NBER WORKING PAPER SERIES

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THE PROCESS OF ASSIMILATION

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NBER Working Paper No. 16430
October 2010
JEL No. J22,J61

ABSTRACT

Using 2004-2008 data from the American Time Use Survey, we show that sharp differences between the time use of immigrants and natives become noticeable when activities are distinguished by incidence and intensity. We develop a theory of the process of assimilation—what immigrants do with their" time—based on the notion that assimilating activities entail fixed costs. The theory predicts that immigrants will be less likely than natives to undertake such activities, but conditional on undertaking them, immigrants will spend more time on them than natives. We identify several activities—purchasing, education and market work—as requiring the most interaction with the native world, and these activities more than others fit the theoretical predictions. Additional tests suggest that the costs of assimilating derive from the costs of learning English and from some immigrants' unfamiliarity with a high-income market economy. A replication using the 1992 Australian Time Use Survey yields remarkably similar results.

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I. Introduction

One online dictionary defines "assimilate" as "to absorb into the culture or mores of a population or group."[1] This definition connotes a process, and the same source defines "assimilation" as "an act, process or instance of assimilating"—presumably, being absorbed "into … group." In this study we focus on assimilation in light of this definition, studying what immigrants do which might enable some of them to assimilate while others do not.

Assimilation has hardly been neglected by economists. Indeed, in the past 40 years there have been immense numbers of studies that have focused on assimilation. With the exception of studies of labor supply, all of these have examined the outcomes of the process, not the process itself.   Thus Chiswick's (1978) classic cross-section analysis focused on wage changes accompanying time spent in a new country, as did Borjas' (1985) and (1995) analyses of artificial cohorts. Other work (e.g., Antecol *et al*, 2006) has expanded the examination of the outcomes of the process of assimilation to focus on both prices (wage rates) and quantities (employment levels). We care about these outcomes—they are the indicators of immigrants' well-being, and they provide signals to potential immigrants (and also to potential emigrants); but they tell us nothing about what immigrants are doing in the **process** of assimilation itself.

In this study we step back from this black-box approach to assimilation and focus instead on the process of assimilation—on what immigrants actually do. We develop some facts describing immigrant-native differences in the use of time; based on these facts, we derive an economic theory of assimilation that has specific testable predictions about the behavior of immigrants. We test these predictions on a large recently created American data set, the American Time Use Survey. After having examined their validity (or lack thereof), we then attempt to infer what causes differences in the underlying parameters of the model. This examination leads to a discussion of the sources of heterogeneity in immigrants' outcomes and to

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[1]Merriam-Webster online dictionary, http://www.merriam-webster.com/dictionary, searched February 4, 2010.

efforts that could be made to change the assimilation process that might improve outcomes. Finally, we replicate these results on an older Australian data set.

Although one recent unpublished study (Vargas and Chavez, 2009) has examined immigrants' time use, and another (Zaiceva and Zimmermann, 2010) examined time use by ethnicity, our approach is novel for economists, focusing on assimilation as a process rather than a set of outcomes. While new to economics, viewing assimilation this way has occupied historians and others for a very long time.[2] Handlin's (1951) classic discussion dealt at least as much with this as with outcomes—the "immigrant experience" is one of becoming rather than being, and assimilation is viewed as a learning process:

> Working as they did in a new fashion and in a strange place, it took time to find a way around, to begin to learn the operations of the productive system of which they had become a part. (Handlin, p. 65)

II. Some Initial Impressions

Since 2003 the U.S. has developed the largest data set in the world using time diaries with its American Time Use Survey (ATUS), which is based on respondents from households that had recently left the Current Population Survey (CPS) sample. We use data from 2004-2008, containing diaries kept by nearly 65,000 individuals ages 15 and up, each for the one day prior to the morning they completed the diary, with each diarist being the sole member of the household asked to complete a diary (see Hamermesh *et al*, 2005). There are 55,949 natives in the sample and 8,976 immigrants.   With the appropriate sampling weights (variably weighting the respondents and the days for which they kept diaries) we obtain a complete picture of what the representative American, immigrant or native, was doing on a representative day during these five years.

The ATUS does not allow us to answer all the interesting questions about the process of assimilation as reflected in time use: Its restriction to one household member prevents us from

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[2]The role of learning and time use in assimilation has been recognized in song: Leonard Bernstein, *Candide*, "I am so easily assimilated, …, It's easy, it's ever so easy! Do like the natives do."

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examining within-family behavior; and the restriction to one diary-day per person prohibits considering differences in habitual behavior between immigrants and natives. The data set does, however, provide a sufficiently large sample of immigrants and enough additional information about them to enable us both to draw conclusions about immigrant-native differences and to examine the underlying causes of any implied differences in the costs of assimilation.[3]

The ATUS classifies activities into over 400 separate categories, of which the biggest three, sleeping, paid employment and watching television, account for over 60 percent of all time used in the U.S. Not surprisingly, most activities are not engaged in by most respondents: The representative native averages 24.5 separate activities each day, as does the representative immigrant. Clearly, this preponderance of zeroes means that we cannot concentrate on a small set of primitive categories, since immigrant-native differences in participation in the activity would be tiny; we must instead examine somewhat larger aggregates. We focus on ten aggregates of activities: Purchasing, education, market work, care for others, eating/drinking, household activities (household production), personal care, other leisure, socializing/television watching, and organizational/civic/religious activities. For the first three of these aggregates, the three that we examine in most detail, Appendix Table 1 lists the sub-aggregates (many of which are themselves aggregated from the primitive categories) that comprise them, along with the average amounts of time in the most common sub-aggregates..

In creating these aggregates we recognize that the task of classification is essentially arbitrary. For example, sleeping is clearly personal care; but is going to church a religious activity or socializing? Should eating/drinking be a separate category, or is some of it more properly included in work, as in a business lunch, or in socializing, as with a dinner with friends?

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[3]While all the results reflect population-based sampling weights in the ATUS, one might be concerned about unit non-response. It is true (Abraham *et al*, 2006) that in terms of observables this is not a problem in the ATUS, but perhaps the sample is non-representative along non-observable dimensions. We obviously cannot account for this potential difficulty; but, if it exists, one would think that those immigrants who, other things equal, are less likely to have completed time diaries are those who are most different from natives. That being the case, the results here will understate the true immigrant-native differences.

In the end, as with the use of any accounting data, we are thrown back on the classification choices made by the producers of the data.

Consider the raw differences in patterns of time use between immigrants and natives. All of the statistics (and the results throughout this study) use the 2006 sampling weights to create estimates for the representative American on a representative day. The first row for each of the ten categories in Table 1 presents the mean amount of time in the activity by the average immigrant (native). Looking at these unconditional means suggests that there is no difference in time spent in many activities by immigrants and natives. The mean amounts of time spent in purchasing and education, for example, are nearly identical; and there appears to be no particular pattern in the other differences.[4]

In the second and third rows of each part of the table we present the fractions of sample members engaged in the activity (its incidence) and the conditional means of time spent on it by those who do engage in the activity (its intensity). Delving into these patterns reveals a richer picture of immigrant-native differences. Consider, for example the purchasing category: Although the unconditional means are equal, immigrants are less likely to undertake the activity, but their intensity in it exceeds that of natives. On the other hand, the unconditional mean time spent in organizational activities is greater among natives, but that is entirely due to their greater incidence of this activity—the intensities are the same. In these activities the distinctions are clear, but even in others the table demonstrates the need to go beyond comparing unconditional means.

