favorable outcomes found among foreign-born adoptees with U.S.-born parents observed when only age and sex differences are controlled (Model 3).

More generally, many of the familial and individual-level determinants included in the analysis were found to have similar influences on adoptees in single-parent and two-parent families. In both contexts, for example, having a parent who graduated from college mitigated the likelihood of lagging behind in school among children. Furthermore, as expected, the implied likelihood of retention increased as sibship size increased, suggesting that the resource dilution effects of sibship size are robust to differences in family structure. Adopted children were also less likely to fall behind in school if they had lived in the same household for at least 1 year. However, having a male household head was positively associated with schooling progress only among adoptees who lived in single-parent families.

The results in Table 5 address the question of whether the schooling progress of immigrant adoptees is influenced by the dynamics of exposure to U.S. society; specifically, the analysis examined, among other things, whether increasing generational status was associated with a reduction in the achievement gap between foreign-born adoptees and their U.S.-born peers. Overall, the collective experience of immigrants was consistent with expectations; regardless of children's relationships with parents, increasing generation status was associated with a reduction in the immigrant disadvantage. Children in the 1.25 generation (i.e., children who arrived in the late teenage years) were thus the most likely to lag behind

in school, whereas their 1.75-generation peers, who arrived before age 6, had substantially more favorable outcomes.

Compared to biological, step-, and other children, however, the implied assimilation patterns of adoptees are distinct in two ways. First, the foreign-born disadvantage relative to the U.S.-born was largest among adoptees. This suggests that increased exposure to U.S. society had the least positive influence on improving retention outcomes among adoptees than among non-adoptees. Second, unlike their biological and other foreign-born peers, adoptees in the 1.75 generation did not experience a convergence in their schooling outcomes with those of their U.S.-born peers. The results of a supplementary analysis that used finer distinctions of age at arrival showed that foreign-born children who arrived before age 1 were the only exception to this phenomenon. Accordingly, they were significantly less likely to fall behind in school compared to children in the reference group. In general, the differences identified by generational status are critical and have several implications. One of these is that because 1.75-generation adopted children arrive in the United States before age 6, their retention disadvantage relative to U.S.-born adoptees cannot be attributed to problems arising from transitions between schools in different countries. More generally, these implications reinforce the notion that the educational assimilation patterns of foreign-born adoptees are considerably less favorable than those of their peers who live with their biological parents.

Further evidence of generational differences in schooling progress is provided by the predicted probabilities presented in Table 6. These probabilities are distinguished by race, among other things, to permit examination of whether the implied assimilation trajectories of immigrant racial minorities differ from that of their White peers. In large part, the overall negative association between delayed schooling progress and generational status was found across all racial groups. However, despite the consistent patterns of convergence between the probabilities of 1.75-generation children and their U.S.-born peers among biological children, the respective racial patterns found among adoptees are different. As predicted by segmented assimilation theory, the least convergence among adoptees was found among Blacks. Indeed, although 1.75-generation Black children who lived with their biological parents had retention probabilities that were roughly similar to those of U.S.-born children in U.S.-born families, a similar pattern was not observed among Black immigrant adoptees. Furthermore, the data in Table 6 indicate that Hispanic and White foreign-born adoptees had quite similar probabilities of retention beyond the 1.25 generation. However, these parallels are inconsistent with the predications of segmented assimilation theory and the racial patterns found in other groups of children. More consistent with the theory is the Hispanic disadvantage relative to Whites observed among biological and stepchildren. Among these groups the Hispanic disadvantage was more consistent across immigrant generations.

Predicted probabilities of delayed schooling progress further differed by region of origin and level of family income. Overall, the estimates suggest that the collective foreign-born adoptee disadvantage is driven by the outcomes of children from Africa and Central America. Indeed, adopted and foster children from these regions had particularly high probabilities of having a low grade for their age. In contrast, the lowest probability of delayed progress among adoptees was found among children from Asia, reflecting a largely

consistent pattern of higher levels of achievement among children from Asia in all five groups. The data in Table 6 further suggest that children from Europe largely had low probabilities of retention than non-Asian children, but only when they had some biological relationship with their parents (i.e., among biological and stepchildren). In terms of family income, the results showed the expected decreases in schooling disparities as family income increased. In relative terms, however, these income-related decreases were much stronger among biological and stepchildren than among their peers with nonbiological relationships with their parents.

