Preliminary draft **April 2008**
Not for quotation nor citation

THE "NEGATIVE" ASSIMILATION OF IMMIGRANTS: A SPECIAL CASE*

Barry R. Chiswick
Department of Economics
University of Illinois at Chicago
and
IZA—Institute for the Study of Labor

and

Paul W. Miller
Business School
University of Western Australia

Keywords: Immigrants, Earnings, Assimilation

JEL Codes: J61, J31, F22

- We thank Derby Voon for research assistance. Chiswick acknowledges research support from the Smith Richardson Foundation and the Institute of Government and Public Affairs, University of Illinois. Miller acknowledges financial assistance from the Australian Research Council.

4/2008

THE "NEGATIVE" ASSIMILATION OF IMMIGRANTS: A SPECIAL CASE*

ABSTRACT

Research on the economic or labor market assimilation of immigrants has to date focused on the degree of improvement in their economic status with duration in the destination. This pattern has been found for all the immigrant receiving countries, time periods and data sets that have been studied. The theoretical underpinning for this finding is the international transferability of skills. This paper addresses whether positive assimilation will be found if skills are very highly transferable internationally. It outlines the conditions for "negative" assimilation in the context of the traditional immigration assimilation model, and examines the empirical relevance of the hypothesis using data on immigrants from the English-speaking developed countries (i.e., the UK, Ireland, Canada and Australia/New Zealand) to the United States. Comparisons with the native born are also presented to test whether the findings are sensitive to immigrant cohort quality effects. Even after controlling for cohort effects, "negative" assimilation (a decline in earnings with duration) is found for immigrants in the US from the English-speaking developed countries.

THE "NEGATIVE" ASSIMILATION OF IMMIGRANTS: A SPECIAL CASE

I. INTRODUCTION

From the start of the research on the economic or labor market assimilation of immigrants, the literature has focused on the degree of improvement in their economic status with duration in the destination (Chiswick, 1978, 1979). This pattern has been found for all the immigrant receiving countries, time periods and data sets that have been studied. The theoretical underpinning for this finding is the international transferability of skills. This paper addresses whether positive assimilation will be found if skills are very highly transferable internationally. Indeed, might there be the appearance of negative assimilation, that is, earnings declining with duration in the destination, if the skills are very highly transferable across countries.

Section II summarizes the immigrant assimilation model, and outlines the conditions for "negative" assimilation. The empirical application (Section III) is for immigrants from the advanced English-speaking developed countries to the United States. Comparisons with the native born are presented in Section IV to test whether the findings are sensitive to immigrant cohort quality effects. A summary and conclusion is in Section V.

II. THE ASSIMILATION MODEL

The immigrant assimilation model begins with the assumption that immigrants have a set of skills acquired in the lower income origin that are not perfectly transferable to the higher income destination. These skills may be schooling, on-the-job training, language, labor market information, labor market networks, occupational licensing or

credentials, occupation-specific technical training, or the customs or cultural characteristics that influence productivity, and hence earnings, in the origin and destination labor markets.

When the immigrant moves from the origin to the destination at least some of these skills are less than perfectly transferable. This gives the immigrant incentives to make explicit (*e.g.*, schooling) or implicit (*e.g.*, learning-by-living) investments in destination-specific skills. Some of these investments may be intended to increase the transferability of skills acquired in the origin, such as when an immigrant physician studies for the Foreign Medical Examination. Other investments may be undertaken to acquire new skills, such as when an immigrant lawyer studies for an MBA.

The immigrant has an incentive to make these investments sooner rather than later for three reasons. If these post-migration human capital investments are profitable, in the sense that their internal rate of return exceeds the discount rate or interest cost of funds, the net present value of the investment is greater if they are made sooner rather than if they are delayed. Moreover, a delay in making these investments reduces the number of future time periods in which the benefits will be received, thereby lowering the rate of return from the investment. Finally, with duration in the destination, explicit investments and even learning-by-living will increase the immigrant's knowledge and other skills relevant for the destination labor market, thereby raising the opportunity cost of the time devoted to investment in destination skills. This, of course, lowers the rate of return on these investments (Ben-Porath, 1967).

The greater the extent to which investments are made in destination skills, the lower is the reported earnings during the investment period. Earnings then increase as the

extent of investment decreases over time (*i.e.*, the most profitable destination investments are made first), and as returns are received on previous investments. As a result, the earnings-duration profile is upward rising, but at a decreasing rate. The steepness of the profile is greater the greater the extent of investments in destination human capital and the greater the rate of return from these investments. By implication, the earnings-duration profile would be horizontal if there were no investment, explicit or implicit, in destination human capital.

Now, let us consider two countries with equal average levels of earnings for individuals with a given level of schooling, labor market information and other human capital relevant in the origin or destination. Also consider the skills to be perfectly internationally transferable between the two countries and that there is no skill employed in one that is not also used in the other country. Moreover, for simplicity let us assume that in neither the origin nor the destination are there investments in on-the-job training.

Consider also that for each skill level there is variation in the distribution of wage offers around the mean. Workers in country X search not only in X, but also in country Y.[1] A worker will migrate from X to Y if and only if by random selection the worker receives a sufficiently high wage offer in Y so that this wage offer is greater than the best wage offer in X by an amount sufficient to compensate for the out-of-pocket, time costs and psychic costs of migration. A worker receiving this high wage offer will move from X to Y, and under the assumptions postulated will not make any destination human capital investments.

[1] The search process may involve a temporary or short-duration sojourn in country Y.

The high randomly drawn wage offer that attracted the migrant from country X to country Y need not persist indefinitely. Since it is a high wage draw from the distribution of wage offers in Country Y, with the passage of time the immigrant can expect to experience a "regression to the mean" in his wages, certainly in terms of real wages if not in nominal wages. If so, with the passage of time, there is the appearance of negative assimilation in terms of earnings.

But would the immigrant remain in country Y? The immigrant would return to the origin, X, if the subsequently lowered earnings in the destination, Y, are below his best random draw from X by an amount sufficient to compensate for the cost of return migration. Some will return to X, other migrants will remain in the destination, Y.

One implication of this model would be a high propensity for two-way migration and return migration between two countries of equal levels of income between which human capital is perfectly transferable.[2] Another implication is the appearance of negative assimilation, that is, immigrants initially experiencing higher earnings than the native born in the destination, *ceteris paribus*, with earnings declining toward that of the native born with duration in the destination.

Suppose the international job search occurs just after leaving school and before marriage and family formation. Shortly thereafter marriage and having children occur in both the origin and destination. This "family capital" raises the cost of migration, thereby discouraging migration, including return migration by immigrants who have experienced negative assimilation. This would strengthen the argument for negative assimilation.

[2] For example, according to Dumont and Lemaître (2005), around 75,000 Australian-born persons live in the US, and 55,000 US-born persons live in Australia. Around 20,000 Australian-born persons live in Canada, and 27,000 Canadian-born persons live in Australia.

The model of negative assimilation developed above has several stringent requirements. Namely, the origin and destination are of the same level of income and that skills acquired and required in one country are perfectly transferable to the other country. There are no cases of countries in which these conditions are strictly observed. The closest approximation in the international arena would be migration among the English-speaking developed economies (ESDC), namely the US, Canada, Ireland, Australia, New Zealand and the United Kingdom.

