

**SEGMENTED ASSIMILATION THEORY:
A REFORMULATION AND EMPIRICAL TEST***

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Abstract

Segmented assimilation theory has been a popular explanation for the diverse experiences of assimilation among new waves of immigrants and their children. In this paper, we review the theory as it is currently articulated in the literature and propose a more restricted reformulation of the theory that yields sharp, empirically falsifiable hypotheses. Our reformulation is based on the idea that segmented assimilation theory is really about the differential outcomes of micro-level assimilation behaviors, depending on macro-level social conditions. We then test the empirical implications of the revised theory with respect to the well-being of immigrant children, using data from the National Longitudinal Survey of Adolescent Health. Our empirical analyses yield two main findings. First, for immigrant adolescents living in non-poverty neighborhoods, we find assimilation to be positively associated with educational achievement and psychological well-being but also positively associated with at-risk behavior. Second, there is little empirical evidence supporting our reformulation of segmented assimilation. We interpret these results to mean that future research would be more fruitful focusing on differential processes of assimilation rather than differential consequences of assimilation.

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In the past decade, there has been considerable debate in the sociological literature concerning the well-being of immigrant children (Hernandez 1999; Hirschman, Kasinitz, and DeWind 1999; Gans 1992; Harris 1999; Harris, Harker, and Guo 2003; Jasso and Rosenzweig 1990; Perlmann and Waldinger 1997; Portes and Rumbaut 1996, 2001; Zhou and Bankston 1998). While some scholars argue that new immigrant children of Latin American and Asian descent face unique challenges and difficulties that set them qualitatively apart from earlier generations of European immigrants, other scholars are more optimistic about the new immigrants' prospect of gradual assimilation into the American mainstream. One prominent theory that has emerged from the debate is segmented assimilation theory, originally proposed by Portes and Zhou (1993).

Segmented assimilation theory is based on the recognition that American society is now extremely diverse and segmented, with an underclass residing in central cities where many new immigrant families first settle upon arrival. Thus, it is argued that different groups are available to which the new immigrants may assimilate, and that as a result they may take divergent assimilation paths. These paths include conventional upward, or "straight-line," assimilation, downward assimilation, and "selective acculturation." Portes and Rumbaut (1996, 2001) base their celebrated study of immigrant children in Miami and San Diego on this theoretical framework, although they do not explicitly test the theory.

Despite its potential to replace the old assimilation paradigm in sociological studies of immigrants, segmented immigration theory, as it has been understood in the existing literature, is actually a broad theoretical perspective subject to diverse interpretations. This explains in part why the theory has often been invoked, but not explicitly tested, in past empirical work. In this paper, we review the theory as it is currently articulated in the literature and propose a more restricted reformulation of the theory that yields sharp, empirically falsifiable hypotheses. We then test the empirical implications of the revised

theory with respect to the well-being of immigrant children, using data from the National Longitudinal Study of Adolescent Health.

Theoretical Issues

Historical Background

From the mid 1920s until around 1965, the flow of immigrants into the United States slowed to a trickle. Since the passage of the landmark 1965 Immigration Act, the country has been once again experiencing a period of mass immigration. Whereas earlier immigrants were mainly European in origin, today's immigrants are primarily from Asia and Latin America. They are often referred to as "new immigrants." It remains an open question whether or not the experiences of these new immigrants and their children resemble those of earlier European immigrants and their descendants. If the experience of earlier waves of European immigrants and their descendants can be characterized as successful assimilation into the American mainstream, should we expect the same or similar paths of assimilation among new immigrants and their children? (Alba and Nee 1997, 2003).

There has been considerable scholarly interest in understanding the adaptation and assimilation processes of the new immigrants and their children (Alba and Nee 1997, 2003; Bankston and Zhou 1997; Farley and Alba 2002; Hernadez 1999; Hirschman, Kasinitz, and DeWind 1999; Gans 1992; Harris 1999; Harris, Harker, and Guo 2003; Jasso and Rosenzweig 1990; Perlmann and Waldinger 1997; Portes and Rumbaut 1996, 2001; Waldinger and Feliciano 2004; Zhou and Bankston 1998). This scholarship generally recognizes that the processes of adaptation and assimilation among new immigrants *may* be different from those experienced by earlier European immigrants. Most notably, it has been suggested that theories of assimilation developed in response to earlier waves of immigration in the late nineteenth/early twentieth century are no longer adequate for understanding the experiences of the new immigrants. By popular accounts, classical assimilation theories considered assimilation to be part of the process of upward mobility for immigrants and their offspring. Each subsequent generation was thought to achieve higher social and economic status as it became more culturally and linguistically similar to the

American middle class (Rumbaut 1997; Zhou 1997a). Assimilation and upward mobility were thought to go hand in hand. Some scholarly work on new immigrants, by contrast, suggests that there may no longer be such a straightforward relationship between assimilation and upward mobility (Rumbaut 1997).

It is a truism, though a trivial one, that the new immigrants *are* different from the old immigrants. Scholarly disagreement therefore centers on the extent, as well as the consequences, of such differences. The differences between the new and the old immigrants to America are manifested in two important dimensions: changes in the immigrants themselves and changes in America as a host society. In terms of the first dimension, some scholars emphasize that the new immigrants from Latin America and Asia are considered racial/ethnic minorities in America, and their minority status may therefore hinder their full integration into the white middle class (Gans 1992; Portes and Rumbaut 1996, 2001; Portes and Zhou 1993; Zhou 1997b, 1997a). However, the very notion of race is socially constructed in a historical context, and some groups of European immigrants (such as the Irish, Jews, and Italians) were perceived as racially distinct when they first arrived in the United States (Alba and Nee 1997, 2003; DeWind and Kasinitz 1997). The real question is whether or not the racial/ethnic barrier to assimilation for the new immigrants is now much higher than or qualitatively distinct from that of the earlier immigrants. In addition, many scholars (Alba and Nee 1997, 2003; Portes and Rumbaut 1996; Suarez-Orozco and Suarez-Orozco 2001; Waldinger 2001; Zhou 1997b) have noted that contemporary immigrants come from a much wider variety of socioeconomic backgrounds than those in the previous wave, suggesting that different groups will start out on different “rungs” of the American class system. This makes any single, uniform model of immigrant incorporation into the United States inherently less appropriate than it may have been for earlier, more homogeneous groups.

In terms of changes in America as a host society, the new immigrants are entering the United States during a period when demand for semi-skilled and skilled labor has been substantially reduced by changes in the economy. Several scholars have argued that the assimilation and upward mobility of the 1890-1920 wave of immigrants were facilitated by the manufacturing-based economic expansion of that

time period, but that today's economic context is less favorable for the incorporation of new workers due to the advent of a service-based postindustrial economy (Suarez-Orozco and Suarez-Orozco 2001; Zhou 1997a; Massey 1995; Fernandez-Kelly and Schauffler 1994; Portes and Zhou 1993; Gans 1992). This new economy is sometimes referred to in the literature as the "hourglass" economy: a relatively large demand for both college-educated professional workers at the top and low-pay and low-skilled service workers at the bottom, but not much in between. In addition, the fact that the present wave of immigration shows no sign of stopping is another factor that may affect immigrant adaptation, due to the continual replenishment of immigrant communities with new, unassimilated first-generation members (Massey 1995). This may make complete cultural assimilation less likely for contemporary immigrant groups than it was for earlier groups.

However, not all scholars agree that these circumstances are sufficiently unique or significant to render classical assimilation theory inapplicable. Some contend that the distinctiveness of contemporary immigrants, in comparison to earlier immigrants, has been overstated (Alba and Nee 1997, 2003; Perlmann and Waldinger 1997). As reviewed by Alba and Nee (1997, 2003), assimilation theory had undergone many revisions and refinements before it began to face fundamental challenges in the 1990s. What is assimilation? Alba and Nee (1997, p.863) define assimilation as "the decline, and at its endpoint the disappearance, of an ethnic/racial distinction and the cultural and social differences that express it." In their 2003 book, Alba and Nee further clarify that assimilation is not necessarily unidirectional, meaning that the American mainstream can be transformed by immigration so as to "blur" the ethnic/racial distinction between immigrants and non-immigrants. Assimilation can take many forms, including social, structural, residential, and socioeconomic assimilation. In this research, we operationalize assimilation at three levels: demographic group, family, and individual. Details are given below.

Segmented Assimilation Theory

Gans (1992) outlines several distinct trajectories that the children of the new immigrants, or the “new second generation,” can follow. These paths include downward as well as upward mobility among the possible outcomes. Further developing these ideas as a critique of classical assimilation theory, Portes and Zhou (1993) propose the theory of “segmented assimilation.” This theory asserts that the United States is a stratified and unequal society, and that therefore different “segments” of society are available to which immigrants may assimilate. Portes and Zhou delineate three possible paths of assimilation that immigrants may take. The first is essentially what is predicted by classical assimilation theory, i.e., increasing acculturation and integration into the American middle class (for brevity, referred to henceforward as Path 1). The second is acculturation and assimilation into the urban underclass, leading to poverty and downward mobility (Path 2). The third, “selective acculturation” (Portes and Rumbaut 2001, p.54), is the deliberate preservation of the immigrant community’s culture and values, accompanied by economic integration (Path 3) (Rumbaut 1994; Portes and Zhou 1993; Zhou 1997a). The theory emphasizes that there is more than one way of “becoming American,” and that Americanization is not necessarily beneficial (Bankston and Zhou 1997; Zhou 1997a).

Portes and Rumbaut (2001) further expand segmented assimilation theory by specifying the factors that influence these disparate outcomes. They identify human capital, modes of incorporation into the host society, and family structure as the relevant background factors that shape the experience of the first generation. These, in turn, affect the relationship between the type of acculturation experienced by immigrant parents and the type experienced by their children. Portes and Rumbaut view this relationship as central to the outcomes of the second generation. When parents and children acculturate at a similar pace and in similar ways, this is considered consonant acculturation (if both either move smoothly into American culture, or remain unacculturated) or selective acculturation (if both agree on limited acculturation). When children acculturate faster or more completely than parents, this is considered dissonant acculturation. According to Portes and Rumbaut, this last type of acculturation leads to parent-

child conflict and a breakdown in communication between the generations. Because it diminishes parents' ability to guide and support their children, they see dissonant acculturation as a major risk factor for downward assimilation among the second generation. Thus, the relationship between parents' and children's acculturation is considered important because it influences the family and community resources available to support children, who confront numerous challenges in adapting to life in the host society.

Some of these challenges are posed by the communities that receive present-day immigrants. The continuing tendency of immigrant families to settle in poor, inner-city neighborhoods means that immigrant children frequently must attend poorly performing, underfunded, and highly segregated inner-city schools (Suarez-Orozco and Suarez-Orozco 2001; Waldinger 2001). The environment they encounter in such schools is thought to put adolescents at higher risk of acculturating into the "oppositional youth culture" or "adversarial outlooks" found among their native minority peers (Hirschman 2001; Portes and Rumbaut 2001; Zhou 1997a; Portes and Zhou 1993)¹. This culture discourages school engagement, and therefore is seen as harming adolescents' chances at upward mobility. Under these circumstances, the segmented assimilation framework asserts that maintaining the culture of origin can have a protective effect for immigrant children. The immigrant community may be able to reinforce the achievement-related and behavioral norms that parents try to teach their children and thus help adolescents avoid the pitfalls of poor neighborhoods. If adolescents assimilate too fully into the surrounding social environment, however, they may experience dissonant acculturation and lose access to the social and cultural resources of the ethnic community. Therefore, the segmented assimilation

¹ However, it remains an open question whether an "oppositional culture" actually exists among poor, inner-city black youth (Downey and Ainsworth-Darnell 2002). McKeever and Klineberg's (1999) study attempts to directly measure the relationship between assimilation and "oppositional" attitudes among Hispanics in Houston but found no evidence of their assimilation into oppositional culture.

framework would predict that in disadvantaged contexts, the third path of assimilation (that of limited or lagged acculturation accompanied by economic assimilation) would be most beneficial.