III. Theoretical Motivation

Noticing that one cannot describe immigrant-native differences in time use merely by looking at the unconditional average time in particular activities, we construct a theory of assimilation that highlights the incidence-intensity distinction. Assimilation is an investment

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[4]The time diary method requires total times to exhaust the day—1440 minutes. Because a few categories could not, however, be coded, the sums of these averages do not quite exhaust the total: Among immigrants they total 1422 minutes, among natives 1419 minutes.

process—the immigrant does things that natives do not need to do in order to learn more about the new country and "fit in better" in the future. To capture this process parsimoniously, let there be two time periods, t = 1 and 2, and two types of individuals, natives (N) and immigrants (F). Some of the things that an immigrant does help him or her assimilate. Taking a course in English, dealing with the transportation system, working outside the ethnic enclave, and shopping in non-ethnic stores all increase the immigrant's familiarity with the new society. Conversely, other activities, particularly those that are performed at home, and those that involve dealing with other immigrants with the same background, are not assimilating.

With these considerations in mind, let there be two types of activity, assimilating activities, a, and other activities, a fraction 1-a, together making up the total amount of time available, set equal to 1 for convenience. Assimilating activities require overcoming the language and cultural hurdles of getting out into the native world. Doing, so, however, generates the benefit that the immigrant will be able to obtain more desirable outcomes more quickly—i.e., perform better, derive greater utility in the future.

We can write the Foreigner's maximization problem as:

(1)   Max $\{U(a_1, 1- a_1) – CI(a_1) + RF(a_1)U(a_2, 1- a_2)\}$,

where $0 < U_1(a_t, 1- a_t), U_2(a_t, 1- a_t) < \infty$ for $0 \le a_t \le 1$; $U_{11}, U_{22} < 0$. R is the discount factor, $0 < R < 1$. The gain to engaging in the assimilating activity is increased utility in the future, with the magnitude of the gain depending upon the function F, $F(0)>0$, $F'>0$, $F''<0$. I(.) is an indicator function equaling 1 if $a_1 > 0$, 0 if $a_1 = 0$; and each immigrant incurs the lumpy cost C of choosing to overcome the hurdles (language, foreignness, etc.) of undertaking the assimilating activity.

The parameter C varies across immigrants—some find it easier than others to leave the comfort of their familiar culture and take part in activities that are foreign to them. We have assumed that the costs of participating in the assimilating activity are independent of the amount of the activity that is undertaken. We envision them as the costs overcoming the hurdle of entering into the native world. This is probably a simplification—some of these costs no doubt

are also variable, rising as the amount of the assimilating activity increases. Nonetheless, so long as some part of the cost is fixed, the predictions of the model are valid; and the presence of variable costs adds no other testable predictions.

Maximization by the immigrant in Period 1 yields:

(2a) $\quad U_1(a^*_1, 1- a^*_1) - U_2(a^*_1, 1- a^*_1) = -RF'(a^*_1)U(a_2 , 1- a_2)$, if $a^*_1 >0$, with $a^*_1 > 0$ if:

(2b) $\quad [U(a^*_1, 1- a^*_1) - U(0, 1)] + R[F(a^*_1)-F(0)]U(a_2 , 1- a_2) > C$.

Now consider maximization by the native. We assume that the native's costs of undertaking the assimilating activity are identically zero—$C \equiv 0$, and that there are no gains to assimilation—$F(a_1) \equiv 1$ for all $a_1 \geq 0$. The native has, by definition, already assimilated. The utility-maximizing choice of activity in Period 2 is identical for both natives and immigrants—all that differs, assuming that U is the same for both, is the fillip to utility generated by the fact that $F(a^*_1) <1$ for immigrants. Given the shape of U, the native will always undertake some of both the assimilating activity and the other activity; and the right-hand side of (2a) is identically zero among natives (because $F'(a_1) \equiv 0$ for natives).

We can thus focus on differences in outcomes in Period 1 between natives and immigrants. Recognizing that C is a random variable, rewrite the equation describing the immigrant's decision about whether or not to undertake the assimilating activity as:

(2b') $\quad Pr\{a^*_1>0\} = Pr\{C < [U(a^*_1, 1- a^*_1) - U(0, 1)] + R[F(a^*_1)-F(0)]U(a_2 , 1- a_2)\}$,

and remember that this probability is identically one for natives. Comparing (2a) between immigrants and natives, whatever the maximizing choice of a^*_1 is for natives, the presence of a negative term on the right-side for immigrants means that, if they choose to undertake any of the assimilating activity, the amount chosen will exceed that undertaken by natives.

The model thus generates two major predictions:

1. The assimilating activity is less likely to be undertaken by immigrants than by natives. That is more likely to be true if the costs of assimilation C are higher, the gains to assimilation, $F(a_1) - F(0)$, are lower, and if the immigrant has a shorter horizon (lower R).

2. Conditional on both engaging in the assimilating activity, the immigrant will choose a higher a_1^* than the native.

In addition to these two broad implications about immigrants in comparison to natives, one can go further and proxy some of the parameters to consider how outcomes should change with variation in immigrants' characteristics. Thus we would expect:

3. Immigrants who have been in the new country longer will be more native-like. Their probability of engaging in assimilating activities will approach that of natives, and, conditional on engaging in these activities, the amount they undertake will approach that of natives (and be less than that of more recent immigrants who choose to engage in the activities).

4. The same thing will be true for immigrants from countries that are more similar to the U.S. than for immigrants from countries that are more "foreign"—for whom presumably the costs of assimilation are greater.

5. Older immigrants, conditional on the time they have lived in the new country, will have a lower probability of engaging in the assimilating activity, because for them Period 2 is shorter.

IV. Basic Results

To move from the theory and its implications to empirical analysis, we first need to consider what activities might be called "assimilating." The process of assimilation involves using one's available time partly to invest in learning about the native culture, economy and environment. We need to define which activities can appropriately be classified as assimilating. We arbitrarily assume that the three activities—purchasing, education and market work—are to be included in this list, while the other activities are not and can be called non-assimilating. In the end, however, the best test of what is an assimilating activity is whether it is characterized by the immigrant-native differences in behavior suggested by the theory.

Obviously, we cannot tell for those activities that we believe to be assimilating whether the time spent by an immigrant in the activity eases him/her into the native world. For example, a work activity may take place in a sweatshop where the immigrant worker is surrounded by his/her

fellow immigrants who speak the same language, and where s/he deals with a foreman in that same language. Alternatively, eating and drinking may occur in a workplace where the immigrant is surrounded by natives. While the ATUS does identify the location of an activity and the presence of others, these identifications are only provided for some of the activities; and it is not possible to identify the immigrant status of any other people (except household members) present when the respondent engages in the activity.

While we could provide a quick informal test of the theory using the means in Table 1, a consideration of the immigration literature and the descriptive statistics in Table 2 suggests this would be misleading. In this sample, immigrants are significantly younger than natives. Perhaps more important, while 23 percent of natives are under age 18 or over age 64, only 13 percent of immigrants are. In addition, immigrants are much more likely than natives to be Hispanics, much less likely to be African-American, and much more likely to be married. They have many more children at home than do natives, and those children are disproportionately likely to be pre-schoolers. Immigrants are much less likely than natives to have gone beyond high school, and also more likely not to have completed high school; but they are more likely than natives to have advanced degrees. All of these demographic differences are consistent with immigrant-native differences shown in more familiar data sources, including the U.S. Census of Population (Kritz and Gurak, 2005; Duncan and Trejo, 2009; Friedberg and Jaeger, 2009).