An alternative hypothesis that would give the appearance of negative assimilation in cross-sectional data would, of course, be that there has been an increase over time in the unmeasured dimensions of the quality of immigrants among the English-speaking developed countries. It is not obvious why there would have been an increase over time in the unmeasured dimensions of skill or ability. This hypothesis can be tested, however, by analyzing immigrant-native earnings differentials over time. If immigrant quality increased over time, the ratio of immigrant to native earnings, within duration of residence in the destination intervals, would be higher in current data than in earlier data, *ceteris paribus*.

III. THE APPLICATION TO IMMIGRANTS

Language is a particularly important form of country-specific human capital, and skill transferability is greater among the highly developed economics than between developed and less developed countries.

The empirical testing of the model of negative assimilation is done for the United States. Using the 1980, 1990 and 2000 Censuses of Population of the United States (one

percent PUMS data in 1980, five percent in 1990 and 2000), adult male immigrants from Canada, the United Kingdom, Ireland, Australia and New Zealand are analyzed.[3]

The estimating equation regresses the natural logarithm of annual earnings in the year prior to the US census among the adult (age 25 to 64) male immigrants from the other English-speaking developed countries on: years of education, years of labor market experience (measured by age minus years of education minus 5), and its square, whether the respondent is currently married (spouse present), the natural logarithm of weeks worked in the reference year, whether a language other than English is spoken by the respondent at home, and urban/rural and region control variables.[4] The immigration variables include years since migration to the US and country of origin dichotomous variables. Brief descriptions of all variables are provided in Appendix A. If the negative assimilation hypothesis is to be supported by the data, the coefficient on years since migration would have a negative sign. If the unmeasured dimensions of immigrant quality have increased over time, the ratio of immigrant to native earnings, *ceteris paribus*, would be higher in 2000 than in the earlier census data. Separate analyses are also computed by country of origin.

The crucial variable for this analysis is the year of immigration. The detail on this in the public use samples for the censuses in the US has changed over time. As shown in

[3] An alternative test would be migration among the states of the United States with similar levels of income. The US Census provides information on state of birth, state of residence 5 years ago, and current state of residence, but this offers too little detail on the timing of inter-state migration.

[4] The language variable is included in part because of French Canadians. It is not possible to distinguish immigrants from Quebec from other Canadian immigrants in the US Census.

Table 1, progressively more information has been presented on the year of immigration over time, with single years being used in 2000.[5] Where categories are used (1980, 1990), these tend to be evenly spaced. The literature (*e.g.*, Chiswick, 1978) is followed, and a continuous variable is formed by using the mid points of the categories for analysis of the 1980 and 1990 data sets.

Table 1
Year of Immigration Data in US Censuses

Census	*Number of Categories used for Year of Immigration Data*	**Year of Immigration Information**
1980	6	1975-1980; 1970-1974; 1965-1969; 1960-1964; 1950-1959; Before 1950.
1990	10	1987-1990; 1985-1986; 1982-1984; 1980-1981; 1975-1979; 1970-1974; 1965-1969; 1960-1964; 1950-1959; Before 1950.
2000	In single years	In single years.

Source: 1980, 1990, and 2000 US Censuses of Population.

Appendix Table A.1 reports the means and standard deviations for the natural logarithm of earnings and for the explanatory variables. There is a pronounced increase, by one log point, in the natural logarithm of earnings between 1980 and 2000. However, as consumer prices more than doubled over this period (change in the consumer price index from 100 to 208.5), immigrant average real incomes have declined slightly over the two decades. The mean educational attainment increased by one year over the period analyzed. Immigrants from ESDC in the 2000 data have resided in the US 1.5 years less than was the case in 1990.

Slightly more than 14 percent of the sample of immigrants from ESDC in the US reported speaking a language other than or in addition to English at home in the 2000

[5] Note, however, that this information is self-reported, and there is bunching in the data around the years ending in zero or five.

Census, and about 12 percent in each of the earlier data sets (Table 2). The importance of Irish Gaelic among immigrants from Ireland, and French among immigrants from Canada is shown in Table 2. Due to small sample sizes, further consideration cannot be given to those immigrants speaking Irish Gaelic at home in the US. However, separate analyses are conducted for "French" Canadians, defined here as immigrants from Canada who speak French at home, and other Canadians.

Table 2
Percent of Immigrants from ESDC in the US Speaking English Only and Top Five non-English Languages, by Country of Origin, 2000

Group	***% English Only***	**Top 5 Languages Spoken (% speaking them)**
Total	85.84	French (6.60); Spanish (1.18); Irish Gaelic (0.96); German/Austrian/Swiss (0.73); Italian (0.59).
United Kingdom	90.67	French (2.23); Spanish (1.07); German/Austrian/Swiss (0.53); Gujarathi (0.41); Polish (0.37).
Ireland	86.19	Irish Gaelic (9.39); French (1.35); Spanish (1.27); German/Austrian/Swiss (0.36); Italian (0.25).
Canada	80.59	French (12.64); Spanish (1.22); German/Austrian/Swiss (1.02); Italian (0.80); Greek (0.52).
Australia and New Zealand	90.48	Greek (1.54); Spanish (1.43); Italian (1.10); French (0.70); German/Austrian/Swiss (0.51).

Source: 2000 US Census of Population

Table 3 reports the estimated earnings functions for adult male immigrants from the advanced English-speaking developed countries.[6] The Table 3 analyses are based on two specifications of the earnings equation: the first contains a quadratic in years since migration (YSM) and the second uses only a linear variable for YSM. These estimates have all the characteristics of recent research on immigrant earnings, particularly the

[6] There is little research on the earnings of immigrants among the English-speaking developed countries. Lindner (1989) develops a joint emigration-earnings model for emigrants from the US to Canada. Card (2003) considers Canadian emigrants in the US, focusing on their educational attainment. Both studies find favorable selectivity among the migrants. Neither study reports on the effect of duration in the destination on the earnings of the immigrants.

steady increase over time for immigrants in the payoff to schooling (from 6.4 percent in 1980 to 10.4 percent in 2000), the decline in the elasticity of earnings with respect to weeks worked, from 1.15 to around unity, and the decline in the north-south differential. Other than for a marginally significant lower earnings among immigrants from Ireland in 1980, other variables the same, earnings do not differ significantly across the immigrant groups identified in the analysis.

The estimates for the YSM variables support the negative assimilation hypothesis. In 1980, neither the linear nor the squared YSM terms were statistically significant when a quadratic YSM specification was used. When only a linear YSM variable was employed the statistically significant (t = -2.11) coefficient of -0.003 indicated downward revision of earnings at 0.3 of one percentage point per year in the US.

In the 1990 data, when a quadratic YSM specification was used, both coefficients were negative, but only that for the squared variable was statistically significant. When a linear specification was used the statistically significant (t = -6.29) estimated coefficient of -0.004 indicated downward revision of earnings at 0.4 of one percentage point per year.

For the 2000 data, the quadratic YSM specification showed that the linear YSM variable had a significant negative coefficient but the squared YSM term was not significant. The linear specification resulted in a highly significant negative coefficient (t = -13.42) on the YSM variable of –0.007. That is, there is downward revision of immigrant earnings at the rate of 0.7 of one percentage point per year of duration in the US.