Segmented assimilation theory is a broad perspective, encompassing many interrelated components pertaining to the experiences and outcomes of the new immigrants and their children. In the relatively short time since Portes and Zhou's (1993) seminal paper, segmented assimilation theory has attracted much attention in the scholarship on immigrants. However, the theory is ambiguous about specific details relevant to empirical research, and thus is open to alternative interpretations. While classical assimilation theory primarily seeks to explain the *process* of assimilation – that is, why one immigrant family may be more or less assimilated than another – segmented assimilation theory explicitly considers both the process and the *outcomes* of assimilation. Path 3 is distinguished from Paths 1 and 2 by process, specifically whether assimilation has been partial or complete. Paths 1 and 2, which are both forms of complete assimilation, can be differentiated from each other only by divergent outcomes – upward versus downward mobility. Thus, it is not appropriate to discuss the effects of segmented assimilation, *per se*, as the term already presumes that assimilation has a variable effect on outcomes.

Paradoxically, both the attraction and the ambiguity of segmented assimilation theory lie in the fact that, at a fundamental level, the theory is descriptive, and indeed accurately so, of the variable range of assimilation experiences: immigrants' actual experiences are so diverse that there are always some individual immigrants who undergo classical assimilation (Path 1), some who undergo downward assimilation (Path 2), and some who experience selective acculturation (Path 3). As a general description of differential assimilation experiences, the theory is not really falsifiable. Indeed, given the inevitable variability of any sociological phenomena (Lieberson and Lynn 2002), we can make an argument that the theory, with a narrow interpretation, was also applicable to the earlier waves of immigrants from Europe. Thus, for the theory to hold analytical value, it is necessary to specify *concrete* conditions under which

immigrant groups follow particular paths of assimilation, at least on average.² Since the original authors (Portes and Zhou 1993) allowed for many such conditions, their work has sparked several different interpretations of segmented assimilation theory.

Three major and potentially interrelated dimensions differentiate assimilation experiences in the literature on segmented assimilation. First, some scholars have argued that assimilation outcomes may differ by immigrants' characteristics such as ethnicity, socioeconomic status (SES), social capital, family cohesion, and perhaps gender (Farley and Alba 2002; Hirschman 2001; Nagasawa, Qian, and Wong 2001; Portes and Rumbaut 2001; Rong and Brown 2001; St-Hilaire 2003; Waldinger and Feliciano 2004). It is argued that immigrant groups with relatively good resources (i.e., physical, cultural, and/or social capital) are able to follow the traditional assimilation path (Path 1) without too much trouble, whereas those lacking such resources are at risk of experiencing downward assimilation. Second, assimilation outcomes may differ by the characteristics of natives to whom immigrants assimilate (Gans 1992; Rumbaut 1994, 1997; Bankston and Zhou 1997).³ If immigrants assimilate to middle-class, white natives, the assimilation is straight-line (Path 1). If immigrants assimilate to inner city, underclass minorities struggling with poverty, crime, and joblessness, the assimilation is downward (Path 2). Third, assimilation outcomes may depend on whether assimilation is "wholesale" or selective, with the implication that limited assimilation is beneficial (Bankston and Zhou 1995; Portes and Rumbaut 2001; Portes and DeWind 2004; Portes and Schaufli 1996). The notion of selective acculturation is perhaps the most common interpretation of segmented assimilation theory. Indeed, Hartmann and Gerteis (2005) even go so far as to attribute to segmented assimilation theory a radical version of multiculturalism –

² For a rational-choice approach to assimilation and segmentation, see Esser (2004). In Esser's theoretical framework, assimilation decisions are rational responses to immigrants' situations. Put in this view, segmented assimilation is no more than a logical response to different sets of circumstances.

³ By "natives," we refer in this paper to U.S.-born persons with parents who were also born in the U.S.

“fragmented pluralism” – which views individuals as bounded primarily by self-contained cultural groups rather than integrated into a larger society.

While segmented assimilation theory provides an insightful and in some sense necessary perspective on the experiences of today’s immigrants and their children, it also suffers from interpretational ambiguity, which results in operational imprecision. In light of these limitations, we reconceptualize segmented assimilation by focusing on a particular aspect of the theory – the characteristics of native-born Americans to whom immigrants assimilate. Operationally, we focus on the local context of the immigrant family. As shown in the next section, our approach leads directly to sharply specified hypotheses subject to empirical tests.

The ability to empirically test hypotheses derived from segmented assimilation theory is particularly helpful, given the on-going debates about the usefulness of the theory. A major critique of segmented assimilation theory is that the experience of today’s immigrants and their offspring is not truly all that different from that of the 1890-1920 wave of immigrants from Europe. For example, Alba and Nee (1997, 2003) argue that the offspring of earlier European immigrant groups often did not fully assimilate until the third or fourth generation. Thus, observations of limited assimilation on the part of today’s second generation youth should not be surprising. Reacting to Borjas’ (1985, 1995) contention that immigrants are disadvantaged by low levels of human capital, Perlmann and Waldinger (1997) show that immigrants from most national origin groups are actually more likely to have a college degree than native-born Americans. Alba and Nee (1997, 2003) and Perlmann and Waldinger (1997) are also skeptical of the idea that the racial distinctiveness of contemporary immigrants will be a long-term disadvantage. Because racial boundaries in the United States have proven to be fluid with regard to past “white” immigrants (Irish, Italians, and Jews, for example), they argue that contemporary Asian and Latin American immigrant groups may not be considered racially distinct in the long term. Furthermore, Alba and Nee (2003, pp.54-57) contend that today’s immigrants have benefited from the civil rights movements in the 1960s, which increased the “cost of discrimination.”

Critics have pointed out that the causal link between assimilation into the underclass and development of “oppositional cultures” among immigrant children is questionable. Perlmann and Waldinger (1997, p.915) argue that second generation rebellion was not uncommon among earlier European groups, but that it did not ultimately hinder the upward mobility of these groups in later generations. They further suggest that if today’s second generation does develop an “oppositional culture,” it is no more likely to result from the process of assimilation into the American underclass than to arise spontaneously out of the immigrant working class experience. Alba (2005) also presents evidence that Maghrebin immigrants in France experience a trajectory of disengagement from school, troubles with police, and unemployment that is very similar to the type of “downward assimilation” posited by segmented assimilation theory. However, this occurs despite the fact that the contextual elements that gave rise to segmented assimilation theory – inner city ghettos and a harsh regime of racial exclusion – are absent in France. The Maghrebins thus lack the opportunity to be acculturated into a minority urban underclass, and yet they still experience worsening outcomes over time.

Another critique of segmented assimilation theory addresses the relative advantages and disadvantages of deliberately limiting assimilation and maintaining strong ethnic social ties. The segmented assimilation hypothesis suggests that such limited assimilation will have a protective effect for contemporary immigrants, allowing them to achieve better outcomes than if they were to assimilate fully. Dewind and Kasinitz (1997), however, raise the possibility that avoidance of incorporation into the U.S. mainstream may have costs as well as benefits. For instance, lack of social ties outside the ethnic community may restrict immigrants’ knowledge of the full range of available opportunities. Strong ties within the community may also burden them with excessive obligations toward relatives and other co-ethnics. These disadvantages could potentially outweigh the benefits posited by segmented assimilation theory. Thus, in order to succeed in American society, according to Alba and Nee (2003), it is functionally necessary to assimilate, regardless of whether or not immigrant families intend to.

Finally, segmented assimilation theory has also been criticized for “essentializing central-city black culture in the image of the underclass” (Alba and Nee 2003, p. 8). A variety of cultural models are found among urban African Americans. It is thus naive to think that assimilation into native minority culture is necessarily downward assimilation into the underclass. In fact, Neckerman, Carter, and Lee (1999) suggest that immigrants may well assimilate into the black middle class, a possibility overlooked by proponents of segmented assimilation theory.

Although scholars have previously criticized segmented assimilation theory from various theoretical and historical standpoints, there has been little effort to test the theory rigorously on empirical grounds. This paper focuses precisely on this task and represents the most systematic examination of segmented assimilation theory to date. Before conducting empirical tests, however, we must first reformulate the theory in a way that makes it testable.

Reformulation: Assimilation Outcomes and Social Context

It is a well accepted principle in the philosophy of science that sound scientific theory should yield concrete hypotheses that are empirically falsifiable (Popper 1972). Only after testing specific hypotheses that are logically derived from a theory can we then assess the validity or invalidity of that theory. We believe that segmented assimilation has important, testable empirical implications, and we reformulate the theory in order to develop testable hypotheses that can be checked against empirical data. Throughout the paper, we are concerned with outcomes that indicate the well-being of immigrant children.

Specifically, we conceptualize segmented assimilation as a function of interactions between micro-level assimilation processes and macro-level community contexts (also see Zhou 1997a). We address measurement issues in the next section. For the sake of illustration, we focus on two types of communities, low SES and high SES, and two types of assimilation, full assimilation and partial assimilation (which is called “selective acculturation” by Portes and Rumbaut, 2001). In reality, there are continuous gradations in both dimensions. Let us examine the following 2x2 table:

Table 1 about Here

In Table 1, there are four groups of immigrant children, depending on assimilation experience and community context. The two different columns reflect the view that contemporary America is a diverse—i.e., segmented—society. Given immigrants' own diverse socioeconomic backgrounds, some immigrants settle in high-SES communities, whereas others live in low-SES communities. Within each type of community, it is further assumed that the degree of assimilation differs across immigrant children. As will be discussed later in the paper, we employ different operationalizations of assimilation. For the purpose of this study, however, it is assumed that the sorting process of individuals into the different cells is a given condition exogenous to our study. That is, we do not explicitly study the processes by which immigrant parents and their children may choose whether and how to assimilate on the basis of the anticipated consequences of their assimilation behavior. Instead, we are interested in whether the different assimilation paths, depending on social context, lead to disparate outcomes.

Based on the classification system presented in Table 1, let us now discuss the implications of segmented assimilation theory for immigrant children's outcomes.

Groups A and B: Immigrant children are only partially assimilated into the community. They still retain certain aspects of the culture of origin but have learned what is necessary to do well in school. This path of assimilation is called “selective acculturation,” or Path 3. The difference between Group A and Group B lies in community context: while children in Group A live in a high SES community, children in Group B live in a low SES community. In Portes and Zhou's original formulation, segmented assimilation theory emphasizes the value of retaining the culture of origin for immigrants who live in low SES communities. However, there is no *a priori* reason (nor was any given by Portes and Zhou) why selective acculturation cannot occur for immigrants who live in high SES communities. The real difference is that retaining the culture of origin may be optional for Group A but essential for Group B, as it may protect immigrant children in unfavorable social contexts from downward assimilation into the underclass.

Group C: Immigrant children who live in a high SES community are fully assimilated into the community. Group C follows the assimilation path described by classical assimilation theory (Path 1).

Although Portes and Zhou (1993) emphasize the greater difficulty following this path for today's immigrants because of their racial minority status, Portes and Zhou's original formulation of segmented assimilation theory clearly points to this as one possible assimilation path for many of today's immigrants (p.82).