These demographic differences make it essential that, in testing the theory and pointing out immigrant-native differences in the incidence and conditional amounts of assimilating activities, we account for as many of them as possible. Since the essential point of the theory is that the central characteristic, immigrant status, will have opposite effects on incidence and intensity, one's initial instinct of estimating a tobit model (e.g., Stewart, 2009) on these time-use data would lead one astray. Instead, the theory suggests using a double-hurdle model, of the type proposed by Cragg (1971), which involves the joint estimation of a probit on the incidence and a truncated regression on the intensity. We can test whether the impact of immigrant status on

these two outcomes differs by constraining its effects to be the same and performing a likelihood-ratio test.[5]

We begin with Table 3, showing the determinants of the incidence of the particular assimilating activities, and the aggregate of the three assimilating activities, based on probits estimated over the entire sample of 64,925 ATUS respondents from 2004-2008. This table, and all subsequent tables that show results describing incidence, list the effects of a one-unit increase in the independent variable on the probability of the activity being undertaken. We then examine the determinants of the intensity of time use in these activities, and then move to examine incidence and intensity among the other activities.

Before examining the predictions of the theory about the incidence of these activities, consider the impacts of the control variables (which we present here, but in none of the subsequent tables describing incidence). Among the most interesting results on the demographic characteristics are: 1) Men are more likely than women to engage in the activities that we believe may be assimilating, but only because they are much more likely than women to be working for pay; 2) Those with young children are less likely to engage in these activities, both because they are less likely to work and because they are less likely to be engaged in an educational activity; 3) As has been shown for a number of countries for activities generally (Gronau and Hamermesh, 2008), there is a steady increase in the probability of engaging in each of these activities as the respondent's educational attainment is higher. Given the immigrant-native differences in the means of these demographics and their role in determining the incidence of these activities, their inclusion in these equations is especially important for inferring the directions and magnitudes of immigrant-native differences among otherwise identical individuals.

Participation in assimilating activities overall is statistically significantly lower among immigrants, with a difference between them and natives of 1.5 percentage points (on a mean of 77 percent). This central result is driven by purchasing activities, which are far less likely to be

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[5]This is easily accomplished in STATA using the routine "craggit" created by Burke (2009).

undertaken by immigrants than by natives.[6] Educational activities are marginally more likely to be undertaken by immigrants, while rates of market work are essentially identical between the two groups. Overall the results for the crucial variable, immigrant status, do suggest weakly that the theory describes these activities.

Table 4 presents tests of the second major prediction, namely that, conditional on engaging in an activity, immigrants will spend more time on it. The sample sizes in these truncated regressions vary from activity to activity because the number of participants varies across activities. As with the discussion of incidence, we first turn to examining the impacts of demographic differences (and present these only in this table). 1) African-Americans spend conditionally less time in the activities that may be assimilating, mainly because they spend less time in educational activities; 2) Men are more likely to spend time in these activities, entirely because, conditional on working for pay, they spend more time in the market; 3) Similarly, having more and especially younger children in the household reduces the amount of time in assimilating activities among those who participate in them; 4) Finally, the amount of time in these activities, conditional on engaging in them, rises steadily with educational attainment.

Conditional on participating in the activity, immigrants spend more time on it in each of the three categories. Moreover, the additional amount of time that immigrants spend in what we have designated as assimilating activities is not small: 10.9 percent extra in purchasing, 9.7 percent extra in education, 4.0 percent extra in market work, and 5.7 percent extra in assimilating activities in total (and hence 1.2 percent less time in other activities).

For each activity the final row of Table 4 provides the t-statistic testing the cross-equation constraint that the effects of immigrant status on incidence and intensity are the same (that we could have combined the two in a standard tobit model rather than estimating separately the probit and truncated regression for each activity). In each case the hypothesis of equality is

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[6]This result is driven by purchasing of goods (see Appendix Table 1), which accounts for slightly more than half of total time in this category. Immigrant-native differences in travel time, which are arguably less likely to be assimilating, are much smaller.

strongly rejected. In its predictions about the allocation of time conditional on choosing to undertake a particular sub-aggregate of activities, time use in these activities is described fairly well by the theory. Both statistically and in terms of the size of the effects, the data reject the notion that immigrant-native differences in the incidence and intensity of these activities are the same and, indeed, suggest the effects are in opposite and expected directions.[7]

These results are only suggestive: Perhaps immigrant-native differences in incidence and intensity in the other seven activities are also respectively negative and positive, and statistically different from each other. To examine this possibility, we estimate probits and truncated regressions for each of these activities, with Table 5 presenting the estimates of the parameters describing the impacts of immigrant status. The final column of the table presents these estimates for the intensity in the aggregate of these seven activities, which we designate as "non-assimilating," (with the incidence estimates deleted since all sample members engage in at least one of these activities). In six of the seven aggregates, either immigrants have both greater (eating/drinking) or lesser (the three leisure categories) intensities and incidence than natives, or one of the two effects is not significantly nonzero. Only for household activities are the differences in incidence and intensity between immigrants and natives negative and positive, and statistically different, as they were for assimilating activities.

One might be concerned that some of the "controls" are endogenous—that choices about time use affect some of the variables that we have identified as demographic, particularly marital status, age and number of children, and perhaps educational attainment. To examine this, we re-estimated the models in Tables 3-5 holding constant only the age, gender and racial/ethnic variables—the controls that are clearly not subject to choice. The results are nearly identical to those presented in the tables. Another possibility is that the results differ by gender in more subtle ways than is captured by inclusion of an indicator variable. To examine this possibility we

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[7]The results look very similar when we re-estimate all equations separately for individuals younger or older than 40 years of age. The impact of immigrant status is nearly identical regardless of the age of the individual.

re-estimated the models separately by gender. The immigrant-native differences in intensity and incidence (or the absence thereof for some activities) are almost identical for both men and women. Perhaps intra-household behavior leads to difference in immigrant-native differences by gender, but there are no differences by gender in the average effects across households.[8]

A possibly more serious problem is that immigrant status is not exogenous—people choose to emigrate to the U.S. based on economic incentives (e.g., Borjas, 1987), for example, comparing expected earnings and its variance in the home and potential receiving countries. One would expect that incentives based on the costs of assimilating also affect their decisions. This means that our results do not reflect what would be observed if one could randomly choose members of the immigrant population. If, however, potential immigrants are rational, we would expect that those who did migrate (and did not return back to their native countries) are those who expected and found the costs of assimilation to be less than those facing the average potential migrant. This would be true whatever the immigrant's position in the earnings distributions of the home and receiving countries. That being the case, our results underestimate the immigrant-native differences that would be observed if actual immigrants were randomly selected from the set of potential immigrants.

V. The Sources of Differences in Time Use

Having demonstrated that immigrants and natives use time differently and in ways that support a theory based on fixed costs of assimilation, we next explore some possible sources of these fixed costs. What might make C higher for some immigrants than for others? One obvious suspect is language knowledge, as there is substantial evidence (Chiswick and Miller, 1995; Dustmann and Fabbri, 2003; Bleakley and Chin, 2004) that knowledge of English, or at least the opportunity to learn English, affects such outcomes as immigrant-native differences in wages.