Table 3
Estimates of Immigrant Adjustment Earnings Function, 1980, 1990 and 2000 US Censuses, 25-64 Year Old Male Immigrants from Developed English-Speaking Countries[(a)]

Variable	1980		1990		2000	
Constant	3.601	3.630	4.252	4.271	4.526	4.525
	(13.43)	(13.51)	(33.84)	(34.04)	(35.70)	(35.67)
Educational Attainment	0.064	0.064	0.077	0.077	0.104	0.104
	(12.27)	(12.28)	(28.83)	(28.85)	(42.36)	(42.42)
Experience (EXP)	0.058	0.059	0.047	0.047	0.048	0.048
	(10.80)	(11.14)	(19.19)	(19.49)	(19.17)	(19.21)
$EXP^2/100$	-0.094	-0.096	-0.073	-0.074	-0.074	-0.074
	(9.06)	(9.48)	(14.33)	(14.65)	(14.82)	(14.91)
Years Since Migration (YSM)	**0.002**	**-0.003**	**-0.000**	**-0.004**	**-0.007**	**-0.007**
	(0.49)	**(2.11)**	**(0.26)**	**(6.29)**	**(4.31)**	**(13.42)**
$YSM^2/100$	**-0.011**	**(b)**	**-0.007**	**(b)**	**0.000**	**(b)**
	(1.15)		**(2.06)**		**(0.09)**	
Log Weeks Worked	1.151	1.154	1.129	1.131	0.975	0.975
	(16.84)	(16.93)	(36.02)	(36.13)	(33.56)	(33.62)
Married	0.256	0.255	0.244	0.243	0.256	0.256
	(6.49)	(6.46)	(16.52)	(16.46)	(19.42)	(19.43)
South	-0.173	-0.175	-0.133	-0.134	-0.069	-0.069
	(4.23)	(4.29)	(8.34)	(8.38)	(5.15)	(5.16)
Rural[(c)]	-0.046	-0.048	-0.102	-0.102	-0.295	-0.295
	(0.74)	(0.78)	(5.22)	(5.21)	(6.16)	(6.16)
English Very Well/Well	-0.107	-0.107	-0.073	-0.072	-0.029	-0.029
	(2.29)	(2.29)	(3.29)	(3.26)	(1.66)	(1.66)
English Not Well/Not at All	-0.135	-0.131	-0.041	-0.041	0.074	0.074
	(0.52)	(0.50)	(0.47)	(0.47)	(0.94)	(0.94)
Ireland	-0.092	-0.086	0.003	0.002	-0.003	-0.003
	(1.92)	(1.81)	(0.17)	(0.13)	(0.14)	(0.14)
Canada	0.015	0.016	-0.011	-0.011	-0.007	-0.007
	(0.49)	(0.54)	(0.79)	(0.77)	(0.53)	(0.53)
Australia & New Zealand	-0.074	-0.084	-0.062	-0.065	-0.007	-0.007
	(0.90)	(1.03)	(1.47)	(1.55)	(0.26)	(0.25)
$\bar{R}^2$	0.3289	0.3288	0.3061	0.3060	0.2707	0.2707
Sample Size	3,480	3,480	18,046	18,046	21,777	21,777

Notes: (a) Absolute value of heteroskedasticity-consistent 't' statistics in parentheses; (b) Variable not entered; (c) Definition of variable changes appreciable across data sets.
Sources: US Censuses of Population 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.

Thus, these results from analyses of the 1980, 1990 and 2000 US censuses indicate strong support for the negative assimilation hypothesis. They also indicate that

the negative assimilation effect has intensified over time. The strengthening of the negative assimilation effect could be an economic phenomenon or the result of the change in the detail on year of immigration used in the analysis (see Table 1). To ascertain whether the latter is important, the year of immigration data in the 2000 census were first recoded into 10 categories analogous to those available for the 1990 data, and an alternative YSM variable created using the mid-points of these categories. Re-estimation of the earnings equation using this alternative variable resulted in an estimate of the negative assimilation effect for 2000 of -0.006 (t-ratio = -13.15), instead of the −0.007 using the full detail. This shows that the presentation of the YSM data is of modest importance for the statistical analyses undertaken here. Moreover, this apparent slight diminution of the estimated impact of the duration variable when less detailed categorical information is used serves to strengthen the evidence in support of the negative assimilation hypothesis, by indicating that the effect estimated for 1980 and 1990 is biased toward zero by the use of the less detailed categorical information on years since migration.

Table 4 presents estimates of the payoff to schooling and the estimated coefficients for the YSM variables from the separate analyses undertaken for the UK, Ireland, Canada and Australia/New Zealand. For the UK and Canada, where sample sizes are relatively large, the negative assimilation effect is alive and well, and there is evidence for an intensification over time. A similar pattern is evident for the much

smaller sample of immigrants from Australian and New Zealand. The coefficient on duration in the linear specification is negative, although not statistically significant.[7]

Table 4
Selected Estimates of Immigrant Adjustment Earnings Function, 1980, 1990 and 2000 US Censuses, 25-64 Year Old Male Immigrants by Country of Origin[(a)(b)]

Variable	1980		1990		2000	
United Kingdom: Sample Sizes 1980: 1,268; 1990: 7,439; 2000: 8,917						
Educational	0.077	0.077	0.085	0.085	0.109	0.109
Attainment	(8.68)	(8.67)	(20.15)	(20.19)	(28.08)	(28.09)
Years Since	-0.004	-0.002	-0.002	-0.005	-0.009	-0.009
Migration (YSM)	(0.64)	(1.18)	(0.88)	(5.35)	(3.68)	(11.01)
$YSM^2/100$	0.005	(c)	-0.005	(c)	0.002	(c)
	(0.35)		(0.93)		(0.38)	
Ireland: Sample Sizes 1980: 367; 1990: 1,857; 2000: 2,029						
Educational	0.022	0.020	0.051	0.051	0.072	0.072
Attainment	(1.50)	(1.37)	(7.51)	(7.48)	(9.26)	(9.24)
Years Since	0.027	0.004	0.010	0.002	0.008	-0.001
Migration (YSM)	(1.58)	(0.70)	(2.01)	(0.89)	(1.40)	(0.67)
$YSM^2/100$	-0.046	(c)	-0.018	(c)	-0.020	(c)
	(1.33)		(1.95)		(1.77)	
Canada: Sample Sizes 1980: 1,733; 1990: 7,956; 2000: 9,581						
Educational	0.065	0.064	0.077	0.076	0.108	0.108
Attainment	(8.96)	(9.08)	(18.31)	(18.25)	(28.74)	(28.87)
Years Since	0.002	-0.004	0.001	-0.004	-0.004	-0.006
Migration (YSM)	(0.27)	(1.99)	(0.32)	(4.19)	(2.00)	(8.12)
$YSM^2/100$	-0.014	(c)	-0.009	(c)	-0.003	(c)
	(0.89)		(1.87)		(0.57)	
Australian and New Zealand: Sample Sizes 1980: 112; 1990: 794; 2000: 1,250						
Educational	0.070	0.069	0.091	0.091	0.104	0.103
Attainment	(2.14)	(2.21)	(6.53)	(6.52)	(11.14)	(11.08)
Years Since	-0.011	-0.003	-0.000	-0.000	-0.014	-0.004
Migration (YSM)	(0.35)	(0.55)	(0.03)	(0.11)	(2.21)	(1.42)
$YSM^2/100$	0.018	(c)	-0.000	(c)	0.026	(c)
	(0.25)		(0.02)		(1.71)	

Notes: (a) Full set of results available from the authors upon request; (b) Absolute value of heteroskedasticity-consistent 't' statistics in parentheses; (c) Variable not entered.
Sources: US Censuses of Population 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.