Group D: Immigrant children who live in a low SES community are fully assimilated into the community. However, because low SES inner-city communities offer "oppositional" cultural models, in addition to other possible cultural models, acculturation in this context could lead to "downward assimilation" (Path 2). This observation was first made by Gans (1992). The divergent outcomes of full assimilation between Groups C and D constitute the core argument of segmented assimilation theory.

Predictions from the Reformulation

We now proceed to discuss the impact of the different assimilation paths on immigrant children's outcomes. Let Y denote a positive outcome for an immigrant child. For example, Y could be a measure of academic performance. There is an average of Y for immigrant children in each of the cells of Table 1. Thus, we have Table 2:

Table 2 about Here

Based on segmented assimilation theory, we can now make some predictions *a priori* about the average of Y for the four groups. All of our statements are predicated on the assumption that the groups are otherwise identical in other relevant attributes. In the actual analyses, we control for differences in other attributes statistically. In other words, the following statements refer to group averages within levels of other covariates, i.e., expectations conditional on values of X , where X represents covariates. For simplicity, we omit the notation for covariates and compare unconditional expectations in our discussion.

Prediction 1: $E(Y_a) > E(Y_b)$. Because Group A lives in a more favorable community context than Group B, the outcome for Group A should on average surpass that of Group B, everything else being equal. Given this,

$$E(Y_b) - E(Y_a) = r_1 < 0. \quad (1)$$

Prediction 2: $E(Y_c) > E(Y_d)$. This relationship is analogous to Prediction 1, because Group C lives in a more favorable community context than Group D. Similarly to equation (1), we have

$$E(Y_d) - E(Y_c) = r_2 < 0. \quad (2)$$

Prediction 3: $r_1 > r_2$. This is true because, according to segmented assimilation theory, retaining the culture of origin protects immigrant children from the influences of the community context so that outcome differences attributable to community SES are smaller for immigrant children who are partially assimilated than for those who are fully assimilated. This prediction reflects the interaction effect, discussed earlier, between assimilation and social context. Now let us take the difference of the differences:

$$r_2 - r_1 = s < 0. \quad (3)$$

The quantity s is of central interest. If $s < 0$, there is evidence in support of segmented assimilation theory. We call equation (3) the difference-in-difference estimator of segmented assimilation.

Predictions 1 through 3 are row-wise comparisons. We can also make column-wise comparisons. The column-wise comparisons give us a different perspective, although the information about the difference-in-difference estimator (i.e. equation 3) is the same.

Prediction 4: $E(Y_b) > E(Y_d)$. That is to say, in a low SES community context, it is better to be partially assimilated than to be fully assimilated. This statement has been advocated strongly by proponents of segmented assimilation theory (Portes and Zhou 1993; Portes and Rumbaut 1996, 2001). Let us take the difference between the two:

$$E(Y_d) - E(Y_b) = c_2 < 0. \quad (4)$$

However, segmented assimilation theory is vague about whether or not delayed or limited acculturation (Path 3) may also be beneficial for immigrant children living in favorable community contexts. That is, we do not know whether $E(Y_a) > E(Y_c)$ or $E(Y_a) < E(Y_c)$. However, the theory clearly

predicts that we should see less of a gain from following Path 3 for immigrant children in high SES communities than we do for those who live in low SES communities. To see this, let us define c_1 as:

$$E(Y_c) - E(Y_a) = c_1.$$

It is easy to show that

$$s = r_2 - r_1 = E(Y_d - Y_c) - E(Y_b - Y_a) = E(Y_d - Y_b) - E(Y_c - Y_a) = c_2 - c_1 < 0. \quad (5)$$

Because $c_2 < 0$ (equation 4), equation (5) states that segmented assimilation allows a range of possible scenarios for the effect of full assimilation on immigrant children living in privileged environments: they either benefit from full assimilation or at least do not suffer from it to the same extent as immigrant children living in low SES communities. That is to say, although we cannot determine *a priori* from the theory the relationship between $E(Y_a)$ and $E(Y_c)$, we know that their relationship is bounded somehow by equation (5).

In fact, knowing the relationship between $E(Y_a)$ and $E(Y_c)$ will greatly improve our ability to make predictions and thus sharpen segmented assimilation theory. Let us consider three possible scenarios.

Scenario 1: $E(Y_a) = E(Y_c)$. That is, given a high SES community context, there is no difference between partial assimilation and full assimilation. In this case, our difference-in-difference estimator is reduced to the difference in the second column, differences between partial assimilation and full assimilation among immigrant children living in a low SES community:

$$s = c_2. \quad (6)$$

Scenario 2: $E(Y_c) > E(Y_a)$. This is the situation where immigrant children living in a high SES community benefit from full assimilation (Path 1). In this case,

$$s < c_2 < 0 \quad (7)$$

Scenario 3: $E(Y_c) < E(Y_a)$. This is the situation where immigrant children living in a high SES community are disadvantaged from full assimilation, just like immigrant children living in a low SES community, albeit at a smaller magnitude. In this case,

$$0 > s > c_2$$

(8)

The three scenarios have very different substantive meanings. If Scenario 2 is true, partial assimilation is beneficial only for immigrant children facing unfavorable community environments. In this case, a rational decision concerning whether or not to assimilate fully would depend on the community context. If Scenario 3 is true, partial assimilation is beneficial for all immigrant children, regardless of their local contexts. In this case, selective acculturation would be advisable for all immigrant children. If Scenario 1 is true, whether to fully assimilate or partially assimilate is optional among children living in a high SES community— in the sense that it carries only cultural meanings but does not materially impact their lives.

In sum, in our reformulation, segmented assimilation theory is tantamount to an interaction effect between social context at the macro level and assimilation behavior at the individual or family level.⁴ We operationalize segmented assimilation using a difference-in-difference estimator (equation 3 or 5). In formalizing empirical implications, we find another hole of segmented assimilation theory: it remains silent on the issue of whether partial assimilation or full assimilation is better for immigrant children living in favorable social environments. We allow a range of possibilities but will come to a conclusion based on our empirical research, thus filling a gap in the theory.

⁴ Only one previous study has explicitly recognized that segmented assimilation theory implies differential effects of assimilation depending on community context. In their study of patterns of generational change in education and employment among Mexican American youth, Landale et al (1998) test an interaction between residential context and immigrant generation. However, this interaction is not a central focus of the paper, nor do the authors explicitly formulate it as a test of segmented assimilation theory. In fact, they do not present the full results of the interaction in the paper, and it is difficult to discern from their discussion what the results actually mean.

Data and Research Methods

Data

Our empirical work draws upon data from the National Longitudinal Survey of Adolescent Health (Add Health). Add Health is a school-based survey of adolescents in grades 7-12 at the baseline in 1994-1995. At the school level, 80 high schools (defined as any school containing the 11th grade) were selected from a list of 26,666, with probability of selection weighted in proportion to enrollment size. These schools are representative of U.S. high schools with respect to size, school type, region, ethnic makeup, and school type. After the selection of the high schools, a feeder school (usually a middle school) that contributed students to each high school was identified and included in the study for all schools not containing 7th and 8th grades. The total sample of schools includes 52 such feeder schools in addition to the 80 high schools (Bearman, Jones, and Udry 1997).

The in-school portion of the survey was administered to all students in the sampled schools who were present on the day of the survey. The in-school questionnaire covered topics such as demographic characteristics, parental education and occupation, health status, academic grades, and friendships, and was completed by more than 90,000 adolescents. Each student was asked to name up to 10 close friends in the same school in this portion of the survey, making it possible to map friendship networks within a school.

A smaller “core” sample was selected to complete more in-depth interviews at home. This group included some 200 adolescents from each of the 80 high school/middle school pairs. In addition, separate samples were drawn among adolescents with certain characteristics, such as the disabled, twins and sibling pairs, and certain ethnic groups, making a total of 20,745 completed interviews. Additional topics covered by this portion of the survey include national origins of students and of their parents, language spoken in the home, and many detailed measures of health risk behaviors, family dynamics, and psychosocial adjustment. Three waves of the in-home surveys have now been conducted. The Wave 1 interviews took place between April and December of 1995. Respondents’ parents were also interviewed

separately at this time. Wave 2 re-interviewed Wave 1 respondents (except those who had been in 12th grade during Wave 1) between April and August of 1996. Wave 3 interviews were conducted between August 2001 and April 2002 with all Wave 1 respondents who could be located. The cumulative attrition rate between Wave 1 and Wave 3 was approximately 27%, yielding 15,197 completed interviews in Wave 3. In all statistical analyses of the data, we use appropriate weights to account for stratified sampling, non-proportionate non-responses, and non-proportionate attrition.⁵

There are a few unique features of the Add Health study that make it a good data source for the proposed study. First, not only is its sample large and nationally representative, it also contains over-samples of Chinese (334), Cubans (450), and Puerto Ricans (437). As a result, we have adequate sample sizes of both Asian and Hispanic first and second generation adolescents. Unfortunately, we do not have an adequate sample size of other groups, such as Caribbean or African-origin adolescents. Therefore, we limit our analysis to Asians and Hispanics, who in any case make up more than 75% of current immigrants to the United States (Malone et al 2003). There have been previous studies of immigrant children using the data (e.g., Bankston and Zhou 2002; Harker 2001; Harris 1999; Harris, Harker, and Guo 2003). Second, at Wave 1, the study collected residential location of each respondent included in the in-home interview and provided to researchers (under special arrangement) the attributes of neighborhood and community contexts, either linked from external sources such as the U.S. Census or created by the aggregation of respondent reports. As discussed earlier, information about community contexts is crucial to our attempt to test empirical implications of segmented assimilation theory. Third, Add Health collected valuable friendship network data at the school level in Wave 1. As will be described below, one of our operationalizations of assimilation capitalizes on these unique data. Fourth, the Add Health home interview collected a wealth of information covering a variety of topics, such as academic performance, psychological well-being, and at-risk behavior. Finally, the study is longitudinal, covering six to seven

⁵ We also appropriately correct for standard errors in regression analyses due to clustering, stratification, and using weights.

years of information in early stages of the life course, when adolescents encounter new experiences, take new directions, and formulate career plans and aspirations that will affect them in the future. This is also the time they are prone to be influenced by significant others, such as parents, peers, and teachers (Sewell, Haller, and Portes 1969). The longitudinal nature of the study will make it easier to draw inferences based on the temporality of events, though certain unrealistic assumptions are still needed to derive causal interpretations from our results.

Add Health was designed primarily to study health-related behaviors and sexual experiences of adolescents. Immigrant children are not the focus of the study. As a result, the use of this data source presents some limitations to our study, two of which are particularly significant. One limitation is that we do not have good measures of the retention of native culture for immigrant children. Following a standard practice in the literature (e.g., Mouw and Xie 1999; Portes and Rumbaut 1994, 2001), we approximate the retention of native culture with the use of non-English language at home. Second, social contexts and friendship networks, on the basis of which we construct measures of assimilation, were measured only at the baseline survey (Wave 1). Therefore, we capitalize on inter-person variation in the degree of assimilation at the baseline but do not have information pertaining to temporal changes in assimilation within persons.⁶

Operationalization of Assimilation

To test segmented assimilation theory, it is critical that we first operationalize assimilation. Following Alba and Nee (1997, p.863), we refer to assimilation as the closing of cultural and social distances that separate immigrants and their children from mainstream American society. Below, we discuss various ways to operationalize assimilation (given the constraints of Add Health data). Note that our focus is on the assimilation experience of immigrant children. When we say a measure is “exogenous,” it means that it is something that is not affected by an immigrant child’s behavior.