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[8]Another possibility is that immigrant-native differences differ by marital status, but that possibility too is not apparent in the data. Nor do the differences result from immigrants' much greater concentration in metropolitan areas: When rural residents are deleted, the results are nearly the same as in Tables 3-5, except that the immigrant-native differences in Tables 3 and 4 are slightly more pronounced.

Accordingly, we focus much of our attention on various measures of English-language facility (although the ATUS does not contain information on this directly). We also consider another measure indicating potential familiarity with a U.S.-style advanced market economy.

The first measure that we use reflects the extent to which an immigrant has had time to acculturate him/herself generally to the U.S., namely the number of years since immigration. To create usefully sized cells we divide years since migration into the categories: Less than 6 years, 6-10 years, 11-20 years, and more than 20 years. As the top panel of Table 6 shows, each of these cells contains large fractions of the U.S. immigrant population, although the overwhelming majority of immigrants have been in the country more than 10 years.

A native whose parents are immigrants may also bear substantial costs of assimilating, although for many outcomes second-generation Americans look much more like higher-order generation natives than like immigrants (Perlmann and Waldinger, 1997; Farley and Alba, 2002; Card, 2005; Burda *et al*, 2008). To examine this additional aspect of assimilation we define nativity variables for natives' parents, including whether both parents are immigrants, the father is foreign-born (and the mother is U.S.-born), or the mother is foreign-born (and the father is U.S.-born). Table 6 shows that nearly 10 percent of natives have at least one immigrant parent, with half of these being children of two immigrant parents and the other half having parents of mixed nativity, with this last group split fairly evenly between children whose lone immigrant parent is their father versus their mother.[9]

In Table 7 we substitute the indicators of years since migration for immigrant status in the probits describing the incidence of the assimilating activities and in the truncated regressions of the intensities of the activities undertaken. We also add the indicators describing second-generation Americans. Consider first the estimates of incidence. Except for education the probit derivatives are largest and most negative for the most recent immigrant arrivals. Moreover, the

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[9]Farley and Alba (2002) and Rumbaut (2004) report similar patterns with respect to the relative size and composition of the second-generation population in the United States.

effects diminish steadily in absolute size with years since migration for the aggregate of assimilating activities (and for purchasing activities).

The results for the intensities of activities are less consistent with the notion of acculturation lowering these costs. Except for purchasing activities, where the conditional amounts undertaken decrease monotonically with years since migration, there are no obvious distinctions between immigrants classified by years in the U.S. Overall, these estimates provide some support for our emphasis on fixed costs in shaping the process of assimilation.

Additional support is provided by the estimated impacts of second-generation status on the incidence and conditional amounts of assimilating activities. Second-generation Americans look nothing like immigrants. Indeed, if both parents were immigrants, the respondent is more likely than other natives to engage in the activities that we have classified as assimilating, although the conditional amounts they undertake do not differ from those of other natives who participate in those activities. At least in terms of time use, these results suggest that the process of assimilation is complete by the time the second-generation person reaches adulthood.

As noted, a central aspect of the costs of acculturation is the cost of acquiring the native language. First, adopting the categorization of Bleakley and Chin (2004), we divide immigrant countries of origin into three mutually exclusive categories: 1) countries where English is the primary spoken language; 2) countries where English is not the primary spoken language but it is designated as an official language; and 3) all other countries, where English is neither the primary spoken language nor an official language. The second panel of Table 6 presents the descriptive statistics for these measures. The overwhelming majority of U.S. immigrants come from countries where English is neither a primary nor an official language. About one-eighth of U.S. immigrants come from countries where English is an official language but not the primary spoken language (with most of these immigrants originating in the Indian sub-continent or in the Philippines), and another eighth of U.S. immigrants hail from English-speaking countries.

A second measure of language facility is more direct but is not exogenous to the individual's choices about assimilation: Was the household's interview in the CPS conducted in a foreign language (overwhelmingly in this sample, conducted in Spanish)?[10] As Table 6 showed, about one-third of immigrants fall into this category. That large fraction raises concerns that our results may be based solely on Mexican immigrants, a concern that is underscored by results showing the sensitivity of some outcomes of assimilation to whether the immigrants are Mexican or not (Farley and Alba, 2002; Duncan and Trejo, 2009). As only twenty percent of immigrants in the ATUS are of Mexican origin, this concern may be misplaced.

The upper half of Table 8 examines the impacts of the treatment of English in the immigrant's country of origin on the probability that s/he undertakes an assimilating activity and on the conditional amount undertaken. The estimates suggest that the one-eighth of immigrants who come from English-speaking countries look less like other immigrants and more like natives in how they allocate time to the so-called assimilating activities. Patterns of time use are quite different, however, among those immigrants who come from countries where English is only an official language, and for the large majority of immigrants who from countries where English is not even an official language. These latter two groups of immigrants show the predicted time use patterns relative to natives, with lower incidences for assimilating activities and higher intensities. The only surprise here is that, at least for the incidence of these activities, the negative effects are greater for those from English-official countries than those from non-English-speaking countries.

An alternative approach relies on the language in which the interview was conducted and includes the additional indicator for Mexican immigrants. The results, presented in the bottom half of Table 8, show that, conditional on their language ability, Mexican immigrants are no more likely than immigrants generally to undertake a particular assimilating activity; and conditional on that they do not perform any less of it. Weak English, however, does matter: Those

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[10]The variable describes the person who completed the CPS interview, whose identity, and perhaps even whose language facility may differ from that of the household's ATUS respondent.

immigrants whose CPS interview was not conducted in English are especially less likely to engage in assimilating activities; but conditional on doing so, they spend more time at those activities (again, with the exception being the few people involved in educational activities). These results underscore again the role of language knowledge in lowering the fixed costs of assimilation.[11]

One might be concerned that Latin culture, which is correlated with immigrants' language knowledge, is driving these results. To examine this possibility, we estimated the equations in Tables 4 and 5 and the bottom half of Table 8 including only the sample of Hispanics, both natives and immigrants. The results look very similar to those estimated over the entire sample: Again, Hispanic immigrants as a group have a lower incidence of these activities than native Hispanics, but, conditional on engaging in them, the intensity is greater. Moreover, the immigrant-native differences are entirely due to differences in language knowledge.

While language facility, or the possibility of it, appears to be a good proxy for the fixed costs in our model, there are others. One argument is that, independent of language ability, the fixed costs of participating in assimilating activities in the United States are lower for emigrants from advanced, industrialized countries with market economies that are similar to the U.S. economy: "How could this man, so recently removed from an altogether different life, explain to himself the product system in which he was enmeshed?" (Handlin, 1951, pp. 78-79)

As a proxy for this idea we obtained the recent per-capita real GDP in the home country of each immigrant.[12] The average GDP per capita in the immigrants' home countries in 2008 was $10,355 (standard deviation $14,200), with a range from $230 to $94,354. Adding this additional

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[11]The conclusions do not change if we interact the proxies for English-language knowledge with the individual's educational attainment.