[7] In the 2000 data, the point estimate of the linear YSM variable for immigrants from Australia/New Zealand is -0.004, and the 't' is -1.4. Presumably if the sample size for this group of immigrants was of the same order of magnitude as for the UK and Canada (that is, the sample was increase by a factor of 7 or 8) then the estimate would, in line with the analyses for the other countries, be highly statistically significant. In support of this assertion, note the change in statistical significance of the estimated effects for the UK and Canada between the analyses for 1980 (using a 1 percent sample) and 1990 (using the large 5 percent sample).

The results for Ireland appear to be different from those of the UK, Canada and Australia/New Zealand. In the quadratic specification the linear term is positive and the squared term is negative. In the linear duration specification, the coefficient of the duration variable is not statistically significant. The lower level of income in Ireland, and the ease (low cost) of migration to the UK, as distinct from migration to the US, may be responsible for this effect.

Two further sets of analyses were undertaken to test the robustness of the findings for the US. In the first the variables for proficiency in the English language were omitted from the specification. It has been shown that English proficiency among immigrants is strongly linked to duration of residence, and the inclusion of the language proficiency variable in the earnings equation could distort measurement of the assimilation effect. Table 5 presents the findings for the duration of residence variables from this set of analyses. These estimates mirror those from the earnings function that included the English proficiency variables (Tables 3 and 4). This specification issue is therefore of little consequence for the quantification of the negative assimilation effect.

In the second experiment, the data for Canada for 2000 were analyzed separately according to whether the immigrants were French Canadians (defined as speaking French at home) or other Canadians. For each sample the estimate of the assimilation effect was a highly significant -0.006.[8] This estimate was not sensitive to whether information on proficiency in English was included in the model. Hence, the negative assimilation effect does not appear to be specific to immigrants from a monolingual English-speaking background from the ESDC.

[8] The t-ratios were t =- 2.61 for French Canadians and t = -7.91 for other Canadians.

Table 5
Selected Estimates of Immigrant Adjustment Earnings Function, 1980, 1990 and 2000 US Censuses, 25-64 Year Old Male Immigrants by Country of Origin, Without Language Variables[(a)(b)]

Variable	1980		1990		2000	
Total Sample: Sample Sizes 1980: 3,480; 1990: 18,046; 2000: 21,777						
Years Since	0.003	-0.003	-0.000	-0.004	-0.007	-0.007
Migration (YSM)	(0.54)	(1.90)	(0.28)	(6.17)	(4.36)	(13.41)
$YSM^2/100$	-0.011	(c)	-0.007	(c)	0.001	(c)
	(1.15)		(1.99)		(0.15)	
United Kingdom: Sample Sizes 1980: 1,268; 1990: 7,439; 2000: 8,917						
Years Since	-0.004	-0.002	-0.002	-0.005	-0.010	-0.009
Migration (YSM)	(0.59)	(1.05)	(0.85)	(5.35)	(3.70)	(11.00)
$YSM^2/100$	0.005	(c)	-0.005	(c)	0.002	(c)
	(0.33)		(0.96)		(0.40)	
Ireland: Sample Sizes 1980: 367; 1990: 1,857; 2000: 2,029						
Years Since	0.026	0.004	0.010	0.002	0.008	-0.001
Migration (YSM)	(1.54)	(0.68)	(2.09)	(1.03)	(1.42)	(0.61)
$YSM^2/100$	-0.045	(c)	-0.018	(c)	-0.020	(c)
	(1.30)		(1.99)		(1.76)	
Canada: Sample Sizes 1980: 1,733; 1990: 7,956; 2000: 9,581						
Years Since	0.003	-0.004	0.001	-0.004	-0.004	-0.006
Migration (YSM)	(0.37)	(1.76)	(0.31)	(4.12)	(1.94)	(8.18)
$YSM^2/100$	-0.015	(c)	-0.009	(c)	-0.003	(c)
	(0.93)		(1.84)		(0.65)	
Australian and New Zealand: Sample Sizes 1980: 112; 1990: 794; 2000: 1,250						
Years Since	-0.010	-0.003	-0.004	-0.002	-0.015	-0.004
Migration (YSM)	(0.33)	(0.52)	(0.46)	(0.45)	(2.30)	(1.64)
$YSM^2/100$	0.018	(c)	-0.006	(c)	0.025	(c)
	(0.25)		(0.32)		(1.71)	

Notes: (a) Full set of results available from the authors upon request; (b) Absolute value of heteroskedasticity-consistent 't' statistics in parentheses; (c) Variable not entered.
Sources: US Censuses of Population 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.

III. IMMIGRANT VERSUS NATIVE EARNINGS OVER TIME

Tables 6 and 7 list the estimated coefficients of the duration of residence variables from the regression equations estimated on samples of the native born and foreign born for each census year. Table 6 contains results for 1990 and 2000. Table 7 contains results for 1980, 1990 and 2000. The analyses for 1990 and 2000 which are common to the two

tables differ by the level of detail on the duration of residence variables. Hence, the duration of residence information is entered in 5- and 10-year categories, to the extent permitted by the census with the least amount of information in the set of comparisons conducted (*i.e.*, the 1990 Census when only 2000 and 1990 data are compared, and the 1980 Census when 1980, 1990 and 2000 data are compared—see Table 1 for details).

For the native born, a 0.25 subset of the one percent PUMS for each census was used in these analyses, a sampling procedure that yielded over 100,000 observations for the native born, which is more than adequate for the comparisons conducted. The regression equations contain the set of standardizing variables used in Table 4, and a set of birthplace variables (for immigrants from the UK, Ireland, Canada and Australia/New Zealand, respectively). One set of the estimates presented is from equations that constrain the estimates of each of the human capital and demographic variables from Table 4 to be the same for the native born and the foreign born. The second set includes a full set of interaction terms between these variables and birthplace. The inclusion of these interaction terms has minimal impact on the comparisons that can be made across the duration of residence categories. It has, however, a marked impact in some analyses on the magnitude of the *ceteris paribus* native born-immigrant comparisons, a result consistent with previous findings (see, for example, Funkhouser and Trejo, 1995)

Table 6
Coefficients on Birthplace and Duration of Residence Variables from Analysis on Pooled Sample of Native-born and Foreign-Born Workers, 1990 and 2000 US Census[(a)(b)]