⁶ We recognize that there should be an increase in the degree of assimilation within persons over time.

Thus, we include age in Wave I to capture the age effect on the assimilation measure.

We use a variety of possible measures of assimilation and categorize them under three headings: the demographic approach, the contextual approach, and the behavioral approach. The three approaches vary in the extent to which assimilation measures are exogenous, with demographic measures most exogenous and behavioral measures least exogenous, and contextual measures in between. We present a detailed discussion of the approaches below.

Demographic Approach: The demographic approach is essentially an exposure-based approach, based on the insight that the longer the time spent in the U.S., the more potential for assimilation. As a result, demographic measures of assimilation are exogenous to an immigrant child's behavior. Two such measures have been extensively used in the literature. One is generation, and the other is length of stay in the U.S. for first-generation immigrants. The generational measure assumes that the second generation of immigrants is necessarily more assimilated than the first generation of immigrants, and the third generation is necessarily more assimilated than the second generation. An example of using generation as a measure of assimilation is a study by Rong and Brown (2001), who explored whether or not generational patterns of educational attainment are the same for African-ancestry immigrant groups as for European immigrant groups. Like Waters (1994), Rong and Brown raise the possibility that if African-origin immigrants assimilate, they may be likely to assimilate to impoverished, inner-city groups of native African Americans. If this is the case, we would expect to see a decline in educational attainment with later generation for African origin immigrants. Rong and Brown find that educational attainment tends to be lower among the third generation immigrants, and this is true not only for immigrants of African origin but also for those of European and Caribbean origins.

An example of using length of stay in the U.S. is Hirschman's (2001) study. With this measure, it is assumed that longer residence in the United States is equivalent to a greater degree of assimilation. In an attempt to test segmented assimilation theory, Hirschman argues that at least among some disadvantaged groups, those who have been in the United States longer would be expected to have lower school enrollment rates due to being acculturated into inner-city minority peer groups (Hirschman 2001:

319). To test this prediction, Hirschman interacts national origin group with year of arrival. He finds that year of arrival seems to have different effects for different national origin groups, although he does not find a consistent pattern.

Demographic measures of assimilation have the advantage of not being contaminated by the behavior of the individual or family. In this sense, they are exogenous.⁷ However, this virtue is also precisely their drawback: they impose an implausible homogeneity assumption that individuals of the same demographic characteristics (e.g., generation and length of stay) have exactly the same levels of assimilation. To be sure, more time spent in the U.S. gives more exposure to American society, and thus more potential for assimilation. However, the approach ignores the heterogeneity in how this potential translates to actual assimilation. In fact, there is a great deal of spatial heterogeneity in terms of exposure to the American mainstream given the same generation and length of stay: some immigrants have lived exclusively in immigrant communities and are thus less assimilated, while others have lived in middle-class suburbs and are thus more assimilated.

In this study, we use both immigration generation and length of stay as demographic measures of assimilation, for two reasons. First, demographic measures have been common measures of assimilation in the literature. Our use of generation and length of stay allows us to compare our results to earlier findings. Second, demographic measures of assimilation are free from the influences of family and individual behaviors and as such are exogenous. Thus, results using demographic measures will not be subject to the criticism that assimilation is an effect, rather than a cause, of an outcome variable (say academic achievement).

Immigration generation is binary, denoting whether or not a respondent is a second-generation (as opposed to first generation) immigrant (yes=1). We further differentiate first-generation immigrants by length of stay with both a continuous variable (in years) and a dichotomous version denoting whether or

⁷ Demographic measures, such as generation and length of stay, are not exogenous if there is selectivity with respect to the likelihood of immigrants' return to their home countries.

not the respondent has been in the U.S. for more than 5 years (1=yes). See Appendix for descriptive statistics of the variables by race.

Contextual Approach: The contextual approach is also an exposure-based approach. Differing from the demographic approach, however, the contextual approach does not assume that all individuals of the same demographic characteristics (say in the same generation with the same length of stay) have the same levels of assimilation. Instead, the contextual approach differentiates the intensity with which immigrant children are exposed to American culture in the local context. For example, immigrant children living in neighborhoods with a heavy concentration of other immigrants have less exposure to American culture than immigrant children living in neighborhoods populated mostly by native-born Americans. In other words, the contextual approach capitalizes on the spatial variation in exposure to American culture and thus potential for assimilation.

We emphasize that the spatial variation in exposure is across families, as all members of a family share the same local environment. Where to live is a decision made at the family level. We recognize that the decision of where to live is endogenous in the sense that it reflects the level of assimilation and other attributes at the family level. For example, an immigrant family that is unassimilated may live in a neighborhood with many other co-ethnic immigrant families. Note that the decision of where to live is made not by immigrant children but by their parents. It is possible that a family's residential decision is affected by children's previous or anticipated outcomes. However, for most families, residential decision precedes and determines children's outcomes rather than the other way around. In this sense, the contextual approach yields measures that are relatively exogenous (but less exogenous than demographic measures). As a tradeoff, contextual measures also provide far more detailed information about assimilation at the family level than purely demographic measures such as immigration generation and length of stay.

The idea of using information about residential location as a measure of assimilation is not new. A long tradition in sociology treats residential location as an indicator of social status for minorities (e.g.,

Massey and Denton 1993). In the location attainment model for immigrants, residence in desirable neighborhoods (such as those with a high average family income, those with a high percentage of non-Hispanic whites, or those in suburbs) has long been viewed as “spatial assimilation” or “residential assimilation” (Alba et al. 1999; Alba, Logan, and Stultz 2000; Alba and Nee 2003; White, Biddlecom, and Guo 1999).

In our study, we use two contextual measures of assimilation: (1) percentage of native-born persons in a neighborhood, and (2) percentage of non-co-ethnics in a neighborhood. The percentages were computed from the 1990 U.S. Census at the level of a census tract. Besides these percentages as continuous measures, we also use categorical versions of them to zero in on respondents who are *not* living in highly concentrated immigrant/co-ethnic neighborhoods. For the percentage of native-born persons, we set the cut-point of concentration at 70%. For the percentage of non-co-ethnics, we set the cut-points at approximately the group-specific means for Hispanics and Asians, at 60% non-Hispanic (for Hispanics) or 75% non-Asian (for Asians). See Appendix for a description of the variables and the descriptive statistics by race.

Behavioral Approach: Demographic measures of assimilation contrast demographic groups with different amounts of temporal exposure to American culture, whereas contextual measures compare families in different locales with different amounts of intensity of exposure to American culture. However, the assumption that there is no individual-level variation given exposure is unrealistic. To better measure assimilation, we attempt to uncover variations in behavior at the individual level. That is, given the same generation and the same length of stay in the U.S., persons of the same ethnicity living in the same neighborhood can and do have different levels of assimilation. Such differences are reflected in their behaviors. In this study, we use two behavioral measures of assimilation at the individual level: non-English language use and friendship segregation.

We noted earlier that the demographic approach is exogenous, and that the contextual approach is partly exogenous, to the behavior of an immigrant child. Because the behavioral approach measures

assimilation at the same level as outcomes – the individual – there is a risk that behavioral measures suffer from endogeneity, which can take two forms. The first is unobserved heterogeneity, or omitted variable bias: both a behavioral manifestation of assimilation and an outcome can be attributable to some unobserved factors (such as family resources) not captured by measures available in the data. The second is a classic-form endogeneity: the choice to assimilate (or not to assimilate) is affected by the knowledge of the anticipated impact of assimilation. It is commonly assumed that individuals choose assimilation behaviors in order to maximize their “utility” in outcomes (Alba and Nee 2003; Esser 2004). Statistical methods for dealing with the two problems are available (such as instrumental variable estimation, fixed-effects models, or Heckman-type endogenous sample-selection models), but they all demand extra information – in the form of additional data and/or unverifiable assumptions. In this paper, we take a simple approach to addressing the problem of endogeneity -- using multiple measures of assimilation and multiple measures of outcomes. As discussed before, some measures of assimilation (such as those based on the demographic and the contextual approaches) are more immune to the endogeneity problem than others. Similarly, some outcome measures are more immune to the endogeneity problem than others.

Among immigrant children, native language use is commonly viewed as a form of cultural resistance to full assimilation. Because immigrant children attend American schools, lack of English proficiency is very rare among all but very recently arrived immigrant children (Alba and Nee 2003; Portes and Schauffler 1996; Mouw and Xie 1999; Portes and Rumbaut 2001). Non-English language use is associated with partial assimilation in the segmented assimilation literature. For example, Bankston and Zhou (1995, 1998) find a positive relationship between Vietnamese language literacy and academic achievement among youth in an urban Vietnamese community. They argue that having strong native language skills helps academic success among students by giving them access to social capital and achievement-related cultural values within their ethnic community. Similarly, Portes and Schauffler (1996) and Portes and Rumbaut (2001) also report a positive relationship between bilingualism and academic achievement. However, there is debate about whether such a relationship holds for all

immigrant children or just those whose parents are not fluent in English. Mouw and Xie's (1999) results indicate that bilingualism does not have a causal effect *per se* but positively affects academic achievement only for children whose parents do not speak English well. This finding implies that effective communication between parents and children is important in fostering children's academic success, and that children's bilingualism is helpful only insofar as it facilitates parental communication. In response to Mouw and Xie's findings, Portes and Hao (2002) take another look at bilingualism using a different data source. They find a positive effect of fluent bilingualism across the board, regardless of parental language ability. Thus the relationship between bilingualism and outcomes is still open to debate. In this study, we use a dichotomous variable to measure non-English language usage at home at Wave 1 (no=1).

The composition of an immigrant child's friendship network is a measure of assimilation in Portes and Zhou's (1993) original paper on segmented assimilation. The basic idea is that more assimilated children are likely to have friends who are native-born Americans. Conversely, less assimilated children are likely to have friends within their same ethnic/immigrant groups. Harris, Harker, and Guo's (2003) recent study, also based on the Add Health data, examines the impact of friendship context on immigrant children's academic performance and school-related behavioral problems. Other studies that use friendship data to measure assimilation include Fernandez-Kelly and Schauflyer (1994), Zhou and Bankston (1994), Bankston and Zhou (1997) and Portes and Rumbaut (2001). In this research, we intend for inter-ethnic friendship to represent the degree to which an immigrant child has fully assimilated.

The opportunity structure for intergroup interactions is essentially determined by relative group sizes (Zeng and Xie 2005). That is, the composition of potential friends affects the composition of actual friends: the fewer co-ethnics available, the lower the likelihood of having co-ethnic friends. Therefore, in measuring intergroup friendship it is necessary to make a distinction between absolute measures and relative measures: A relative measure of in-group friendship removes (or purges) the part of in-group friendship due to opportunity structure and therefore better represents the actual behavior of an individual.

In contrast, an absolute measure is a result of both opportunity structure and individual preference. Because absolute measures confound the influences of opportunity structure, which is outside an individual's control, and individual choice, we prefer relative measures of intergroup friendship.