[12]For most of the countries of origin we use data for 2008 from the World Development Indicators of the World Bank. For a few others for which these were unavailable in that database, we obtained the information from the World Economic Outlook database of the IMF. GDP is converted to U.S. dollars using the exchange rate against the dollar.

proxy for the costs of assimilating to the equations in Table 8 produces the estimates shown in Table 9. The inclusion of this index of development changes the estimates of the effect of emigrating from an English-speaking country, since these are highly correlated, weakening the negative impact of the latter on the probability of participating in assimilating activities and on the conditional amount undertaken. Nonetheless, the effects of GDP per capita itself are consistent with our interpreting them as reflecting lower costs of assimilation: Immigrants from countries with higher GDP look more like natives than other immigrants, both in terms of the incidence of assimilating activities and their intensities.[13]

A broad, albeit fairly weak proxy for these explanations is the extent to which other immigrants are prevalent in the area where the immigrant resides. Restricting the sample to metropolitan residents, we link the data to Census 2000 information on the fraction immigrant in the metro area.[14] Adding this measure to the estimates in Tables 3 and 4 does not alter the conclusions that immigrants are less likely to engage in assimilating activities but that their conditional mean time inputs into them exceed those of natives.

VI. A Replication for Australia

The theory presented above is general, so it should be applicable beyond the parochial confines of the United States. Few countries have large-scale time-diary data sets, and few of those include a sufficiently large number of immigrants to make another test of the theory feasible. Australia is one of those few, being substantially more a nation of immigrants than the U.S.

The Australian Time Use Survey of 1992 (ABS, 1993) included two days of time diaries completed by nearly all of the almost 7000 individuals ages 15 or over included in the sample.

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[13]Adding interactions of home-country GDP with the language categorizations adds nothing to these equations—the effects are apparently independent. We also experimented with other proxies for cultural differences, including dominant Christian-religion or Asian. These are so highly collinear with the variables English-language background and home-country GDP per capita that we cannot draw inferences about their possible independent effects.

[14]We thank Brian Duncan for having supplied his tabulations from the Census 2000.

The diaries were recorded in five-minute intervals on two consecutive days, with the days evenly distributed over the week. To make the analyses as similar to those for the U.S. as possible, we created control variables identical to those included in the tables above—marital status; gender; a quadratic in age; number of children and indicators of their age distribution; and educational attainment.[15] (Indicators for African-American and Hispanic are excluded for obvious reasons.) The data set also includes an indicator of whether the respondent speaks a foreign language at home, and we use that to examine the sources of any immigrant-native differences that we may find.

The survey recorded activities in 280 different categories. To make the test as similar to that for the U.S. as possible, we aggregated these into the same ten sets of activities. Each of these aggregates includes travel time pursuant to the basic activity (as in the U.S. data). The sets of basic activities included in purchasing and market work are very similar to those in the ATUS. Most of the others are too, although education/training activities encompass a somewhat different set of basic uses of time. We do not claim that the aggregates are the same as in the U.S.— differences in the surveys preclude that; but they are as close as we could make them.

Immigrants account for 24 percent of the diary-days of the respondents in these data, compared to 23 percent for all Australians counted in the 1991 Census of Population and Housing.[16] Despite the differences in the basic survey instruments, except for market work, the average (unconditional) amounts of time spent in the activities that we have shown might be viewed as assimilating look strikingly similar to the figures in Table 1: 44 (48) minutes in

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[15]We exclude the few respondents over age 85 and thus outside the age range reported in the ATUS. Also, household residents in the Australian data are recorded as children only if they are under age 15, and their categorization by age differs slightly from that in the ATUS. Finally, the categories of educational attainment necessarily differ from those in the United States. We include as low-educated respondents those with secondary or lesser qualifications; as middle-educated those with trade qualifications or a certificate or diploma; and as high-educated those with a bachelor's degree or higher. We dropped the 5 percent of respondents who were still attending school.

[16]http://www.ausstats.abs.gov.au/ausstats/free.nsf/0/4C64DE2D65803F30CA2574BF00167A44/$File/28210_1991_230_Australia_in_Profile.pdf Table 1.1.

purchasing activities by natives (immigrants); 29 (24) minutes in schooling/training; and 200 (196) minutes in market work. The fractions of the respondents in Australia engaging in what we have classified as education/training are almost identical to those shown in Table 1. What we have classified as purchasing activities are more frequent in these data, but market work is less frequent. Among immigrants, 35 percent of the respondents state that they speak a foreign language at home, nearly identical to the fraction of immigrants in the ATUS with whom the interview was conducted in a foreign language.

To save space all the results for the three activities are presented in Table 10, which is essentially a replication of Tables 3 and 4. Each probit is based on the entire sample of 12,998 diary-days for which all the data were available, and each truncated regression is based on all the individuals who engaged in the activity. Because most respondents completed diaries on two days, standard errors of all the estimated coefficients account for clustering of the observations.[17] For each of the activities, the first column includes only the indicator for immigrant status, while the second adds the foreign-language indicator. All the estimated equations also contain the control variables discussed above.

The results seem qualitatively identical to those for the United States. As in the U.S., the conditional amounts of time spent in the assimilating activities are greater among immigrants than natives. While the probability of engaging in education/training is higher among immigrants than natives, the probability of purchasing or doing market work is lower—the same results that we obtained in the ATUS. Even the ability of the models to fit the data is similar to what we saw in Tables 3 and 4. Finally, as in the U.S. data, tests of the equality of the immigrant effects on incidence and intensity reject the hypotheses.

When we delve behind the basic results (examine the even-numbered columns in each pair), the role of language in generating the outcomes is striking. (Remember that the effect of

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[17]Among those who engaged in the same assimilating activity on both diary days, the within-person correlations of the residuals are 0.21, 0.30 and 0.32 for purchasing, education/training and work respectively.

being an immigrant who speaks English at home is the coefficient on the immigrant indicator, while that for an immigrant who speaks another language at home is the sum of the two coefficients in the table.) The results suggest that all of the effects shown for immigrants in the odd-numbered columns are mediated through language knowledge. Only those immigrants who do not speak English at home engage in conditionally more of the assimilating activities than do natives; other immigrants do not behave significantly differently from natives (conditional on engaging in the activity). English-speaking immigrants are no different from natives in the likelihood of engaging in these activities, while non-English speaking immigrants are significantly less likely to be purchasing or engaging in market work, but significantly more likely to be undertaking education/training. As with the basic results, the results on the importance of language corroborate the findings for the U.S.

An additional check is provided by the estimates of the probits and truncated regressions for the other seven categories of activities, presented in Table 11. For none of these seven do we reject the hypothesis of equal effects of immigrant status on incidence and intensity and also observe a negative effect on incidence and a positive effect on intensity with t-statistics above one. These results thus differ from what we observed for both purchasing and market work in Table 10 and look very much like what we saw in Table 5 for their American analogs.

VII. Conclusions and Implications for Heterogeneity

Taking off from the immigrant-native differences in time use that we document here, we have derived a theory of the process of assimilation based on the notion that it is costly to assimilate—it involves leaving the previous culture and economic mind-set and acquiring ones that match those of the new country more closely. These costs are a barrier to assimilation. Some potential immigrants will not even emigrate, perceiving the barrier to be too great. Others will emigrate, but will not cross that barrier and undertake the activities that natives do. Those immigrants who do cross the barrier have an incentive to undertake more of the assimilating activities than natives.

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Identifying a number of activities that one can view as leading to assimilation, particularly education, shopping and market work, we use the 2004-2008 American Time Use Survey to examine these predictions. They are strongly supported by the data, and immigrant-native differences in other activities are not characterized by the same lower incidence and higher intensity as these activities., Going behind these simple findings, we examine the sources of the apparent costs of assimilation. Various proxies for the ease of assimilating, including the immigrant's language background, suggest that language knowledge partly underlies the costs of assimilation. That a higher GDP per capita in the home country, a proxy for the similarity of its economy to the U.S., also leads immigrants to behave less differently from natives, suggests that unfamiliarity with American-style economic life also underlies those costs.