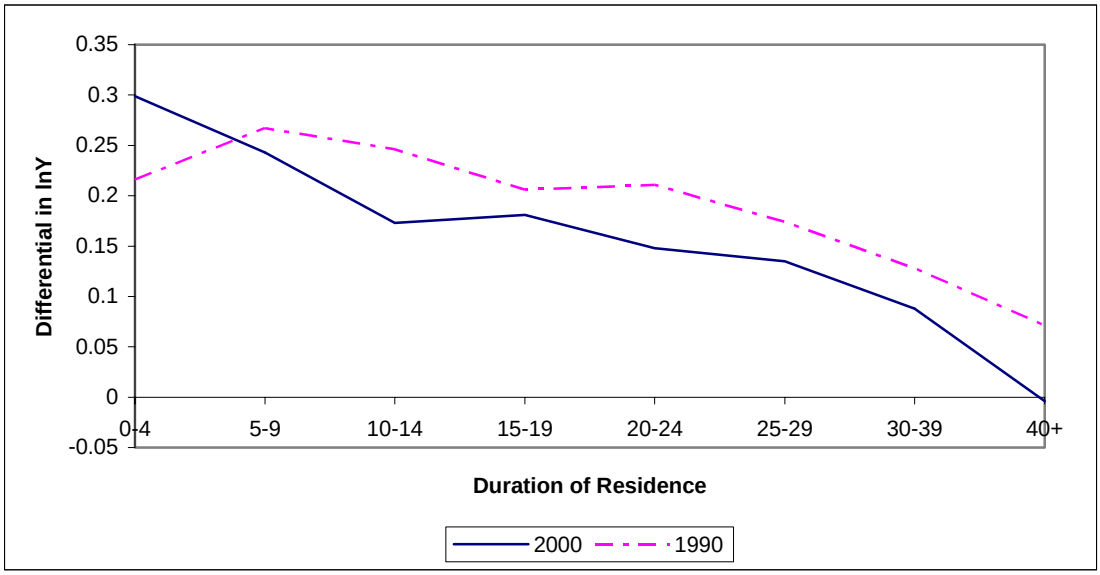
	1990			2000		
Variable	Difference in Mean Earnings (i)	Without Birthplace Interactions (ii)	With Birthplace Interactions (iii)	Difference in Mean Earnings (i)	Without Birthplace Interactions (ii)	With Birthplace Interactions (iii)
Birthplace (native born as benchmark)						
UK	0.360	0.149	0.216	0.399	0.315	0.299
	(30.45)	(8.16)	(1.66)	(36.67)	(21.17)	(2.27)
Ireland	0.261	0.182	0.225	0.223	0.319	0.302
	(13.08)	(8.05)	(1.74)	(11.14)	(14.82)	(2.28)
Canada	0.247	0.145	0.206	0.322	0.303	0.289
	(20.66)	(7.50)	(1.58)	(30.33)	(21.02)	(2.20)
Australia	0.248	0.081	0.156	0.392	0.304	0.290
and N.Z.	(5.56)	(1.94)	(1.12)	(13.10)	(11.19)	(2.19)
Duration of Residence (0-4 years as benchmark)						
5-9 yrs	(c)	0.071	0.051	(c)	-0.046	-0.056
		(2.88)	(2.09)		(2.31)	(2.82)
10-14 yrs	(c)	0.060	0.030	(c)	-0.101	-0.126
		(2.11)	(1.04)		(4.78)	(5.88)
15-19 yrs	(c)	0.024	-0.010	(c)	-0.085	-0.118
		(0.84)	(0.36)		(3.81)	(5.27)
20-24 yrs	(c)	0.035	-0.005	(c)	-0.117	-0.151
		(1.52)	(0.22)		(4.99)	(6.40)
25-29 yrs	(c)	0.007	-0.042	(c)	-0.125	-0.164
		(0.32)	(1.75)		(4.91)	(6.32)
30-39 yrs	(c)	-0.033	-0.088	(c)	-0.155	-0.211
		(1.49)	(3.66)		(8.20)	(10.35)
40+ yrs	(c)	-0.079	-0.145	(c)	-0.232	-0.303
		(2.57)	(4.34)		(10.73)	(12.62)
R^2	0.0100	0.3749	0.3754	0.0158	0.3316	0.3319
Sample Size	140,344	140,344	140,344	155,254	155,254	155,254

Notes: (a) Full set of results available from the authors upon request; (b) Absolute value of heteroskedasticity-consistent 't' statistics in parentheses; (c) Variable not entered.
Sources: US Censuses of Population 1990 and 2000 US Census PUMS (1 percent and 5 percent files).

Table 6 has five main features. First, according to the figures in column (i), relative to the mean earnings of the native born, the mean earnings of immigrants from the UK, Canada and Australia/New Zealand increased between 1990 and 2000. The mean earnings of immigrants from Ireland, however, fell by four percentage points

relative to the mean earnings of the native born over this period. Second, regardless of the specification of the estimating equation (*i.e.*, column (ii) results or column (iii) results), there is evidence of positive adjustment in the 1990 data over the first decade in the US. Beyond this point, however, the estimates are consistent with the negative assimilation hypothesis. Third, the 2000 data exhibit a pattern consistent with the negative assimilation hypothesis across all duration intervals. Fourth, as illustrated in Figure 1, beyond 5 years of residence, the profiles of the immigrant-native born earnings differentials by duration of residence for 2000 and 1990 are, for all intents and purposes, parallel.

Figure 1
***Ceteris Paribus* Earnings for Foreign Born Relative to Native Born by Duration of Residence Category, 1990 and 2000**



Source: Authors' calculations from Table 6, column (iii).

In compiling Figure 1, the duration of residence coefficients from the model with birthplace interaction terms have been used. The intercept points are given by the

coefficients on the dummy variable for immigrants from the UK. This brings us to the fifth feature of the data: the intercept point for 2000 (or the earnings advantage that immigrants have over the native born *ceteris paribus*) is higher in that year than for 1990. This is generally taken as evidence for an increase over time in the unobservable qualities of immigrants relative to the native born. At each of the other durations of residence, however, the earnings profile for the foreign born for 1990 is above that for 2000. In other words, when looking at the data for 1990 and 2000, the evidence on the unobservable qualities of immigrants is ambiguous.

Table 7 presents the information for the analyses of the 1980, 1990 and 2000 Censuses. The pattern of earnings effects with duration of residence for 1980 is a diluted version of that which characterized the data a decade later in 1990. The immigrant-native born earnings advantage in 1990 and 2000 is considerably greater than in 1980, suggesting that the 1980s and 1990s were characterized by different selection among immigrants from English-speaking developed countries. The large negative coefficients on the birthplace variables for 1980 in the specification with birthplace interaction effects are due mainly to different earnings effects on the weeks worked variable: the coefficient on this for the foreign born was 1.149, and that for the native born 1.062. In comparison, in 2000 the coefficients on the weeks worked variable was 0.097 for the foreign born and 1.024 for the native born.[9]

[9] The decline in the elasticity of annual earnings with respect to weeks worked would be consistent with a decline in the seasonality of employment among immigrants.

Table 7

Coefficients on Birthplace and Duration of Residence Variables from Analysis on Pooled Sample of Native-born and Foreign-Born Workers, 1980, 1990 and 2000 US Census[a][b]

	1980[c]		1990		2000	
Variable	Without Birthplace Interactions	With Birthplace Interactions	Without Birthplace Interactions	With Birthplace Interactions	Without Birthplace Interactions	With Birthplace Interactions
Birthplace (native born as benchmark)						
UK	0.048	-0.337	0.149	0.218	0.315	0.307
	(1.13)	(1.24)	(8.19)	(1.68)	(21.19)	(2.33)
Ireland	-0.018	-0.424	0.183	0.228	0.318	0.308
	(0.31)	(1.54)	(8.07)	(1.76)	(14.78)	(2.32)
Canada	0.063	-0.321	0.144	0.206	0.302	0.295
	(1.33)	(1.18)	(7.44)	(1.58)	(20.97)	(2.24)
Australia	-0.038	-0.410	0.082	0.158	0.305	0.298
and N.Z.	(0.47)	(1.46)	(1.95)	(1.13)	(11.20)	(2.24)
Duration of Residence (0-4 years as benchmark)						
5-9 yrs	0.109	0.079	0.071	0.052	-0.046	-0.056
	(1.65)	(1.18)	(2.89)	(2.11)	(2.30)	(2.78)
10-14 yrs	0.127	0.076	0.060	0.031	-0.101	-0.125
	(2.24)	(1.29)	(2.12)	(1.07)	(4.77)	(5.82)
15-19 yrs	0.056	-0.002	0.024	-0.009	-0.085	-0.116
	(1.03)	(0.04)	(0.85)	(0.32)	(3.81)	(5.17)
20-29 yrs	0.050	-0.002	0.020	-0.023	-0.120	-0.154
	(1.03)	(0.04)	(1.00)	(1.09)	(6.19)	(7.78)
30+ yrs	-0.007	-0.069	-0.045	-0.100	-0.185	-0.242
	(0.14)	(1.19)	(2.12)	(4.25)	(10.98)	(12.81)
R^2	0.3221	0.3222	0.3748	0.3754	0.3315	0.3318
Sample Size	107,402	107,402	140,344	140,344	155,254	155,254

Notes: (a) Full set of results available from the authors upon request; (b) Absolute value of heteroskedasticity-consistent 't' statistics in parentheses; (c) The mean earnings advantage in 1980 for the foreign born compared to the native born is 0.258 for immigrants from the UK, 0.139 for immigrants from Ireland, 0.162 for immigrants from Canada and 0.126 for immigrants from Australia/New Zealand.
Sources: 1990 and 2000 US Census PUMS (1 percent and 5 percent files).