Specifically, we propose as a relative measure the difference between the predicted and the observed number of co-ethnic friends, where the predicted number is determined by a) the proportion of co-ethnics in the school and b) the total number of friends nominated. We observe that the i th respondent chooses F_i friends ($F_i \leq 10$), of which F_{li} belongs to the same ethnicity as i .⁸ Let J_i denote the number of potential friends for the i th respondent, so that J_i is the size of the school that the i th respondent attends. Let us further divide J_i into J_{li} and the balance of J_i (i.e., $J_{li} \leq J_i$), with J_{li} denoting the number of potential friends of the same ethnicity. Thus, for most immigrant children, J_{li} is much smaller than J_i . Our first proposed relative measure is simply:

$$R_{li} = \frac{J_{li}}{J_i}(F_i) - F_{li} \quad (9)$$

We derive the predicted number of co-ethnic friends from two quantities: the proportion of co-ethnics in the school $\frac{J_{li}}{J_i}$, and the total number of friends nominated F_i . R_{li} is then simply the difference between the predicted and observed number of co-ethnic friends.

R_{li} is a relative measure because it takes into account the opportunity structure for co-ethnic friendship in the school. It is, however, closely related to an individual's total number of friends (F_i).

Because F_{li} ranges from 0 to F_i , R_{li} ranges from $(\frac{J_{li}}{J_i} - 1)(F_i)$ (when all friends are co-ethnic) to

⁸ Here, the same ethnicity refers to specific ethnic groups (such as Chinese and Mexicans). We also call individuals of the same ethnicity "coethnics." We experimented with measures based on pan-Hispanic and pan-Asian affinity, and the results were similar.

$\frac{J_{li}}{J_i}(F_i)$ (when no friends are co-ethnic). Thus, R_{li} is sensitive to F_i , the total number of friends. We

further standardize the measure to purge the influence of F_i :

$$R_i = \frac{\frac{J_{li}}{J_i}(F_i) - F_{li}}{F_i} = \frac{J_{li}}{J_i} - \frac{F_{li}}{F_i} \quad (10)$$

This new measure is interpretable as the difference between the proportion of co-ethnics in the school and the proportion of co-ethnics among i 's friends. Unlike R_1 , R is invariant with respect to the total number of friends and constitutes our preferred measure of cross-ethnic friendship.

The behavioral interpretation of our measure R is straightforward: if an immigrant adolescent's friendship network consists of more co-ethnics than random encounters would produce (i.e., $R < 0$), then the immigrant adolescent retains his/her cultural distinction in forming friendships and is thus not fully assimilated. The greater the values of R , the higher the degree of assimilation. If $R = 0$, the adolescent is considered fully assimilated. If $R > 0$, he/she is said to be "over-assimilated" in the sense that he/she avoids co-ethnics as friends. In practice, we use both the continuous measure of R and a dichotomous measure equaling 1 if $R \geq 0$, 0 otherwise.⁹

In summary, we proposed six concrete measures of assimilation, two under each of the three approaches: the demographic approach, the contextual approach, and the behavioral approach. For four of the measures, we apply both the continuous version and a dichotomous version. To facilitate the interpretation of the results, all measures are coded so that a higher value (or in the case of a binary measure, a one) always means *more* assimilation. Definitions and descriptive statistics for the measures

⁹ Note that the R measure is based on the number of friends nominated, which is 10 or less by design. As a result, the measure suffers from a "small n" problem—unreliability due to chance.

are given in the top panel of the Appendix. We use the measures alternately in the statistical analyses reported below.

Characterizing Community Contexts

In our reformulation of segmented assimilation theory, we place special emphasis on the interaction between micro-level measures of assimilation and macro-level measures of community context. The Add Health study is rich not only in providing multiple measures of assimilation (discussed earlier), but also in its measurements of community characteristics.

We characterize two community contexts: neighborhood context and school context. That is, we measure the characteristics of the neighborhoods in which Add Health respondents live and the schools that they attend. Our emphasis is on the aggregate socioeconomic condition (not the immigrant composition) of community contexts. We briefly discuss these measures below.

Neighborhood context: According to Crane (1991), neighborhood can be defined as “a geographic area with unbroken borders in which the density of social ties among residents is significantly greater than the density of ties between residents and nearby non-residents” (p.1246). In reality, measurement of neighborhood characteristics is often constrained by data sources. Like most other studies of neighborhood effects (i.e., Brooks-Gunn et al. 1993), we take the census tract to be the operational definition of a neighborhood. The Add Health respondents who were interviewed at home at Wave 1 lived in 2,449 census tracts.¹⁰

The Add Health study provides a large array of measurements of local contexts (including those measured at the level of geographic units both smaller and larger than the census tract). From previous

¹⁰ Note that the number of neighborhoods is very large compared to the number of adolescents we actually analyze. This suggests that it would not be advisable to conduct multi-level models with “fixed-effects.” Instead, we chose to model variability across neighborhoods through the influence of the characteristics of neighborhoods discussed below. We use robust standard errors to account for clustering.

studies on neighborhood effects (e.g., Crane 1991; Brooks-Gunn et al. 1993), we know that neighborhood characteristics are so correlated, and the variation in social outcomes by neighborhood net of individual-level effects is so tenuous, that we cannot include too many neighborhood measures in the same statistical model. Thus, we chose to use a simple measure of the poverty rate in the census tract.¹¹

School context: While most of the sociological literature on contextual effects has focused on neighborhood effects, researchers in education have studied the effects of schools (see Raudenbush and Bryk 1986). We note that children spend most of their daylight hours in school. If immigrant children are assimilated, it is plausible that they are assimilated more into the school context than into the neighborhood context. Of course, because American public schools are community based, for most children there is a high correlation between the neighborhood context and the school context. However, to the extent that for some individuals the school context differs from the neighborhood context, we wish to allow for the differences empirically.

As in the case for neighborhood context, we begin with a simple variable measuring the overall socioeconomic background of the students attending the school. It is operationalized as the proportion of the students' mothers who have not completed high school. The information comes from students' own reports of their mothers' education in the in-school questionnaire at Wave 1.

In earlier rounds of the analyses, we used the contextual measures both as continuous variables and as dichotomous variables. The dichotomized forms allow us to focus on the contrast between low-SES contexts and high-SES contexts. Although the substantive results are very similar, we chose to present the results using dichotomized forms of the contextual measures to better capture the idea, prominent in segmented assimilation theory, that immigrant children may assimilate to the urban underclass. We set the neighborhood poverty rate threshold at 30% for Hispanics and at 15% for

¹¹ We also experimented with alternative measures available in the data. The results are similar to those using the poverty rate but tend to be less statistically significant. Results are available upon request.

Asians.¹² For the school contextual measure -- the percentage of mothers with less than a high school education-- we set the threshold at 20%. Sample statistics for both measures of community context are given in the second panel of the Appendix. A higher value means a *less* favorable community context.

Outcomes

As outcomes of interest, we focus on three domains: educational outcomes, psychological well-being, and at-risk behaviors. While measures of assimilation and community contexts are based on data from Wave 1, outcome measures are based on cumulative data from all three waves. Thus, for some of the analyses, there is an implicit lag model in which past assimilation behavior and community contexts affect later outcomes. One major advantage of using multiple measures in multiple domains from multiple observation periods is that they provide a triangulation of results. If they yield results that consistently reject or confirm hypotheses derived from segmented assimilation theory, we are more confident in drawing either affirmative or negative conclusions. If the results differ, they push us to look for explanations for the divergence. Below, we discuss outcome measures in the three domains in turn.

Educational outcomes have been frequently studied in research on immigrant children. See, for example, Bankston and Zhou (1995, 2002), Mouw and Xie (1999), Portes and Rumbaut (1996 and 2001), Portes and Schauffler (1996), Zhou (2001), and Zhou and Bankston (1994). In this research, we use three measures of academic achievement: high school completion, college enrollment, and self-reported grades.

Our first measure is graduation from high school. Recall that Add Health respondents were in grades 7-12 at Wave 1 in the academic year of 1994-1995. They were last interviewed at Wave 3 seven years later in year 2001-2002. By Wave 3, even the youngest cohort of Add Health respondents should have graduated from high school. (In fact, they should have been 2 years past graduation following the

¹² The lower threshold for Asians is necessary because most of them live in low-poverty neighborhoods. Setting a higher threshold would result in very few Asians living in low-SES neighborhoods. Results using the continuous forms of the contextual variables and different thresholds are available upon request.

normal progression schedule.) We construct a variable indicating high school graduation from responses to the Wave 3 survey (yes=1, no=0).

Our second measure is college enrollment. As mentioned earlier, by Wave 3, almost all of the Add Health respondents should have either graduated from or dropped out of high school. For the analysis of college enrollment, we construct a variable indicating whether or not respondents have ever attended a postsecondary education within 2 years of the date they either graduated from or should have graduated from high school (yes=1, no=0). We use “ever attendance” because the Add Health study contains multiple school cohorts that are at different educational points at a given time. “Ever attendance” within 2 years of high school graduation is a meaningful measure that is applicable to all the school cohorts in Add Health.

Third, we construct a measure of academic performance based on self-reported grades in Wave 1. The in-school questionnaire asked the respondents to report their grades “at the most recent grading period” in four subjects: English/Language Arts, Mathematics, History/Social Studies, and Science. One shortcoming of grades as an outcome measure is that they are not comparable across schools. That is, an A student in a school with students who all perform poorly may not have learned as much as a B student in a better school. To “normalize” grades across schools, we use data from the Peabody Picture Vocabulary Test administered to Add Health respondents at home in Wave 1.¹³ To do this, we first run a fixed-effects model in which we regress the test score for the i th respondent in the h th school as a function of school dummies so that we obtain the average differences across schools and the proportion of the total variance that is between schools (R^2). We then compute his/her normalized grade (t_{ih}) by

¹³ While standardized scores of Peabody Picture Vocabulary Test are useful to adjust for between-school differences, we do not think that they constitute a good outcome measure for our research, because English proficiency is a major component of the assimilation process for most immigrant children.

summing the standardized school component from the test scores (δ_h) and the standardized within-school component from self-reported grades (G_{ih}), weighted by a factor (λ):¹⁴

$$t_{ih} = \lambda\delta_h + G_{ih} + \varepsilon_{ih}, \quad (12)$$

where ε_{ih} is the residual term. We then further standardize t_{ih} so that it has a standard deviation of one.

The normalized grade is comparable across schools. Here, we see that $\lambda\delta_h$ gives the adjustment for between-school differences. We average the standardized grade across the four subjects to obtain an overall measure of academic achievement.¹⁵

Psychological well-being is another outcome that has been studied extensively in the literature. See, for example, studies by Bankston and Zhou (2002), Espiritu and Wolf (2001), Harker (2001), Kao (1999), Portes and Rumbaut (2001), and Zhou (2001). This emphasis is justified because immigrant children are specifically characterized by what Thomas and Znaniecki (1974) termed “marginality,” the experience of living in two worlds and not fully belonging to either. Marginality refers to a painful split, with accompanying feelings of insecurity, alienation, and ambivalence toward both the ethnic subculture and the dominant society. We examine how the psychological well-being of immigrant adolescents is influenced by the process of assimilation and its interaction with macro-level community contexts.

We measure depression, the most common mental health problem among adolescents, with a 19-item Epidemiological Studies Depression (CES-D) scale in Wave 1. We borrow the same set of self-esteem indicators used by Bankston and Zhou (2002), six items that were implemented in Wave 1. For both depression and self-esteem, we combine the items, after reverse-coding certain items, to form

¹⁴ We set $\lambda^2 = R^2/(1 - R^2)$, under the assumption that the proportion of between-school variation is the same for normalized grades as for the Peabody Picture Vocabulary Test scores. For our data, λ is .513.

¹⁵ A small number of students did not have grades in all four subjects. For them, the average was computed from grades in all available subjects.

composite scales. A higher value means greater depression or higher self-esteem. Variable definitions and sample statistics for all the outcome variables are given by race in the third panel of the Appendix.