Discussion

Conflicting conclusions about the relationship between adoption status and child well-being reflect a critical need for studies that provide nuanced perspectives on the implications of adoption status. As global trends in international adoption increase (Selman, 2012), new opportunities have for incorporating the dynamics of immigration processes into research on adoptive families have arisen. With the recent availability of data on adoption in the ACS it is now possible to test new hypotheses concerning how the intersection of immigration status and children's relationships with their parents improves our understanding of the determinants of adolescent well-being. Using these data, this analysis contributes to the literature by clarifying the relationship between adoption status and educational achievement. Its main findings are clear: The dual influences of immigration status and adoption status must be understood within specific familial contexts and in light of assimilation processes. Furthermore, at least in terms of schooling progress, foreign-born status contributes to more systematic patterns of disadvantage among adopted adolescents relative to either their U.S.-born peers or biological immigrant children.

At first glance, these findings appear to be consistent with the core predictions of kin selection theory. In other words, there is a strong association between the inequalities in schooling progress observed among children and degrees of relatedness between children and parents. As predicted by the theory, biological children consistently outperformed their adopted peers, with stepchildren also having higher levels of achievement compared to adoptees. Moreover, although adopted children were most likely to live in favorable familial socioeconomic contexts, these favorable outcomes do not completely offset the disadvantage associated with adoption status. This does not suggest that access to more favorable familial socioeconomic environments does not improve the schooling outcomes of adoptees. On the contrary, the results show that the achievement gap between adoptees and their biological peers would have been higher had it not been for the more favorable familial socioeconomic indicators of the former (see Table 3).

A key question arising from these findings is the extent to which they are affected by unobserved characteristics that could drive selectivity into the parent–adoptee relationship. I therefore conducted several sensitivity tests to examine these effects. The results (available on request) suggest that selection affected schooling differences under a specific set of circumstances. Based on state-level adoption rates and transnational adoptions to instrument adoption status, the results showed that selectivity explained only why foreign-born

adoptees with U.S.-born parents fell further behind in school compared to U.S.-born adoptees among children in two-parent families.

In terms of specific findings, the results reported in the analysis partially support the Hypothesis 1, which addressed schooling differences between adoptees and biological children; specifically, they demonstrate that adopted children are more disadvantaged compared to their biological peers; nevertheless, they also suggest that the adoptee disadvantage is larger among immigrants than among U.S. natives.

Despite the significance of kin selection explanations, however, they are unlikely to explain these broad achievement disparities. Given the fact that the analysis accounted for unobserved heterogeneity across households, these gaps are unlikely to be explained by unmeasured factors, such as household-level differences in parenting styles. In light of the persistence of the adoption disadvantage even after accounting for coresidence with biological children, the findings further suggest that the adverse implications of adoption status are robust to whether or not adoptees compete for resources with biological children within households. For these reasons, additional explanatory frameworks must be used to fully explain the persistent disadvantage of adoptees, although alternative frameworks have rarely been discussed in previous studies. Among the most logical options is the possibility that the adverse implications of adoption status are driven by the equally compelling influence of the long-term consequences of early life events. These implications are particularly concerning for the foreign born. Adopted children, especially immigrant adoptees, typically originate from contexts in which they were significantly exposed to traumatic experiences. As a result, many of them had prior exposure to abuse, and/or to the consequences of war, or had resided in institutions that have had negative long-term influences on their development (Ortiz & Briggs, 2003).

Weathering processes therefore provide a complementary framework that is useful for explaining the adoptee schooling disadvantage. Although these processes have been extensively articulated in research on health (Geronimus, 1996), they also have significant import for analyses of the implications of adoption. For adopted children, the weathering effects of early childhood experiences are thus likely to negatively influence cognitive and emotional development and have long-term consequences for their attainment. Given the similarities in early life circumstances of adoptees and foster children (U.S. Department of Health and Human Services, 2011), weathering process may also be useful for understanding the achievement patterns of foster children. Biological children, in contrast, are largely shielded from these experiences given their more consistent residence with their biological parents. As a result, the comparatively higher levels of achievement of biological children do not necessarily result solely from parental investments differentiated by degrees of relatedness; instead, their schooling advantage may also be explained by their more limited exposure to the cumulative effects of traumatic childhood events.

At the same time, the analysis indicates that comparisons between adopted children with immigrant parents and their peers with U.S.-born parents (Hypothesis 2) must also be understood from the perspective of family structure differences. In two-parent families, for example, the implied retention outcomes of foreign-children adoptees were not statistically

different if they had immigrant parents compared to only U.S.-born parents. These findings do not imply that there are no improvements in the welfare of foreign-born adoptees associated with their residence in U.S.-born families. As previous studies have indicated, U.S.-born families provide critical social and cultural resources for their adopted foreign-born children that help ease their transition into U.S. social life (Rosnati & Ferrari, 2014). In single-parent families, however, the results suggest that foreign-born children adopted by U.S.-born parents are less likely to fall behind in school compared to their peers who have immigrant parents. More consistent support is provided for the hypothesized educational differences between foreign-born and U.S.-born adoptees (Hypothesis 3). In particular, the results show that, in terms of schooling progress, the former are more likely to be disadvantaged compared to the latter.