The relatively flat earnings-duration of residence profile in 1980 and the steeper negative profile in 1990 and 2000, together with the increases in the immigrant-native born earnings differential over time, *ceteris paribus*, suggest there may be merit to the estimation of a cohort model. In this application, the approach follows Funkhouser and Trejo (1995).

The cohort model may be written as:

$$\ln Y_i = \alpha + X_i\beta + YSM_i\gamma + C_i\delta + T_i\phi + \varepsilon_i,$$

where income (Y) is the annual earnings from wage and salaried employment or self-employment, X_i a set of human capital and demographic standardizing variables used above, YSM_i is the number of years an immigrant has spent in the United States, C_i is a vector of dummy variables indicating the immigrant cohort of arrival, T_i is a vector of dummy variables for the Census year, and ε_i is a stochastic disturbance term. In this earnings equation, γ captures the pattern of immigrant assimilation, and δ captures cohort differences in the intercept of the earnings profile. This specification constrains the coefficients on the X_i variables to be the same across birthplace groups and across time periods. Estimates are also presented, however, from a model where the β are allowed to differ for the native born and the foreign born. Estimates for the more complex specification which allowed the coefficients on all the X_i variables to change over time, as well as across birthplace groups were also obtained, but are not reported here.[10]

Two models are estimated: the first based on a pooling of the data for 1990 and 2000, and the second based on a pooling of the data for 1980, 1990 and 2000. It is also noted that sample inclusions that are sometimes used to mimic a synthetic cohort (*e.g.*, restrict the analysis to 25-44 year olds in 1980, 35-54 year olds in 1990 and 45-64 year olds in 2000) are not imposed in this analysis. The sample used is simply a pooled

[10] The results from the more complex specification were slightly more favorable to the negative assimilation hypothesis than those reported.

version of the samples used in the separated analyses of the 1980, 1990 and 2000 data above. Table 8 lists the relevant information from this cohort approach.

Table 8
Estimates of Cohort Model Using 1990 and 2000 Census Data, and 1980, 1990 and 2000 Census Data[(a)(b)]

Arrival Cohort	Data Sets	
	1990+2000	1980+1990+2000
1995-2000	0.411	0.298
	(4.51)	(3.47)
1990-1994	0.373	0.238
	(4.07)	(2.74)
1985-1989	0.291	0.150
	(3.22)	(1.77)
1980-1984	0.359	0.196
	(3.94)	(2.29)
1975-1979	0.357	0.154
	(3.86)	(1.80)
1970-1974	0.360	0.154
	(3.79)	(1.76)
1965-1969	0.380	0.158
	(3.95)	(1.80)
1960-1964	0.367	0.122
	(3.68)	(1.37)
1950-1959	0.354	0.089
	(3.38)	(0.98)
Before 1950	0.392	0.075
	(3.32)	(0.76)
Years since Migration	**-0.006**	**-0.002**
	(3.48)	**(1.76)**
R^2	0.3717	0.4144
Sample Size	295,598	403,000

Notes: (a) Full set of results available from the authors upon request; (b) Absolute value of heteroskedasticity-consistent 't' statistics in parentheses.
Sources: US Censuses of Population 1980, 1990 and 2000 US Census PUMS (1 percent and 5 percent files).

The Table 8 results reveal consistent evidence that immigrants in the 1995-2000 cohort have higher earnings relative to the native born than the earlier arrival cohorts, although the advantage is not great. From the analysis based only on the 1990 and 2000 Census data, the variations in earnings by arrival cohort are modest: the smallest earnings effect relative to the native born (of +0.29) is associated with the 1985-1989 arrival

cohort. All other arrival cohorts are associated with positive earnings effects compared to the native born, of between 0.35 and 0.41. The analysis based on the 1980, 1990 and 2000 Census data indicates that the earlier arrival cohorts have a smaller earnings advantage over the native born than the more recent arrival cohorts. In other words, the unmeasured dimensions of immigrant quality have increased over time compared to the native born.

The years since migration variable is negative and statistically significant in each of the sets of analyses presented in Table 8, albeit only at the 8 percent level of significant in the study based on the 1980, 1990 and 2000 Census data. The estimated coefficient is -0.002 in the analyses based on all three data sets, and -0.006 in the analyses based only on the 1990 and 2000 Census data. This compares with values of between -0.003 to -0.007 in the cross-sectional analyses reported above. In other words, adjustment for differences in the quality of immigrant cohorts, in a situation where there is an apparent increase in unobserved dimensions of immigrant quality over time, results in a weaker assimilation effect. But the effect remains negative: negative assimilation.

IV. SUMMARY AND CONCLUSION

The international migration literature has to date been dominated by empirical testing of the immigrant assimilation hypothesis. The main testable implication of this hypothesis is that immigrant earnings —and other labor market and social outcomes— will improve with duration of residence in the destination country. Evidence consistent with this hypothesis has been found for all the major immigrant-receiving countries, time periods and data sets that have been examined.

This paper has addressed whether such positive assimilation will be found if skills are highly transferable internationally. It argues that where countries are of approximately equal economic standing, and skills are highly transferable internationally, international migration will typically occur where the individual experiences a favorable draw from the distribution of wages offers in the potential destination relative to the wage available in the country of origin and there will not be investment in destination specific human capital. A relatively high randomly drawn wage offer that attracts the immigrant need not persist indefinitely. With the passage of time, a "regression to the mean" would be expected, which will be captured empirically by a negative relationship between earnings and duration of residence in the destination.

The analysis of the earnings of adult, foreign-born men in the 1980, 1990 and 2000 US Censuses reveals strong support for the negative assimilation hypothesis. It also indicates that this "negative" assimilation has strengthened over time. Examination of immigrant earnings relative to the earnings of the native born, using both a standard cross-section approach and a cohort model, also showed strong support for the negative assimilation hypothesis.

Thus, negative, rather than positive, assimilation is the pattern that characterizes the earnings-duration of residence relationship among immigrants from the English-speaking developed countries in the US. As with Chiswick's (1978) model of exactly three decades ago, it is hoped that future research for other countries, data sets and time periods, will test whether this as a universal finding for immigrants from countries of similar economic standing and very high skill transferability to that of the destination country.

REFERENCES

Ben-Porath, Yoram, (1967). "The Production of Human Capital and the Life Cycle of Earnings", *Journal of Political Economy*, 75(4) part 1, August, pp. 352-365.

Card, David, (2003). "Canadian Emigration to the United States", University of California, Berkley, June.

Chiswick, Barry R., (1978). "The Effect of Americanization on the Earnings of Foreign Born Men", *Journal of Political Economy*, 86(5), October, pp. 897-922.