We also tested the theory on Australia in 1992, using data that have the advantage of coming from a country that is nearly twice as immigrant-intensive as the U.S. While the survey instrument defines activities slightly differently from the U.S. data, the Australian results look very similar to those for the U.S. Even the role of language knowledge in the costs of assimilation is suggested by these data.

We are not testing a theory of fixed costs. Rather, we show that it is consistent with differences in time use in activities that might be viewed as assimilating, but not in others. It is consistent with immigrant-native differences in behavior in both the U.S. and Australia; and the differences in time use among immigrants are consistent with two reasonable determinants of the fixed cost of assimilating, namely language background and familiarity with an advanced market economy.

Our view of the process of assimilation and the demonstration of its validity with time-use data suggest a testable implication on the commonly-examined outcomes of the assimilation process. The theory and results imply that some immigrants will assimilate well, while others never will. While much of the research on assimilation outcomes has focused on the time path of **average** immigrant-native differences, the heterogeneity implied here suggests that the cross-

section variance of immigrants' earnings and hours will exceed that of natives. This should be true for immigrants as a group, but also for immigrants who are otherwise observably the same as natives, since unobservables will leave some residual heterogeneity. The same implications could be tested on such outcomes as wages/earnings, labor-force participation, and hours of work.

In terms of policy, the results suggest that, if the goal is to assimilate immigrants into their new country, the critical need is to encourage them to undertake assimilating activities—to overcome the costs of assimilation. As we have shown, these costs involve familiarity with language and economy, and no doubt other aspects of life as well. Requirements of and subsidized immersion into the language and culture, perhaps like the Israeli *ulpanim*, are one possibility.[18]

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[18]The *ulpan* is designed to teach adult immigrants to Israel the basic language skills of conversation, writing and comprehension. Most *ulpanim* also provide instruction in the fundamentals of Israeli culture, history, and geography. The primary purpose of the *ulpan* is to help new citizens to be integrated as quickly and as easily as possible into the social, cultural and economic life of their new country. (From Wikipedia, Feburary 15, 2010)

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Table 1. Descriptive Statistics on Time Use, Immigrants and Natives, ATUS 2004-08, Mean, Incidence and Conditional Mean, and Standard Error of Mean*

	Immigrants	Natives		Immigrants	Natives
Purchasing	47.41	47.67	**Household activities**	115.69	108.71
	(0.88)	(0.35)		(1.51)	(0.57)
Yes?	0.402	0.461	Yes?	0.718	0.766
Minutes/day	117.89	103.48	Minutes/day	161.22	141.86
	(1.50)	(0.58)		(1.76)	(0.66)
Education	26.44	27.80	**Personal care**	576.85	560.32
	(1.16)	(0.46)		(1.49)	(0.61)
Yes?	0.079	0.086	Yes?	0.999	0.999
Minutes/day	333.87	323.02	Minutes/day	576.95	560.48
	(9.61)	(3.31)		(1.48)	(0.61)
Work	249.79	219.48	**Other leisure**	26.50	35.10
	(3.00)	(1.16)		(0.65)	(0.33)
Yes?	0.492	0.461	Yes?	0.355	0.434
Minutes/day	507.70	475.31	Minutes/day	74.55	80.80
	3.07)	(1.40)		(1.47)	(0.65)
Care	51.31	45.23	**Socializing/ television**	237.54	280.51
	(1.07)	(0.41)		(1.92)	(0.86)
Yes?	0.387	0.359	Yes?	0.936	0.956
Minutes/day	132.64	125.82	Minutes/day	253.77	293.29
	(2.08)	(0.83)		(1.92)	(0.86)

Eating/drinking	73.98	74.25	**Organizational/ civic/religious**	16.66	19.72
	(0.60)	(0.26)		(0.64)	(0.28)
Yes?	0.976	0.961	Yes?	0.119	0.142
Minutes/day	75.83	77.28	Minutes/day	139.56	139.04
	(0.61)	(0.26)		(3.18)	(1.24)
N =	8976	55949			

*All of the statistics here are weighted to reflect the behavior of a representative American on a representative day using the variable wt06, based on the ATUS methodology for 2006.
Standard errors of means, here and in Table 2.

Table 2. Descriptive Statistics on Demographics, Immigrants and Natives, ATUS 2004-2008, Mean and Its Standard Error

	Immigrants	Natives
Age	40.62	44.56
	(0.16)	(0.08)
Hispanic	0.539	0.065
Afr-American	0.077	0.124
Married	0.611	0.531
Male	0.501	0.481
No. Children under 18	0.828	0.491
	(0.01)	(0.01)
Kids 0 to 2?	0.161	0.084
Kids 3 to 5?	0.146	0.077
Kids 6 to 12?	0.246	0.141
Kids 13 to 17?	0.158	0.108
EDUC=12	0.241	0.313
EDUC 13-15	0.163	0.263
EDUC=16	0.150	0.170
EDUC>16	0.101	0.088

Table 3. Marginal Impacts of Immigrant Status and Other Variables on the Probability of Engaging in Activities, ATUS 2004-2008 (N=64925)*

Variable:	Purchasing	Education	Work	Assimilating
Immigrant	-0.0519	0.0082	0.0015	-0.0153
	(0.0088)	(0.0039)	(0.0092)	(0.0072)
Age	0.0031	-0.0117	0.0410	0.0047
	(0.0009)	(0.0004)	(0.0011)	(0.0007)
Age squared/100	-0.0034	0.0096	-0.0526	-0.0107
	(0.0009)	(0.0001)	(0.0012)	(0.0007)
Hispanic	0.0109	-0.0093	0.0150	0.0090
	(0.0094)	(0.0031)	(0.0097)	(0.0072)
Afr-American	-0.0228	0.0029	-0.0501	-0.0497
	(0.0082)	(0.0034)	(0.0086)	(0.0069)
Married	0.0017	-0.0011	-0.0101	0.0081
	(0.0057)	(0.0028)	(0.0065)	(0.0049)
Male	-0.0996	-0.0166	0.1248	0.0140
	(0.0053)	(0.0022)	(0.0055)	(0.0043)
No. Children	0.0035	0.0039	-0.0117	0.0001
under 18	(0.0057)	(0.0023)	(0.0056)	(0.0049)
Kids 0 to 2?	-0.0003	-0.0390	-0.0502	-0.0561
	(0.0094)	(0.0042)	(0.0095)	(0.0070)
Kids 3 to 5?	-0.0091	-0.0240	-0.0277	-0.0431
	(0.0105)	(0.0026)	(0.0103)	(0.0099)
Kids 6 to 12?	0.0083	-0.0145	-0.0185	-0.0086
	(0.0102)	(0.0037)	(0.0101)	(0.0088)

Kids 13 to 17?	0.0199	0.0069	0.0042	0.0228
	(0.0099)	(0.0047)	(0.0099)	(0.0081)
EDUC=12	0.0682	-0.0310	0.1209	0.0529
	(0.0090)	(0.0026)	(0.0100)	(0.0064)
EDUC 13-15	0.1110	0.0041	0.1555	0.0999
	(0.0091)	(0.0033)	(0.0100)	(0.0061)
EDUC=16	0.1424	0.0005	0.2133	0.1355
	(0.0098)	(0.0037)	(0.0102)	(0.0055)
EDUC>16	0.1399	0.0413	0.2736	0.1532
	(0.0111)	(0.0047)	(0.0107)	(0.0051)
Pseudo-R^2	0.0180	0.2741	0.1333	0.0796

*Standard errors of the estimated coefficients here and in Tables 4, 5 and 7-11.