It is nevertheless true that, as they become more exposed to U.S. society, foreign-born adoptees experience less favorable educational outcomes than their foreign-born peers with biological parents. Mixed evidence is nevertheless provided for Hypothesis 4, which addressed the significance of race for the educational incorporation of foreign-born adoptees. In line with segmented assimilation theory, Black immigrant adoptees experienced the least implied gains to schooling as generational status increases. In contrast, there were unexpected similarities in the trajectories of White and Hispanic immigrant adoptees that suggest the implications of minority status for the educational incorporation of adoptees may not be so clear. Part of the disadvantage among foreign-born White adoptees appears to stem from the fact that they mainly originated from Russia and other former Soviet states (58%). As several scholars have shown, the high rates of preadoptive institutionalization among children from these regions have particularly adverse implications for their psychological and emotional postadoption outcomes (e.g., Gartstein, Slobodskaya, & Kinsht, 2003).

The overall findings are clearly constrained by a number of limitations in the analysis. Like most previous studies, the absence of information on the preadoption circumstances of children limits our ability to identify more definitive causal processes that explain the inequalities reported in the analysis. The lack of information on whether children were adopted through kinship and post-foster adoptions limits our ability to understand the ways in which these processes mediate the reported disparities. Furthermore, despite the availability of a large sample of adopted children in the ACS, it lacked information on key measures, such as other types of parental investments (e.g., in health) that could be relevant to the schooling progress of children. In the best of circumstances, studies of the implications of adoption status should take a longer term perspective on their development and examine, for example, how schooling differences in adolescence affect socioeconomic attainment later in life. In many ways, this study's findings should be considered tentative. Declines in the surge in international adoptions to the United States, and the increasing representation of special-needs children among adoptees, could have important ramifications for the future of the relationship between adoption status and child well-being.

Acknowledgments

I would like to acknowledge support for this project from Grant HD041025 from the National Institutes of Health to the Population Research Institute of the Pennsylvania State University.

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Table 1
The Demographic, Social, and Household Characteristics of Children Between Ages 10 and 17

Characteristics of children and their households	Biological	Step	Adopted	Foster	Other
Race					
Black	10.5	9.7 ^a	14.2 ^a	23.3 ^a	22.6 ^a
Hispanic	18.4	17.5 ^a	15.7 ^a	19.9 ^a	22.8 ^a
Asian	4.4	2.0 ^a	8.7 ^a	1.9 ^a	3.9 ^a
Other	4.3	4.6 ^a	6.7 ^a	8.1 ^a	6.5 ^a
White	62.5	66.2 ^a	54.7 ^a	44.7 ^a	44.1 ^a
Age	13.5	13.8 ^a	13.5	13.8 ^a	13.5 ^a
Male	51.5	50.5 ^a	47.4 ^a	51.4	50.9 ^a
Foreign born (%)	5.2	6.1 ^a	17.8 ^a	5.1	7.1 ^a
Characteristics of foreign-born children					
Age at arrival	5.41	7.2 ^a	2.87 ^a	7.54 ^a	7.9 ^a
English proficiency	2.92	2.84 ^a	3.71 ^a	2.76 ^a	2.64 ^a
Biological children within residence		57.2 ^b	32.8	31.2 ^b	18.3 ^a
Lived in same residence over the past year	91	85.6 ^a	91.8 ^a	67.4 ^a	82.0 ^a
Characteristics of households					
Single-parent households	28.6	13.8 ^a	25.1 ^a	40.7 ^a	59.2 ^a
Male household heads	52.1	80.6 ^a	60.2 ^a	44.8 ^a	44.4 ^a
Sibship size	2.48	2.70 ^a	2.52 ^a	3.21 ^a	2.45 ^a
Has college-educated parent	39	30.4 ^a	45.3 ^a	23.2 ^a	14.5 ^a
Family income (USD)	88,640	83,700 ^a	95,400 ^a	570 ^a	56,900 ^a
N	1,287,856	77,684	41,189	4,908	139,501

Note. Table values are based on data from the American Community Survey, 2008–2012.

^a $p < .05$ compared to biological children.

$p < .05$ compared to adopted children.