Chiswick, Barry R., (1979). "The Economic Progress of Immigrants: Some Apparently Universal Patterns", in William Fellner, ed., *Contemporary Economic Problems, 1979*, Washington: American Enterprise Institute, pp. 357-399.

Dumont, Jean-Christophe and Lemaître, Georges (2005). "Counting Immigrants and Expatriates in OECD Countries: A New Perspective", Social, Employment and Migration Working Papers, Organisation for Economic Co-operation and Development, Paris, France.

Funkhouser, Edward and Trejo, Stephen J., (1995). "The Labor Market Skills of Recent Male Immigrants: Evidence from the Current Population Survey", *Industrial and Labor Relations Review*, 48(4), pp.792-811.

Lindner, Deborah J., (1989). "The Determinants of Emigration and Earnings: Evidence from Canadian and US Data," PhD Dissertation (Economics), University of Wisconsin, Madison.

APPENDIX A

DESCRIPTION OF VARIABLES

Data Source: 2000 Census of Population of the United States, Public Use Microdata Sample (PUMS), 5 percent sample, 1990 Census of Population of the United States, Public Use Microdata Sample (PUMS), 5 percent sample, and 1980 Census of Population of the United States, Public Use Microdata Sample (PUMS), 1 percent sample.

Definition of Population: Foreign-born and native-born men aged twenty-five to sixty-four. Only residents of the 50 States and the District of Columbia are considered.

Dependent Variable:

Earnings (LNEARN): The natural logarithm of earnings in the year prior to the census year for those reporting that they worked in that year. Earnings are the sum of wage and salary and self employment earnings. Values less than 100, including zero and negative values, are assigned the value 100.

Independent Variables:

Years of Education (EDUC): This variable records the total years of full-time equivalent education. It has been constructed from the Census data on educational attainment by assigning the following values to the Census categories: completed less than fifth grade (2 years); completed fifth or sixth grade (5.5); completed seventh or eighth grade (7.5); completed ninth grade (9); completed tenth grade (10); completed 11th grade (11); completed 12th grade or high school (12); attended college for less than one year (12.5); attended college for more than one year or completed college (14); Bachelor's degree (16); Master's degree (17.5); Professional degree (18.5); Doctorate (20).

Potential Experience: This is the individual's age minus years of education minus 6.

Years Since Migration (YSM). This is computed from the year the foreign born person came to the United States to stay.

Log of Weeks Worked: This is the natural logarithm of the number of weeks the person worked in the year prior to the census year (*i.e.*, 1999 for the 2000 census and so on).

Marital Status (MARRIED): This is a binary variable that distinguishes individuals who are married, spouse present (equal to 1) from all other marital states. It thus also distinguishes the couple and lone-parent types of family households.

English Proficiency: Two dichotomous variables are used to summarize the individual's proficiency in spoken English. The first is for those who speak a language other than English at home and speak English very well or well. The second is for those who speak a language other than English at home and speak English not well or not at all. The reference group is those who speak only English at home.

Location: The two location variables record residence in a non-metropolitan area (NON-MET) or in the Southern States (SOUTH). The states included in the latter are: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia.

Table A.1
Means and Standard Deviations of Variables in Immigrant Adjustment Earnings Function, 25-64 Year Old Male Immigrants from English-Speaking Countries, 1980, 1990 and 2000 US Censuses

Variable	*1980*	*1990*	**2000**
Log Earnings	9.731	10.313	10.725
	(0.97)	(1.03)	(1.02)
Educational Attainment	13.644	14.276	14.866
	(3.60)	(2.94)	(2.70)
Experience (EXP)	25.785	22.327	23.115
	(12.83)	(11.69)	(10.88)
Years Since Migration (YSM)	22.049	21.575	20.480
	(12.63)	(13.87)	(14.71)
Log Weeks Worked	3.827	3.818	3.825
	(0.38)	(0.40)	(0.39)
Married	0.809	0.711	0.677
	(0.39)	(0.45)	(0.47)
South	0.162	0.217	0.258
	(0.37)	(0.41)	(0.44)
Rural[(a)]	0.074	0.140	0.015
	(0.26)	(0.35)	(0.12)
English Very Well/Well	0.116	0.116	0.134
	(0.32)	(0.32)	(0.34)
English Not Well/Not at All	0.006	0.006	0.007
	(0.08)	(0.08)	(0.09)
United Kingdom	0.364	0.415	0.413
	(0.48)	(0.49)	(0.49)
Ireland	0.105	0.106	0.095
	(0.31)	(0.31)	(0.29)
Canada	0.498	0.434	0.436
	(0.50)	(0.50)	(0.50)
Australia and New Zealand	0.032	0.045	0.057
	(0.18)	(0.21)	(0.23)
Sample Size	3,480	18,046	21,777

Note: (a) Definition of variable changes appreciable across data sets.
Sources: US Censuses of Population, Make similar change on all of the tables that follow 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.

STATISTICAL APPENDIX B

Table B-1
Means and Standard Deviations of Variables in Immigrant Adjustment Earnings Function, 25-64 Year Old Male Immigrants from the United Kingdom, 1980, 1990 and 2000 US Censuses

Variable	1980	1990	2000
Log Earnings	9.796	10.377	10.776
	(0.93)	(1.01)	(1.03)
Educational	14.485	14.747	15.181
Attainment	(3.19)	(2.72)	(2.54)
Experience (EXP)	23.973	21.802	23.220
	(12.43)	(11.25)	(10.72)
Years Since	19.583	19.322	19.549
Migration (YSM)	(12.68)	(13.35)	(13.81)
Log Weeks Worked	3.835	3.828	3.828
	(0.38)	(0.39)	(0.39)
Married	0.804	0.714	0.683
	(0.40)	(0.45)	(0.47)
South	0.195	0.248	0.291
	(0.40)	(0.43)	(0.45)
Rural[(a)]	0.068	0.130	0.011
	(0.25)	(0.34)	(0.10)
English Very	0.047	0.064	0.088
Well/Well	(0.21)	(0.25)	(0.28)
English Not Well/Not	0.002	0.003	0.006
at All	(0.05)	(0.05)	(0.08)
Sample Size	1,268	7,439	8,917

Note: (a) Definition of variable changes appreciable across data sets.
Sources: 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.

Table B-2
Estimates of Immigrant Adjustment Earnings Function, 25-64 Year Old Male Immigrants from the United Kingdom, 1980, 1990 and 2000 US Censuses