At-risk behaviors are important outcomes in studies of immigrant children. For example, Harris's (1999) study examines health risk behaviors among immigrant children, using data from Add Health. More recently, Harris, Harker, and Guo (2003) focus on school-related behavior problems (such as not completing homework) among immigrant children, also using Add Health data. A focus on at-risk behaviors permits an appropriate test of segmented assimilation theory. If immigrant children follow Path 3 of downward mobility by assimilating to "oppositional youth culture," there should be observable behavioral manifestations. Thus, we are interested in how assimilation paths affect the likelihood that an immigrant child is engaged in at-risk behaviors. For this paper, we use four measures of at-risk behaviors: (1) delinquency, (2) violence, (3) use of controlled substances, and (4) age at first sexual intercourse.

Our delinquency and violence measures are based on series of questions that measure the frequency of various delinquent or violent behaviors. We use 10 items of delinquent behavior to construct a composite measure of delinquency and 9 items of violent behavior to construct a composite measure of violence. We create the composite scales by summing the self-reported occurrences in the past 12 months on all relevant items. For example, the delinquency scale potentially ranges from 0 (for a respondent who reported no delinquent behaviors) to 10 (for a respondent who engaged in every behavior at least once).

We derive our measure of controlled substance use from the self-reported use of tobacco, alcohol, and marijuana. Smoking and marijuana usage were measured by the number of days used in the past month. Alcohol consumption was measured by the frequency of use over the past 12 months, with possible responses being "never," "once or twice," "once a month or less," "2 or 3 times a month," "once or twice a week," "3 to 5 days a week," and "nearly everyday." As expected, use of controlled substances varies highly by age and substance. Therefore, we standardize the three items on smoking, drinking, and

marijuana use by age. Starting with the age-specific distributions of use for each substance, we first determine respondent's age-specific percentile scores along each of the distributions. We then combine the information from the three items into a single scale by taking the average percentile score across all three.

Finally, we model age at first sexual intercourse. Adolescents who have sex at young ages are at greater risk of pregnancy and sexually transmitted diseases than those who delay the onset of sexual intercourse. Sexual intercourse is not an easy outcome to examine, for two reasons. First, the crucial information is about the timing of initiation of sex. Second, this outcome variable may be censored for some respondents who had not experienced sex by the time they were last interviewed. For these two reasons, it is necessary to construct event-history records concerning the timing of sex initiation. We construct this variable using information from all three waves. In each wave, respondents are asked if they have had sexual intercourse, and if so, when they did so for the first time. For respondents who were virgins at Wave 1, we ascertain if and when they had initiated sex in Wave 2; and for respondents who were virgins at Wave 2, we ascertain if and when they had initiated sex in Wave 3. We model the hazard rate of sex initiation given that one has not initiated sex. We estimate Cox proportional hazard models to study the effect of assimilation and context on the hazard of experiencing first sexual intercourse (Powers and Xie 2000).

Statistical Analysis

Our analytical strategy for testing the empirical implications of segmented assimilation theory is to estimate regression models with Add Health data. Specific forms of actual regressions differ depending on the nature of the dependent (i.e., outcome) variable. For continuous outcome variables (academic performance, self-esteem, depression, delinquency, violence, and controlled substance use), we use ordinary least squares (OLS) linear regressions. For the dichotomous outcome variables (high school graduation and college enrollment), we estimate logit regression models. For the hazard of sex initiation, we use the Cox proportional hazards event history model. Note that both the logit model and the hazard

model can be viewed as transforming the dependent variable via a nonlinear function (Powers and Xie 2000). Thus, in all of our statistical models, the “structural,” or systematic, part of regression is still linear with respect to independent variables. Throughout the analyses, we apply appropriate sampling and panel weights to account for stratified disproportionate sampling and differential rates of non-response and attrition over time. Thus, for ease of illustration, we present our statistical analytical strategy below in terms of OLS regressions.

We know that there are substantial differences in immigration experiences across racial/ethnic groups and wish to allow for such differences in our analyses. However, the data are of a limited sample size and do not allow us to estimate too many interaction parameters. Thus, we make the following compromise: we estimate all the statistical models separately for Hispanics and for Asians but assume ethnic differences to be additive (i.e., affecting only the intercept) within each race. The structural portion of the regression models takes the following form (omitting subscript i for the i th individual):

$$\mu(Y) = \tau'X + \beta_A'A + \beta_C'C + \beta_I'I \quad (13)$$

Let us define notations in equation (13):

$\mu(Y)$ = the expected value of Y .

X = other covariates, beyond ethnicity, that are controlled: age, gender, and parental background (Appendix, bottom panel).

A = assimilation measure (higher value means more assimilation).

C = community context measure (1 = low community SES; 0=high community SES).

I = interaction between A and C .

We expect that the interaction effect (β_I) is statistically significant and, and more precisely, for a positive outcome, $\beta_I < 0$. This is true because immigrant children in a low SES community benefit less from assimilation than those in a high SES community. Note that, in the presence of interactions, it is usually not advisable to discuss the coefficients of the “main effects,” since interaction means that the effect of one variable depends on the value of another variable. That is, the so-called “main effects” do

not exist in the presence of interactions. If there is no interaction term in the model, we expect $\beta_c < 0$ because low community SES should have a negative influence on children's outcomes. According to segmented assimilation theory, the negative effect of living in a low SES neighborhood strengthens as an immigrant is more assimilated.

Let us now highlight additional features of equation (13):

1. There are multiple measures of both A (for assimilation) and C (for community). Altogether, we use a total of 10 measures of assimilation and two measures of community context. The different combinations of A and C measures give rise to different model specifications.
2. We include country of origin, or ethnicity, as one of the key covariates in X.
3. We apply the model to all of the nine outcome variables, separately for Asians and for Hispanics. Altogether, we estimate a total of 360 regressions with interactions (as in equation 13) due to the combination of the dimensions $10(A) \times 2(C) \times 9(Y) \times 2(\text{race})$.

Results

Effects of Assimilation in a High-SES Context

We estimated the full interaction model as specified by equation (13) for all the outcome variables. Given the dummy variable coding of the community context (C) measure, the coefficient of A reveals the estimated effect of assimilation on the outcomes of adolescents living in a “high”-SES community context. The word “high” should not be taken literally. For the neighborhood measure, it means a community that does not have a high concentration of persons living under the official poverty line. For the school measure, it means a school wherein the majority (80% and above) of the students' mothers have completed a high school education. The estimated assimilation effects for adolescents living in high-SES neighborhood contexts are reported in Table 3, separately for Hispanics (upper panel) and Asians (lower panel).¹⁶

¹⁶ Results for respondents in high-SES school contexts are similar and available upon request.

 Table 3 about Here

Despite the use of a variety of measures of assimilation and outcomes, the results in Table 3 show a surprisingly consistent pattern. Let us divide the table into three segments: (1) the first five columns--from “High School Graduation” to “Depression”; (2) a single column--“Delinquency”; and (3) the last three columns--from “Violence” to “Sexual Intercourse.” In the first segment, assimilation either has beneficial effects or is statistically insignificant from zero, with one exception. Most of the estimated coefficients are statistically insignificant. Some statistically significant assimilation effects in this segment are not the same between Hispanics and Asians. For example, speaking English at home is significantly associated with a (88%) higher odds of attending college and a lower (1.66 points) depression level among Hispanics, but not among Asians. Having interethnic friends is associated with a higher (.21 standard deviation) level of academic achievement among Asians, but not among Hispanics. The one exception in the segment is the estimated negative effect of the length of stay on academic achievement among Hispanics.

In the third segment, assimilation has either “detrimental” effects or no statistically significant effect, again with the latter being more common. For example, speaking English at home is associated with a significant increase in controlled substance use, by 3.27 percentile points among Hispanics and 7.52 percentile points among Asians. This pattern of detrimental effects is quite consistent among the statistically significant results. These detrimental effects of assimilation in segment 3 seem to contradict the beneficial effects in the first segment. The apparent contradiction can be understood in terms of classical formulations of assimilation theory (e.g., Gordon 1964): assimilation is a process by which immigrants gradually become more similar to natives. Given that immigrants started off having lower rates of violence, lower rates of substance use, and later ages of sexual initiation (Harris 1999), “assimilation” for these outcomes means that immigrant adolescents increase their rates of engaging in such activities and thus approach their native-born peers in these risk behaviors. (The term “detrimental effects” is not really appropriate, as it presumes a cultural norm that is valued but actually enforced less

rigidly in American society than the societies from which immigrants tend to come.) As they assimilate, immigrant adolescents gradually gravitate towards their native-born peers. If we accept assimilation as a description of a process, the observed “detrimental effects” in segment 3 are thus interpretable.

Ambiguous results emerge in segment 2, pertaining to the assimilation effects on delinquency, where we find some beneficial but some detrimental effects of assimilation among Asians.

In summary, among Hispanics living in high-SES neighborhoods, we find some evidence that assimilation is positively associated with college enrollment, academic achievement, and self-esteem, and negatively associated with depression. There is also evidence that for these same adolescents assimilation is positively associated with delinquency, violence, use of controlled substance, and early sex initiation. Out of a total of 90 coefficients, 18 are statistically significant from zero at the 0.05 level, and all but one of the significant ones fit the above generalization.

Although the sample size is smaller for Asians than for Hispanics, we find 21 estimated coefficients that are statistically significant from zero for the Asian subsample. Of these, all but 3 (pertaining to delinquency) fit the same generalization that we drew earlier for Hispanics: assimilation is positively associated with educational outcomes and psychological well-being but also positively associated with at-risk behaviors. Thus, overall, the evidence is more consistent with classic assimilation theory than against it.

Earlier in the paper we reformulated segmented assimilation theory as an interaction effect between community SES and assimilation behavior. The key idea is that partial or limited assimilation is beneficial to children living in a low-SES context. We left open the question of whether assimilation is beneficial or merely less harmful to immigrant children living in high-SES contexts, and proposed three possible scenarios. Our results in Table 3 yield evidence consistent with all three scenarios, depending on the particular outcome and assimilation measure. In a majority of cases, there is no significant difference by assimilation. For educational outcomes and psychological well-being, if there is a difference,

assimilation seems to benefit immigrant adolescents. For at-risk behaviors, assimilation seems to be associated with a higher likelihood of engaging in such behaviors.

Testing Segmented Assimilation Theory with Interaction Parameters

To test segmented assimilation theory, we now turn to the interaction parameters, β_I in equation (13). As we discussed earlier, according to segmented assimilation, immigrant children living in low-SES communities are worse off if they assimilate fully than if they do not. According to this reasoning, for a positive outcome (say academic achievement), the estimated coefficient for the interaction between assimilation (A) and community outcome (C) should be negative.

We present the estimated coefficients for Hispanics in Table 4. Each coefficient we report was extracted from a different model, as specified in equation (13), using a combination of measures for assimilation, community context, and outcomes. Again, we focus on estimated interaction coefficients that attain the 5% statistical significance level. In the first panel, we present results using a poverty rate measure in the residential neighborhood as the community context. A census tract with 30% or higher percentage of persons living in poverty is considered a low-SES neighborhood. Among a total of 90 coefficients, only ten attain statistical significance. Of them, six are in the direction that support segmented assimilation theory, whereas four contradict it. In particular, the results suggest that living in a poor neighborhood with a high concentration of immigrants and coethnics is better than living in a poor but non-immigrant, non-Hispanic neighborhood for Hispanic immigrant adolescents' educational attainment. In the second panel, we change the community context to be measured at the school level; a school wherein the high school completion rate among students' mothers is less than 80% is considered a low-SES school. After this change in context, we only find two statistically significant interaction coefficients, and neither is consistent with segmented assimilation theory.