Table 4.   Impacts of Immigrant Status and Other Variables on Time Spent, Conditional on Engaging in an Activity, ATUS 2004-2008

Variable:	Purchasing	Education	Work	Assimilating
Immigrant	11.449	31.492	19.319	22.113
	(1.834)	(9.042)	(4.058)	(3.563)
Age	0.200	-6.887	14.107	12.159
	(0.187)	(1.492)	(0.564)	(0.388)
Age squared/100	0.217	3.540	-16.383	-17.077
	(0.002)	(1.674)	(0.649)	(0.412)
Hispanic	10.366	1.339	21.562	4.395
	(1.932)	(8,484)	(4.406)	(3.780)
Afr-American	5.968	-13.540	5.870	-10.653
	(1.761)	(8.639)	(4.145)	(3.555)
Married	9.764	-5.754	5.381	-0.836
	(1.304)	(10.378)	(3.066)	(2.704)
Male	-19.235	-2.639	56.55	65.607
	(1.092)	(5.906)	(2.524)	(2.184)
No. Children under 18	-3.270	-19.588	-4.350	-7.474
	(1.281)	(10.378)	(2.873)	(2.592)
Kids 0 to 2?	5.202	4.534	0.911	-34.348
	(2.104)	(15.900)	(4.803)	(4.238)
Kids 3 to 5?	2.813	-2.194	-0.327	-16.93
	(2.441)	(20.583)	(5.341)	(4.899)

Kids 6 to 12?	-0.998	2.615	-11.723	-20.601
	(2.373)	(18.925)	(5.196)	(4.765)
Kids 13 to 17?	4.234	46.104	5.752	4.925
	(2.338)	(20.522)	(5.083)	(7.178)
EDUC=12	-2.413	-81.676	33.208	14.668
	(1.847)	(11.149)	(4.589)	(3.679)
EDUC 13-15	-0.286	-36.546	21.346	25.156
	(1.873)	(9.100)	(4.664)	(3.730)
EDUC=16	-6.608	-36.122	17.955	31.366
	(2.047)	(13.012)	(4.943)	(4.107)
EDUC>16	-5.129	-56.96	7.284	43.516
	(2.387)	(17.810)	(0.0107)	(4.808)
Adjusted-R^2	0.0225	0.1511	0.0561	0.1095
N =	30442	4195	25304	46730
t-test of equality of immigrant effects on probability and conditional amount	6.09	3.37	5.69	4.85

Table 5. Marginal Impacts of Immigrant Status on the Probability
of Engaging in Activities and the Conditional Amounts, ATUS 2004-2008*

Outcome:	Care	Eating/ drinking	Household activities	Personal care
Probability of engaging in the activity	-0.0718	0.0119	-0.0400	-0.00001
	(0.0088)	(0.0030)	(0.0081)	(0.0001)
Conditional amount	3.320	2.581	14.119	14.790
	(3.316)	(0.966)	(2.574)	(2.514)
t-test of equality	0.82	5.63	4.98	6.24
N (in truncated regressions) =	26,265	62,505	51,356	64,901

	Other leisure	Socializing/ television	Organization/ Civic/religious	Non-assimilating
Probability of engaging in the activity	-0.0581	-0.0156	-0.0105	
	(0.0086)	(0.0042)	(0.0054)	
Conditional amount	-6.885	-17.732	-7.660	-14.056
	(2.347)	(3.094)	(5.146)	(3.310)
t-test of equality of immigrant effects on probability and conditional amount	3.87	7.14	1.95	
N (in truncated regressions) =	28,082	62,085	11,142	64,925

*Includes all the controls in Tables 3 and 4.

**Table 6. Descriptive Statistics on Years Since Migration,
   Country of Origin and Generational Status**

	Immigrants (N=8976)
Years in U.S. :	
<6	0.190
6-10	0.167
11-20	0.282
>20	0.361
Source Country Language:	
English	0.113
English Official	0.129
Not-English	0.759
Interview Not-English	0.364
Mexico	0.210

	Natives (N=55949)
Parents Immigrants?	
Both	0.051
Father only	0.025
Mother only	0.020

Table 7. Impacts of Years since Migration and Generational Status on the Probability and Conditional Amount of an Activity, ATUS 2004-2008*

Variable:	Purchasing	Education	Work	Assimilating	Not-assimilating
		Probability of the Activity (N=64925)			
Immigrants in U.S.:					
<6 years	-0.0868	0.0263	-0.0300	-0.0351	
	(0.0175)	(0.0086)	(0.0187)	(0.0160)	
6-10 years	-0.0500	0.0078	-0.0117	-0.0214	
	(0.0193)	(0.0080)	(0.0187)	(0.0152)	
11-20 years	-0.0441	0.0103	0.0133	-0.0078	
	(0.0148)	(0.0069)	(0.0151)	(0.0120)	
>20 years	-0.0269	-0.00002	0.0008	0.0062	
	(0.0121)	(0.0054)	(0.0131)	(0.0099)	
Second generation					
Both	0.0361	0.0117	-0.0319	0.0403	
	(0.0142)	(0.0057)	(0.0156)	(0.0102)	
Father only	0.0050	0.0131	-0.0071	0.0084	
	(0.0181)	(0.0098)	(0.0202)	(0.0135)	
Mother only	0.0244	0.0188	-0.0314	0.0224	
	(0.0201)	(0.0098)	(0.0204)	(0.0149)	
Pseudo-R^2	0.0183	0.2751	0.1335	0.0802	

		Minutes	**Conditional on the Activity**		
In U.S.:					
<6 years	20.232	22.949	20.390	18.099	-6.790
	(3.864)	(14.013)	(7.947)	(6.980)	(6.495)
6-10 years	15.891	38.552	16.904	20.771	-13.898
	(3.974)	(18.461)	(8.325)	(7.449)	(6.921)
11-20 years	10.370	69.096	17.545	31.546	-25.298
	(3.124)	(15.169)	(6.517)	(5.911)	(5.518)
>20 years	8.617	-35.264	21.133	16.877	-13.734
	(2.648)	(24.345)	(6.070)	(5.329)	(4.826)
Parents Immigrants:					
Both	7.822	20.978	-4.385	-1.947	-9.628
	(2.746)	(12.023)	(7.323)	(5.663)	(5.169)
Father	-4.385	-7.624	-0.112	-2.309	0.746
	(3.737)	(19.0308)	(9.927)	(7.769)	(6.982)
Mother	-3.747	-13.335	15.741	0.469	-8.595
	(4.039)	(18.676)	(9.927)	(8.279)	(7.728)
Adjusted-R^2	0.0230	0.1538	0.0560	0.1095	0.1305
N =	30442	4195	25304	46730	64924

*Here and in Tables 8 and 9 the same control variables as in Tables 3 and 4 are included.