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Table 2
Grade Retention Estimates for Biological, Step-, Adopted, Foster, and Other Children

Age group	Biological	Step	Adopted	Foster	Other
10–11	4.46	5.74 ^a	7.74 ^a	14.02 ^a	9.67 ^a
12–13	4.79	6.42	8.89 ^a	14.50 ^a	10.0 ^a
14–15	5.34	7.55 ^a	9.78 ^a	16.02 ^a	10.66 ^a
16–17	6.65	9.02 ^a	11.85 ^a	19.78 ^a	13.45 ^a
All	5.31	7.69 ^a	9.57 ^a	16.38 ^a	10.98 ^a

^a $p < .05$ compared to biological children.

Table 3

Regression Estimates of the Predictors of the Log Odds of Retention Among U.S.-Born and Immigrant Children

Predictor	U.S.-born children		Immigrant children	
	Model 1	Model 2	Model 3	Model 4
Child relationships (ref.: biological children)				
Other children	1.010***	0.637***	0.702***	0.248***
Foster children	1.606***	0.218**	1.445***	1.000***
Adopted children	0.740***	0.747***	0.726***	1.600***
Stepchildren	0.385***	0.347***	0.537***	0.404***
Age	0.088***	0.101***	0.137***	0.084***
Male	0.533***	0.545***	0.301***	0.293***
Child race (ref.: White)				
Black		0.184***		0.257
Hispanic		−0.033		0.503
Asian		−0.295***		−0.195*
Other		−0.056*		0.053
Age at arrival				0.093***
English proficiency				−0.245***
Household head race (ref.: White)				
Black		0.258***		0.212
Hispanic		0.120***		0.293**
Asian		−0.045***		−0.023
Other		0.289***		0.086
Single-parent family		0.175***		0.301***
Married household heads		−0.053		0.080
Parents with at least a bachelor's degree		−0.776***		−0.599***
Male household heads		−0.053***		−0.006
Lived in the same household 1 year ago		−0.284***		0.130**
Log of household income		−0.104***		−0.006
Sibship size		0.216***		0.198***
Constant	−5.561***	−4.627***	−5.710***	−5.438***
Log likelihood	−315,540	−305,082	−25,089	−2,3961
ρ	.477	.443	.483	.454
N	1,462,012	1,462,012	89,126	89,216

Note. ref. = reference category.

* $p < .05$.

**
 $p < .01.$

 $p < .001.$

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Table 4

Regression Estimates of the Predictors of the Log Odds of Retention Among Adopted Children in Two-Parent and Single-Parent Households

Characteristics of children and their households	Two-parent families		Single-parent families	
	Model 1	Model 2	Model 3	Model 4
Adoption status/parental nativity (ref.: U.S.-born adoptees with U.S.-born parents)				
Foreign adoptees with immigrant parents	0.547***	0.919***	0.131	0.257
Foreign adoptees with U.S.-born parents	0.493***	1.105***	-0.016	0.670***
U.S.-born adoptees with immigrant parents	-0.219*	-0.119	-0.468*	-0.453*
Age	0.085***	0.097***	0.156***	0.163***
Male	0.334***	0.291***	0.532***	0.540***
Child race (ref.: White)				
Black		0.168		0.060
Hispanic		-0.239*		-0.207
Asian		-0.998***		-1.032***
Other		-0.134		-0.477*
English proficiency		-0.132		-0.184
Household head race (ref.: White)				
Black		0.096		0.040
Hispanic		-0.160		0.031
Asian		-0.095		-0.206
Other		0.056		0.390
Parents with at least a bachelor's degree		-0.193***		-0.255*
Male household heads		-0.080		-0.259*
Log of household income		-0.193*		-0.048*
Sibship size		0.284***		0.172***
Biological child living within household		-0.294***		-0.065
Lived in the same household 1 year ago		-0.465***		-0.319**
Constant	-4.839***	-2.288***	-5.316***	-4.191***
Log likelihood	-9,223	-8,989	-3,363	-3,306
ρ	.509	.491	.410	.407
N	30,866	30,866	10,323	10,323

Note. For both foreign-born and U.S.-born adoptee children with immigrant parents are defined with children with at least one immigrant parent. ref. = reference category.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 5

Regression Estimates of the Predictors of the Log Odds of Retention Among Immigrants and the U.S. Born Among Biological, Step-, Adopted, Foster, and Other Children