Table 4 about Here

We turn to similar results for Asians in Table 5. In the first panel, we present the estimated interaction effects between assimilation measures and neighborhood context. A census tract in which

15% or more of persons are living in poverty is considered a low-SES neighborhood. Among a total of 90 interaction coefficients, we find only nine of them to be statistically significant from zero. Of the nine significant coefficients, only two of them support segmented assimilation theory. They pertain to the beneficial effects, for delinquency, of having many other Asians as neighbors for adolescents in poor neighborhoods. In the second panel, where we use the school-level measure of community context, there are eight significant interaction parameters, five of which are consistent with segmented assimilation theory. Of the five coefficients consistent with the theory, two of them suggest the protective effects, for academic achievement, of having coethnic neighbors and speaking native languages for adolescents attending low-SES schools. The other three coefficients suggest that, for sex initiation, having immigrant and coethnic neighbors mitigates the negative effects of attending a low-SES school.

Table 5 about Here

On the whole, it seems that there is very little empirical evidence supporting our reformulation of segmented simulation theory in terms of interaction effects between assimilation and community context. We conducted a total of 360 tests and found only 13 of them in favor of the theory. Since we conducted so many tests, we should find some tests to be significant and in support of the theory simply by chance. Further, we found even a larger number (16) of statistically significant coefficients in the direction contradicting the theory.

Conclusion

In this paper, we have reformulated segmented assimilation theory so as to make it testable with observational data. Our reformulation is based on the idea that segmented assimilation theory is really about the interaction between macro-level conditions and individual-level assimilation behaviors or experiences. According to the theory, immigrant children living in poor social contexts are better off not fully assimilating to American culture, as assimilation is “downward” in this situation and would have negative causal consequences. Conversely, immigrant children living in non-poor social contexts either should do well assimilating to natives or at least should not suffer as much from full assimilation.

Our study tested these theoretical propositions empirically with longitudinal data from a nationally representative survey of youth. We devised a large number of assimilation measures, based on demographic, contextual, and behavioral characteristics. We constructed a total of nine outcome measures covering the domains of educational outcomes, psychological well-being, and at-risk behaviors. The analyses made use of two alternative measures of community context – one based on the socioeconomic characteristics of neighbors and one based on the socioeconomic characteristics of schoolmates' parents. Finally, our statistical models allowed for overall differences by ethnicity, age, gender, and family socioeconomic status, but we conducted the statistical tests separately for Hispanics and Asians.

The empirical analyses yield two main findings. First, for immigrant adolescents living in non-poverty neighborhoods, we find assimilation to be positively associated with educational outcomes and psychological well-being but also positively associated with at-risk behavior. The beneficial effects of assimilation lend direct support to classical assimilation theory. However, the “detrimental” effects of assimilation on at-risk behaviors can also be interpreted within the classical formulation of assimilation theory, which predicted the gradual disappearance of differences between immigrants and native-born Americans. Immigrants are more likely to exhibit at-risk behaviors if they are “assimilated” because immigrant groups in general start off less likely than native-born Americans to be engaged in such behaviors.

Second, there is little empirical evidence supporting our reformulation of segmented assimilation. For most of the combinations of context and assimilation in our research design (in fact, 331 out of 360), we do not find statistically significant results and thus cannot reach a firm conclusion about their implications for segmented assimilation theory. The 29 interactive coefficients that are statistically significant have a slight tendency to be in the opposite direction from that predicted by segmented assimilation theory. Thus in only a small fraction of instances do we find support for the theory, and we cannot rule out the possibility that we obtained these supportive results by chance.

These empirical results force us to think harder about the real differences in assimilation experiences between the new immigrants and the old immigrants. America today is very diverse, and arguably more diverse (at least in terms of social norms and economic structure) than America a century ago. Today's immigrants also have diverse experiences of living in America, perhaps more diverse than those of earlier immigrants. While proponents of segmented assimilation theory attribute the latter to the former, it is unclear to us that the relationship is necessarily causal. However, even a close, causal relationship between the two would not necessarily make classical assimilation theory obsolete. Classical assimilation theory predicts that immigrants come to resemble native-born Americans over time.

One difficulty with the original statement of segmented assimilation theory (Portes and Zhou 1993) is that it confounds the processes of assimilation with the consequences of assimilation. In this paper, we reformulated the theory to test the hypothesis that the consequences of assimilation depend on social context. In doing so, we assumed that assimilation is exogenous. While this assumption is reasonable for the demographic measures of assimilation (such as immigration generation and length of stay), it is unrealistic for the contextual and behavioral measures of assimilation, such as the racial and ethnic composition of neighbors and school friends. We can only observe the consequences of contextual and behavioral assimilation experiences after such experiences have taken place. However, we have little insight into the processes that influence assimilation, and we suspect that assimilation behavior and assimilation outcomes may be simultaneously determined. We know that human beings are rational in the sense that they anticipate the outcomes of their behaviors and adjust their behaviors accordingly (Heckman 2000). This classic endogeneity problem presents a serious methodological challenge for the analyses presented in this paper. For example, immigrants living in poor neighborhoods may be aware of the danger of "downward assimilation" and may respond by withholding their children from full assimilation into their neighborhood peer group, or by soon moving to better neighborhoods. Thus, we may not observe the negative consequences of "downward assimilation" because immigrant families have found various ways to avoid, or at least minimize, its effects.

The argument that immigrants adjust their assimilation behaviors in response to local contexts is an alternative interpretation of segmented assimilation theory. In contrast to our reformulation, this alternative interpretation is more explicitly concerned with the process of assimilation than with the outcomes of assimilation. The main idea is that dire economic and social conditions in poor inner city neighborhoods pose the realistic *threat* of “downward assimilation” to immigrant families who reside in close physical proximity to them. A keen awareness of this threat molds immigrant families’ assimilation decisions, resulting in adaptation strategies that in the aggregate enable most (but not all) of their children to avoid actually falling into the trajectory of downward assimilation. Chief among their effective adaptation strategies may indeed be “selective acculturation” (Portes and Rumbaut, 2001) and reliance on ethnic communities as forms of social capital -- factors that are emphasized by proponents of segmented assimilation theory. Thus, this interpretation views assimilation behaviors as more or less rational responses to external situations, with immigrant families acting as free agents with bounded rationality (Esser 2004).

While focusing on assimilation processes rather than assimilation consequences, this interpretation nonetheless follows from our reformulation of segmented assimilation theory, which posits that the consequences of assimilation depend on the local context. If the *anticipated* consequences of assimilation indeed vary by the local context, immigrants would then adjust their assimilation behaviors accordingly. The end result is that, with observational data, we as researchers may not find differential consequences of assimilation according to the local context. We appreciate the appeal and plausibility of this interpretation of segmented assimilation theory, but our empirical results have no direct bearing on it. We welcome future research that evaluates this alternative interpretation empirically.

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Table 1: Interaction Between Community Context and Assimilation behavior

Assimilation Experience	Community Context	
	High SES	Low SES
Partial Assimilation	A (Path 3)	B (Path 3)
Full Assimilation	C (Path 1)	D (Path 2)

Table 2: Average of Y by Community Context and Assimilation Behavior

Assimilation Experience	Community Context	
	High SES	Low SES
Partial Assimilation	$E(Y_a)$ (Path 3)	$E(Y_b)$ (Path 3)
Full Assimilation	$E(Y_c)$ (Path 1)	$E(Y_d)$ (Path 2)

Table 3: Effects of Assimilation, High SES Community

	High School Graduation ^a	College Enrollment ^a	Academic Achievement ^b	Self-Esteem ^b	Depression ^b	Delinquency ^b	Violence ^b	Controlled Substance	Sexual Intercourse ^{b,d}
Hispanic:									
<u>Assimilation Measure</u>									
Length of Stay	-0.031	0.064	<u>-0.032</u> ***	-0.005	0.008	<u>0.082</u> ***	0.042	<u>0.672</u> ***	1.037 *
Length of Stay > 5 years	-0.385	0.532	-0.164	-0.045	1.785	0.320	0.140	<u>3.238</u> *	1.338
U.S.- Born	-0.247	-0.118	-0.055	0.004	-0.480	<u>0.579</u> ***	<u>0.392</u> ***	<u>5.561</u> ***	<u>1.336</u> ***
% U.S.-Born in Neighborhood	-0.031	-0.036	<u>0.086</u> ***	<u>0.031</u> **	-0.235	0.031	0.023	0.102	<u>1.055</u> **
% U.S.-Born > 70%	0.075	-0.059	<u>0.231</u> ***	0.051	-0.745	0.261 *	0.106	1.308	1.194 *
% Non-Co-Ethnics in Neighborhood	-0.047	0.008	<u>0.068</u> ***	0.009	-0.099	0.031	0.028	0.321	<u>1.056</u> ***
% Non-Co-Ethnics>60%	-0.263	0.067	<u>0.299</u> ***	0.048	-0.391	0.068	0.195	2.536 *	<u>1.279</u> **
English language use in home	0.365	<u>0.630</u> **	0.119	0.058	<u>-1.657</u> **	0.223	-0.171	<u>3.265</u> **	1.166
Propensity for inter-ethnic friends	-0.184	0.390	0.022	0.013	-0.534	0.278	-0.138	-2.475	1.169
Propensity > 0	-0.389	0.320	0.050	0.035	-1.577 *	0.202	-0.059	1.675	1.212
Asian:									
<u>Assimilation Measure</u>									
Length of Stay	0.324 *	0.034	0.002	0.014	-0.272 *	<u>0.055</u> **	0.004	<u>0.883</u> ***	<u>1.058</u> ***
Length of Stay > 5 years	<u>3.787</u> ***	<u>2.082</u> ***	0.052	0.161	-2.218	<u>0.486</u> **	0.216	<u>5.226</u> ***	1.193
U.S.- Born	0.113	0.051	-0.062	0.059	-1.691 *	0.135	0.048	3.457 *	1.284
% U.S.-Born in Neighborhood	0.051	-0.187	0.051	0.036	<u>-0.816</u> ***	-0.132 *	-0.083	0.428	<u>1.184</u> ***
% U.S.-Born > 70%	0.095	-0.004	0.070	0.137 *	<u>-2.864</u> ***	<u>-0.535</u> ***	-0.235	0.812	<u>1.889</u> ***
% Non-Co-Ethnics in Neighborhood	-0.043	-0.043	0.017	0.024	<u>-0.579</u> ***	<u>-0.151</u> ***	-0.085 *	-0.701	1.020
% Non-Co-Ethnics> 75%	-0.907	-0.141	-0.051	0.126	<u>-2.656</u> ***	<u>-0.583</u> ***	-0.414 *	-2.986	1.413 *
English language use in home	-0.687	-0.643	-0.168 *	-0.030	-0.183	<u>0.579</u> ***	-0.005	<u>7.519</u> ***	<u>1.948</u> ***
Propensity for inter-ethnic friends	-1.459	-0.336	<u>0.377</u> ***	0.012	-0.230	-0.202	-0.136	1.801	0.901
Propensity > 0	-0.967	-0.182	<u>0.211</u> **	0.016	-0.137	-0.171	-0.042	1.887	0.917

Notes: a) Wave 3 data. N = 713 for Asians; N = 1,204 for Hispanics
 b) Wave 1 data. N = 993 for Asians; N = 1.661 for Hispanics

Statistical Significance:

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

All models control for specific ethnicity, age, sex, family income, parental education, and family structure.
 Models using assimilation measures other than length of stay and generation also control for length of stay and generation.