Table 8. Impacts of English in Home Country on the Probability and Conditional
 Amount of an Activity, ATUS 2004-2008

Variable:	Purchasing	Education	Work	Assimilating	Not-assimilating
		Probability of the Activity (N=64925)			
English	0.0033	0.0091	0.0004	0.0149	
	(0.0204)	(0.0095)	(0.0211)	(0.0151)	
Official English	-0.0800	0.0133	-0.0523	-0.0572	
	(0.0189)	(0.0091)	(0.0196)	(0.0185)	
No English	-0.0560	0.0070	0.0149	-0.0122	
	(0.0103)	(0.0046)	(0.0108)	(0.0083)	
Pseudo-R^2	0.0181	0.2741	0.1335	0.0798	
		Minutes	**Conditional on the Activity**		
English	9.510	35.238	13.857	17.234	-20.760
	(4.255)	(25.358)	(10.028)	(8.683)	(7.991)
Official English	14.821	26.015	18.192	13.021	5.614
	(4.281)	(20.698)	(9.107)	(8.143)	(7.475)
No English	11.129	32.225	20.626	25.222	-17.438
	(2.153)	(10.385)	(4.706)	(4.136)	(3.846)
Adjusted-R^2	0.0230	0.1507	0.0560	0.1095	.1305
N =	30442	4195	25304	46730	64924

Probability of the Activity (N=37914)

Immigrant	-0.0272	0.0148	-0.0032	-0.0046
	(0.0124)	(0.0056)	(0.0128)	(0.0100)
Mexican immigrant	0.0124	-0.0044	-0.0217	-0.0135
	(0.0274)	(0.0089)	(0.0278)	(0.0225)
Interview Not-English	-0.0786	-0.0207	0.0564	-0.0307
	(0.0200)	(0.0073)	(0.0209)	(0.0163)
Pseudo-R^2	0.0188	0.2972	0.1329	0.083

	Minutes	**Conditional on the Activity**			
Immigrant	5.376	29.075	13.227	17.057	-13.323
	(2.512)	(12.800)	(5.568)	(4.945)	(4.600)
Mexican immigrant	2.068	-31.894	11.146	-4.726	8.971
	(6.501)	(37.691)	(13.427)	(12.042)	(10.852)
Interview Not-English	19.030	-35.403	27.143	25.633	-10.064
	(4.554)	(22.342)	(9.413)	(8.349)	(7.503)
Adjusted-R^2	0.0230	0.1420	0.0572	0.1066	0.1314
N =	17617	2357	14924	27243	37913

Table 9. Impacts of Home-Country GDP Per Capita on the Probability and Conditional
  Amount of an Activity, ATUS 2004-2008

	Purchasing	Education	Work	Assimilating	Not-assimilating
Variable:		**Probability of the Activity (N=64925)**			
GDP/Capita	0.0153	-0.0016	-0.0099	0.0049	
($10,000)	(0.0052)	(0.0021)	(0.0058)	(0.0043)	
English	-0.0369	0.0139	0.0259	0.0025	
	(0.0250)	(0.0123)	(0.0266)	(0.0192)	
Official	-0.0890	0.0144	-0.0465	-0.0609	
English	(0.0190)	(0.0094)	(0.0200)	(0.0189)	
No English	-0.0727	-0.0087	0.0257	-0.0178	
	(0.0121)	(0.0055)	(0.0127)	(0.0099)	
Pseudo-R^2	0.0183	0.2742	0.1336	0.0799	
		Minutes	**Conditional on the Activity**		
GDP/Capita	-1.269	5.799	-6.904	-8.654	6.724
($10,000)	(1.136)	(6.700)	(2.634)	(2.268)	(2.077)
English	13.139	48.889	31.129	40.271	-38.452
	(5.354)	(29.862)	(11.997)	(10.574)	(9.680)
Official	15.678	28.314	21.878	18.025	1.454
English	(4.349)	(20.868)	(9.214)	(8.247)	(7.584)
No English	12.614	37.046	27.990	34.701	-24.912
	(2.530)	(11.784)	(5.480)	(4.824)	(4.485)
Adjusted-R^2	0.0225	0.1507	0.049	0.1098	0.1307
N =	30442	4195	25304	46730	64924

Table 10.   Impacts of Immigrant Status and English-Language Knowledge Home-Country on the Probability and Conditional Amount of an Activity, Australian Time Use Survey, 1992*

	Purchasing		Education/ Training		Work	

Probability of the Activity (NDAYS = 12,998; NPeople = 6618)

Variable:

	Purchasing		Education/ Training		Work	
Immigrant	-0.0140	0.0170	0.0089	0.0011	-0.0320	-0.0025
	(0.0114)	(0.0128)	(0.0053)	(0.0054)	(0.0129)	(0.0146)
Foreign	--------	-0.0953	---------	0.0257	---------	-0.0895
language	--------	(0.0175)	---------	(0.0093)	---------	(0.0191)
Pseudo-R^2	0.0202	0.0221	0.2568	0.2588	0.1489	0.1506

Minutes Conditional on the Activity

	Purchasing		Education/ Training		Work	
Immigrant	6.940	3.690	41.162	15.688	9.339	3.906
	(2.375)	(2.651)	(21.215)	(22.966)	(8.183)	(8.781)
Foreign	---------	11.427	---------	65.200	---------	20.667
language	---------	(3.723)	---------	(28.631)	---------	(13.446)
Adjusted-R^2	0.0254	0.0266	0.1504	0.1576	0.0987	0.0992
NDAYS	6764		1048		5607	
N People	4714		703		3580	
t-test of equality of immigrant effects on probability and conditional amount	2.52		2.65		1.38	

*Also included in the equations are a vector of indicators of educational attainment, a quadratic in the respondent's age, gender, marital status, the number of children under age 15, and their distribution by age category. Standard errors are clustered on the individuals.

Table 11. Impacts of Immigrant Status on the Probability and Conditional Amount of an Activity, Australian Time Use Survey, 1992, N Days =12,998

	Care	Eating/ drinking	Household activities	Personal care
Outcome:				
Probability of engaging in the activity	-0.0149	-0.0031	-0.0064	0.0013
	(0.0128)	(0.0047)	(0.0080)	(0.0006)
Conditional amount	6.661	3.071	0.538	3.566
	(4.786)	(1.169)	(3.260)	(3.045)
t-test of equality	1.05	3.17	1.36	0.22
N =	3,676	12,394	11,253	12,970

	Other leisure	Socializing/ television	Organization/ Civic/religious
Probability of engaging in the activity	-0.0357	-0.0008	-0.0444
	(0.0095)	(0.0059)	(0.0096)
Conditional amount	-9.861	16.433	6.088
	(4.421)	(3.516)	(7.221)
t-test of equality of immigrant effects on probability and conditional amount	2.39	5.72	----
N =	10,068	12,080	3,013

*Includes all the controls in Table 10.

Appendix Table 1. Categorization of Time-Use Activities, ATUS 2004-2008

Type of Activity

Purchasing (47.6)	Education (27.6)	Work (223.8)	Other (1120.3)
Consumer goods (23.9)	Attending class (16.6)	Working (203.2)	Care (46.1)
Grocery shopping	Homework and research (8.7)	Work-related activities	Eating and drinking (74.2)
Financial services	Travel for education	Other income-generating activities	Household activities (109.7)
Medical services		Job search and interviewing	Personal care (562.7)
Personal care services			
Household services		Travel for work	Other leisure (33.9)
Home repair services			Socializing and television (274.4)
Vehicle repair			Organizational/civic/ religious (19.3)
Government services			
Travel for purchasing (17.4)			