Characteristics of children and their households	Biological	Step	Adoptees	Foster	Other
Adoption/Generational status (ref: US born children with US-born parents)					
Foreign-born children					
1.25 generation	0.947***	1.030***	2.171***	1.337**	0.074
1.5 generation	0.464***	0.695***	2.044***	0.138	0.087
1.75 generation	-0.210***	-0.182	0.391***	-0.569	-0.314***
U.S.-born children with immigrant parents	-0.295***	-0.065	-0.089	-0.154	-0.263***
Age	0.104***	0.123***	0.103***	0.123***	0.090***
Male	0.558***	0.567***	0.360***	0.240*	0.443***
Child race (ref.: White)					
Black	0.207***	0.308**	0.131	-0.147	0.115
Hispanic	-0.041	-0.007	-0.127	-0.099	-0.031
Asian	-0.023	0.092	-0.720***	-0.403	-0.277*
Other	-0.021	-0.039	-0.183	-0.260	-0.136*
English proficiency	-0.094***	-0.058	0.122*	-0.145	-0.114***
Household head race (ref.: White)					
Black	0.274***	0.113	0.054	0.535**	0.235**
Hispanic	0.248***	0.151*	-0.147	-0.091	0.114
Asian	-0.418***	-0.138	-0.515*	-0.986	-0.095
Other	0.277***	0.313**	0.164	-0.330	0.278***
Single-parent households	0.245***	0.163**	0.064	-0.062	0.015
Parents with at least a bachelor's degree	-0.796***	-0.726***	-0.230***	-0.334**	-0.525***
Log of household income	-0.132***	-0.184***	-0.099***	-0.060**	-0.022***
Sibship size	0.229***	0.163**	0.219***	0.105***	0.190***

Characteristics of children and their households	Biological	Step	Adoptees	Foster	Other
Lived in the same household 1 year ago	−0.310***	−0.227***	−0.349***	−0.162	−0.024
Constant	−4.152***	−3.494***	−4.464***	−3.320***	−4.095***
Log likelihood	−248,293	−19,314	−12,239	−2,112	−46,627.
ρ	.461	.466	.470	.301	.401
N	1,287,856	77,684	41,189	4,908	139,501

Note. ref. = reference category.

- * $p < .05$.
- ** $p < .01$.
- *** $p < .001$.

Table 6
Predicted Probabilities of Retention, by Race, Region of Origin, and Family Income

Characteristics of children and their households	Adopted	Biological	Foster	Step	Other
Blacks					
1.25 generation	.347	.116	.501	.133	.104
1.5 generation	.268	.056	.154	.932	.086
1.75 generation	.060	.023	.071	.028	.054
U.S. born—immigrant parents	.036	.018	.105	.028	.051
U.S. born—only U.S. parents	.048	.032	.131	.037	.069
Hispanic					
1.25 generation	.213	.094	.478	.108	.101
1.5 generation	.187	.048	.142	.061	.084
1.75 generation	.034	.023	.073	.027	.053
U.S. born—Immigrant parents	.026	.020	.094	.029	.053
U.S. born—Only U.S. parents	.029	.021	.103	.028	.055
Asian					
1.25 generation	.115	.039	.289	.073	.054
1.5 generation	.081	.015	.063	.035	.043
1.75 generation	.015	.006	.022	.014	.026
U.S. born—Immigrant parents	.009	.006	.027	.018	.027
U.S. born—Only U.S. parents	.010	.006	.036	.021	.030
White					
1.25 generation	.251	.051	.388	.062	.070
1.5 generation	.193	.023	.113	.035	.061
1.75 generation	.037	.010	.064	.015	.036
U.S. born—Immigrant parents	.028	.010	.101	.017	.036
U.S. born—Only U.S. parents	.033	.013	.108	.021	.047
Other race					
1.25 generation	.222	.072		.092	.072

Characteristics of children and their households	Adopted	Biological	Foster	Step	Other
1.5 generation	.167	.029	.123	.045	.063
1.75 generation	.031	.012	.015	.018	.038
U.S. born—immigrant parents	.023	.008	.050	.017	.033
U.S. born—only U.S. parents	.031	.017	.918	.024	.050
Region of origin					
Africa	.167	.036	.162	.056	.082
Asia	.020	.012	.074	.032	.042
Central America	.064	.035	.144	.052	.073
Europe	.052	.014	.129	.024	.054
South America	.052	.021	.083	.036	.060
Other	.058	.011	.101	.029	.048
Family income					
Below \$15,000	.087	.049	.165	.082	.069
\$15,000–\$44,999	.064	.029		.053	.064
\$45,000–\$59,999	.043	.022		.044	.061
\$60,000 and above	.033	.012	.089	.028	.053

Note. For each group, predicted probabilities are estimated from their respective regression results, presented in Table 5.