Highlighting indicates a beneficial effect of assimilation that is statistically significant at the .05 level

Underlining indicates a detrimental effect of assimilation that is statistically significant at the .05 level

Table 4: Interaction between Disadvantaged Context and Assimilation: Hispanics

	High School Graduation ^a	College Enrollment ^a	Academic Achievement ^b	Self- Esteem ^b	Depression ^b	Delinquency ^b	Violence ^b	Controlled Substance Use ^b	Sexual Intercourse ^{b,d}
Neighborhood Disadvantage:^d									
<u>Assimilation Measure</u>									
Length of Stay	-0.110	0.055	-0.006	0.033	-0.186	<u>-0.114</u> ***	0.013	-0.508	0.995
Length of Stay > 5 years	2.473	2.352 *	0.280	<u>0.451</u> **	-5.341 *	-0.956 *	-0.766	-7.741 *	0.683
U.S.- Born	-0.042	-0.457	0.145	0.062	1.603	0.150	0.030	-1.149	1.058
% U.S.-Born in Neighborhood, /10	<u>-0.346</u> ***	<u>-0.234</u> **	-0.041 *	0.004	-0.068	-0.102 *	0.034	0.060	1.022
% U.S.-Born > 70%	<u>-1.335</u> **	-0.891 *	-0.095	0.124	-0.653	-0.215	0.215	-1.100	1.287
% Non-Co-Ethnics in Neighborhood, /10	-0.087	<u>-0.179</u> **	-0.040 *	-0.004	0.044	-0.051	-0.001	0.065	1.015
% Non-Co-Ethnics > 60%	-0.397	<u>-1.112</u> **	-0.272 *	-0.107	1.042	-0.226	-0.142	-1.037	1.150
English language use in home	-0.406	-0.821	0.003	0.042	-0.042	-0.602 *	-0.191	0.928	0.876
Propensity for inter-ethnic friends	<u>2.352</u> ***	1.564 *	-0.269	0.129	2.447	0.735	0.506	<u>8.092</u> ***	1.310
Propensity > 0	<u>2.649</u> ***	0.947	-0.105	-0.025	2.967	0.189	0.063	1.531	0.975
School Disadvantage:^d									
<u>Assimilation Measure</u>									
Length of Stay	-0.127	0.068	-0.021	0.001	0.170	-0.034	0.013	0.498	0.879
Length of Stay > 5 years	-1.139	0.273	0.346 *	0.066	0.608	<u>-0.887</u> ***	-0.236	-4.371	0.090
U.S.- Born	<u>1.746</u> ***	0.693	0.216 *	0.188 *	-1.548	-0.012	-0.181	-1.645	0.372
% U.S.-Born in Neighborhood, /10	-0.044	0.149	0.013	-0.028	0.147	0.035	-0.026	-0.069	1.490
% U.S.-Born > 70%	-0.561	0.226	0.006	-0.022	-0.880	0.051	-0.089	-2.071	3.244
% Non-Co-Ethnics in Neighborhood, /10	-0.159	-0.033	0.037	-0.035	0.157	-0.009	0.011	-0.124	1.222
% Non-Co-Ethnics > 60%	-0.822	-0.233	0.342 *	-0.083	-1.032	-0.171	-0.084	-0.589	3.087
English language use in home	-0.650	-0.685	-0.019	0.119	-1.319	-0.231	0.147	-2.322	1.179
Propensity for inter-ethnic friends	0.497	-0.496	-0.071	0.223	-1.058	-0.513	-0.452	-5.646	0.346
Propensity > 0	0.973	0.004	0.131	0.172	-0.535	-0.192	-0.052	-4.389 *	1.199

Statistical Significance:

Notes: a) Wave 3 data. N = 713 for Asians; N = 1,204 for Hispanics

b) Wave 1 data. N = 993 for Asians; N = 1,661 for Hispanics

c) Hazard ratio of initiating sexual intercourse.

d) Models control for specific ethnicity, age, sex, family income, parental education, neighborhood poverty rate, and family structure.

Models using assimilation measures other than length of stay and generation also control for length of stay and generation.

* p<.10

** p< .05

*** p<.01

Highlighting indicates a significant effect consistent with segmented assimilation theory

Underlining indicates a significant effect consistent contradictory to segmented assimilation theory

Table 5: Interaction between Disadvantaged Context and Assimilation: Asians

	High School Graduation ^a	College Enrollment ^a	Academic Achievement ^b	Self- Esteem ^b	Depression ^b	Delinquency ^b	Violence ^b	Controlled Substance Use ^b	Sexual Intercourse ^{b,c}
Neighborhood Disadvantage:^d									
<u>Assimilation Measure</u>									
Length of Stay	-0.069	-0.218	0.045	-0.057 *	0.266	-0.028	-0.049	-0.503	0.974
Length of Stay > 5 years	-2.688 *	-1.879	<u>0.539</u> **	-0.457 *	1.908	-0.654	-0.376	-5.707 *	0.693
U.S.- Born	-0.436	-0.723	0.235	0.031	0.623	0.071	-0.201	-1.608	0.915
% U.S.-Born in Neighborhood, /10	0.334	<u>0.862</u> ***	-0.005	0.073 *	0.217	0.143	-0.009	0.157	0.915
% U.S.-Born > 70%	2.531 *	<u>5.952</u> ***	0.163	0.239	0.201	0.630	-0.485	1.510	0.608
% Non-Co-Ethnics in Neighborhood, /10	0.131	0.223	-0.055	<u>0.093</u> ***	0.194	0.272 ***	0.098	1.216 *	1.055
% Non-Co-Ethnics > 75%	-0.946	-2.058	-0.424 *	0.383 *	2.412	1.545 ***	0.707	7.031 *	1.110
English language use in home	2.963 *	2.480 *	-0.051	0.397 *	-1.240	-0.413	0.070	-5.769 *	0.552
Propensity for inter-ethnic friends	5.187 *	3.457	0.132	0.242	<u>-6.239</u> ***	-0.657	-0.784	-5.807	0.612
Propensity > 0	<u>4.956</u> ***	3.512 *	0.330	0.142	<u>-5.218</u> ***	-1.000 *	-0.977 *	-7.008 *	0.574
School Disadvantage:^d									
<u>Assimilation Measure</u>									
Length of Stay	0.050	0.213	-0.024	0.016	0.235	-0.048	0.014	-0.239	1.243
Length of Stay > 5 years	-0.718	0.737	-0.094	-0.105	2.818	-0.054	-0.055	-2.427	18.371
U.S.- Born	0.815	1.569 *	-0.312 *	-0.190	-1.014	-0.206	-0.154	3.968	29.101
% U.S.-Born in Neighborhood, /10	-0.019	<u>0.756</u> **	-0.073	0.041	-0.198	0.030	0.052	1.187	3.420 **
% U.S.-Born > 70%	0.612	<u>3.346</u> ***	-0.163	0.133	-0.770	-0.284	-0.450	2.413	15.567
% Non-Co-Ethnics in Neighborhood, /10	-0.243	0.323 *	-0.106 ***	0.047	-0.113	0.111	0.051	1.077 *	2.872 ***
% Non-Co-Ethnics > 75%	-0.816	0.264	-0.203	-0.134	1.652	0.072	-0.118	1.896	138.745 **
English language use in home	2.154	1.766 *	-0.400 ***	-0.113	1.547	0.237	0.465	-1.189	0.346
Propensity for inter-ethnic friends	-1.031	3.323 *	-0.142	0.029	-1.459	-0.663	-0.350	2.641	9.840
Propensity > 0	0.393	<u>5.903</u> ***	0.009	-0.044	-1.928	-0.088	-0.077	5.570 *	1.288

Statistical Significance:

- Notes: a) Wave 3 data. N = 713 for Asians; N = 1,204 for Hispanics
 b) Wave 1 data. N = 993 for Asians; N = 1,661 for Hispanics
 c) Hazard ratio of initiating sexual intercourse.
 d) Models control for specific ethnicity, age, sex, family income, parental education, neighborhood poverty rate, and family structure.

- * p<.10
 ** p<.05
 *** p<.01

Models using assimilation measures other than length of stay and generation also control for length of stay and generation.

Highlighting indicates a significant effect consistent with segmented assimilation theory

Underlining indicates a significant effect consistent contradictory to segmented assimilation theory

Appendix: Variable Descriptions and Means

Variable	Variable Description	Mean for Hispanics	Mean for Asians
<u>Assimilation Measure</u>			
Length of Stay	Years since arrival in U.S., for first-generation immigrants	8.46	8.38
Length of Stay > 5 years	Binary: 1= Length of stay > 5 years, 0= Length of stay <=5 years	0.74	0.75
U.S.- Born	Binary: 1=second generation, 0=first generation	0.62	0.41
% U.S.-Born in Neighborhood	% of U.S-born persons in respondent's neighborhood (higher=fewer co-ethnics)	73.7	78.2
% U.S.-Born > 70%	Binary: 1=neighborhood population more than 70% U.S. born	0.66	0.65
% Non-Co-Ethnics in Neighborhood	% of non-Hispanics (non-Asians) in neighborhood, for Hispanic (Asian) respondents	62.6	80.2
% Non-Co-Ethnics> 75% (Asians), >60% (Hispanics)	Binary: 1=% Co-ethnics in neighborhood less than approximate race-specific median	0.61	0.68
English language use in home	Uses English language at home	0.35	0.54
Propensity for inter-ethnic friends (R)	Difference between proportion co-ethnics in school and proportion among friends	-0.24	-0.30
Propensity (R) > 0	Binary: Has more inter-ethnic friends than predicted by chance	0.36	0.42
<u>Context Measure</u>			
Poor Neighborhood	Neighborhood context: Neighborhood poverty rate > 15% (Asians), or 30% (Hispanics)	0.25	0.20
Low SES School	School context: More than 20% of students' mothers in R's school have less than a high school education	0.60	0.42
<u>Outcome Measure</u>			
High School Graduation ^a	Binary: 1=respondent graduated from high school by Wave 3	0.73	0.91
College Enrollment ^a	Binary: 1=respondent enrolled in college by Wave 3	0.55	0.84
Academic Achievement	Average grades in Wave 1, standardized and adjusted for achievement differences across schools	-0.43	0.29
Self-Esteem	Score on self-esteem scale (higher=more self esteem)	3.02	2.98
Depression	Score on depression scale	12.61	12.21
Delinquency	Frequency of delinquent acts in last year	1.22	1.06
Violence	Frequency of violent acts in last year	1.37	0.96
Controlled Substance Use	Age-specific percentile score in combined use of alcohol, tobacco, and marijuana	45.97	43.11
Initiation of Sex	Age of first sexual intercourse		
<u>Control Variables</u>			
Age	Respondent's age at Wave 1 interview	16.05	16.13
Gender	Binary: 1=Female	0.51	0.47
Parent interview missing	No parent interview (hence no family income information)	0.17	0.32
Family Income	Log of family income, imputed for those with missing parent interview	9.75	10.40
Average parental education	Average of parental education in 2-parent family, parent's education in single-parent family	10.98	13.65
Single parent family	Binary: 1=single parent family, 0 otherwise	0.28	0.17
Stepparent family	Binary: 1=stepparent family, 0 otherwise	0.15	0.09

Notes: a) Wave 3 data. N = 713 for Asians; N = 1,204 for Hispanics

b) All other measures came from Wave 1 data. N = 993 for Asians; N = 1,661 for Hispanics