Variable	1980		1990		2000	
Constant	2.785	2.778	3.950	3.962	4.306	4.303
	(8.14)	(8.10)	(24.32)	(24.50)	(20.94)	(20.92)
Educational	0.077	0.077	0.085	0.085	0.109	0.109
Attainment	(8.68)	(8.67)	(20.15)	(20.19)	(28.08)	(28.09)
Experience	0.071	0.070	0.053	0.054	0.050	0.050
(EXP)	(8.76)	(8.92)	(14.78)	(14.89)	(12.81)	(12.70)
$EXP^2/100$	-0.117	-0.116	-0.088	-0.088	-0.077	-0.077
	(7.22)	(7.37)	(11.43)	(11.51)	(10.05)	(9.96)
Years Since	-0.004	-0.002	-0.002	-0.005	-0.009	-0.009
Migration	(0.64)	(1.18)	(0.88)	(5.35)	(3.68)	(11.01)
(YSM)						
$YSM^2/100$	0.005	(b)	-0.005	(b)	0.002	(b)
	(0.35)		(0.93)		(0.38)	
Log Weeks	1.292	1.292	1.172	1.172	0.995	0.994
Worked	(16.59)	(16.66)	(29.33)	(29.38)	(20.32)	(20.35)
Married	0.203	0.205	0.245	0.244	0.228	0.228
	(3.69)	(3.69)	(10.86)	(10.79)	(10.86)	(10.89)
South	-0.067	-0.066	-0.145	-0.145	-0.102	-0.102
	(1.44)	(1.42)	(6.56)	(6.59)	(5.13)	(5.14)
Rural[(a)]	0.072	0.072	-0.096	-0.096	-0.416	-0.415
	(1.04)	(1.04)	(3.10)	(3.09)	(5.91)	(5.91)
English Very	0.036	0.036	-0.128	-0.128	-0.092	-0.092
Well/Well	(0.41)	(0.41)	(2.64)	(2.64)	(2.65)	(2.66)
English Not	-0.816	-0.815	-0.312	-0.314	-0.071	-0.071
Well/Not at All	(0.54)	(0.54)	(2.01)	(2.03)	(0.58)	(0.57)
$\bar{R}^2$	0.4407	0.4411	0.3432	0.3432	0.2724	0.2725
Sample Size	1,268	1,268	7,439	7,439	8,917	8,917

Notes: (a) Definition of variable changes appreciable across data sets; (b) Variable not entered.
Sources: 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.

Table B-3
Means and Standard Deviations of Variables in Immigrant Adjustment Earnings Function, 25-64 Year Old Male Immigrants from Ireland, 1980, 1990 and 2000 US Censuses

Variable	1980	1990	2000
Log Earnings	9.677	10.278	10.600
	(0.84)	(0.88)	(0.92)
Educational	12.568	13.233	13.899
Attainment	(3.74)	(3.02)	(2.71)
Experience (EXP)	28.311	25.096	23.145
	(11.10)	(12.60)	(11.85)
Years Since	23.270	22.029	18.982
Migration (YSM)	(10.22)	(14.30)	(13.80)
Log Weeks Worked	3.846	3.816	3.810
	(0.38)	(0.38)	(0.43)
Married	0.809	0.715	0.621
	(0.39)	(0.45)	(0.49)
South	0.076	0.113	0.148
	(0.27)	(0.32)	(0.36)
Rural[(a)]	0.038	0.080	0.007
	(0.19)	(0.27)	(0.08)
English Very	0.093	0.107	0.129
Well/Well	(0.29)	(0.31)	(0.34)
English Not Well/Not	0.000	0.007	0.009
at All	(0.00)	(0.08)	(0.09)
Sample Size	367	1,857	2,029

Note: (a) Definition of variable changes appreciable across data sets.
Sources: 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.

Table B-4
Estimates of Immigrant Adjustment Earnings Function, 25-64 Year Old Male Immigrants from Ireland, 1980, 1990 and 2000 US Censuses

Variable	1980		1990		2000	
Constant	5.780	5.851	4.886	4.873	6.326	6.354
	(6.31)	(6.08)	(17.37)	(17.32)	(12.63)	(12.62)
Educational	0.022	0.020	0.051	0.051	0.072	0.072
Attainment	(1.50)	(1.37)	(7.51)	(7.48)	(9.26)	(9.24)
Experience	0.043	0.051	0.030	0.036	0.008	0.012
(EXP)	(2.72)	(3.31)	(4.33)	(5.58)	(0.98)	(1.64)
$EXP^2/100$	-0.081	-0.094	-0.046	-0.056	-0.015	-0.023
	(3.10)	(3.70)	(3.61)	(4.71)	(1.02)	(1.70)
Years Since	0.027	0.004	0.010	0.002	0.008	-0.001
Migration	(1.58)	(0.70)	(2.01)	(0.89)	(1.40)	(0.67)
(YSM)						
$YSM^2/100$	-0.046	(b)	-0.018	(b)	-0.020	(b)
	(1.33)		(1.95)		(1.77)	
Log Weeks	0.630	0.652	1.065	1.071	0.810	0.812
Worked	(2.61)	(2.65)	(14.68)	(14.81)	(8.49)	(8.48)
Married	0.511	0.520	0.279	0.277	0.286	0.288
	(3.71)	(3.75)	(6.63)	(6.59)	(6.66)	(6.70)
South	-0.164	-0.169	-0.151	-0.151	-0.122	-0.128
	(1.03)	(1.06)	(2.31)	(2.31)	(2.29)	(2.38)
Rural[(a)]	0.136	0.132	-0.133	-0.135	0.085	0.093
	(0.58)	(0.56)	(1.92)	(1.92)	(0.30)	(0.33)
English Very	0.054	0.034	-0.094	-0.096	-0.064	-0.064
Well/Well	(0.44)	(0.28)	(1.62)	(1.66)	(1.20)	(1.20)
English Not	(b)	(b)	0.225	0.228	-0.007	-0.019
Well/Not at All			(1.03)	(1.04)	(0.03)	(0.09)
$\bar{R}^2$	0.1948	0.1924	0.3268	0.3259	0.2105	0.2099
Sample Size	367	367	1,857	1,857	2,029	2,029

Notes: (a) Definition of variable changes appreciable across data sets; (b) Variable not entered or not relevant.

Sources: 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.

Table B-5
Means and Standard Deviations of Variables in Immigrant Adjustment Earnings Function, 25-64 Year Old Male Immigrants from Canada, 1980, 1990 and 2000 US Censuses

Variable	1980	1990	2000
Log Earnings	9.699	10.264	10.699
	(1.01)	(1.05)	(1.03)
Educational	13.138	13.987	14.729
Attainment	(3.68)	(2.99)	(2.77)
Experience (EXP)	27.172	22.606	23.334
	(13.16)	(11.81)	(10.88)
Years Since	24.252	24.444	22.447
Migration (YSM)	(12.44)	(13.71)	(15.64)
Log Weeks Worked	3.815	3.811	3.828
	(0.40)	(0.40)	(0.39)
Married	0.821	0.716	0.685
	(0.38)	(0.45)	(0.46)
South	0.152	0.212	0.254
	(0.36)	(0.41)	(0.44)
Rural[(a)]	0.086	0.169	0.021
	(0.28)	(0.37)	(0.14)
English Very	0.174	0.168	0.185
Well/Well	(0.38)	(0.37)	(0.39)
English Not Well/Not	0.010	0.009	0.009
at All	(0.10)	(0.09)	(0.09)
Sample Size	1,733	7,956	9,581

Note: (a) Definition of variable changes appreciable across data sets.
Sources: 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.

Table B-6
Estimates of Immigrant Adjustment Earnings Function, 25-64 Year Old Male Immigrants from Canada, 1980, 1990 and 2000 US Censuses

Variable	1980		1990		2000	
Constant	3.779	3.833	4.241	4.283	4.322	4.328
	(9.93)	(10.26)	(21.90)	(22.08)	(24.74)	(24.73)
Educational	0.065	0.064	0.077	0.076	0.108	0.108
Attainment	(8.96)	(9.08)	(18.31)	(18.25)	(28.74)	(28.87)
Experience	0.052	0.053	0.047	0.048	0.052	0.052
(EXP)	(6.56)	(6.64)	(12.23)	(12.35)	(13.76)	(13.90)
$EXP^2/100$	-0.083	-0.084	-0.072	-0.074	-0.081	-0.081
	(5.41)	(5.59)	(8.94)	(9.15)	(10.55)	(10.77)
Years Since	0.002	-0.004	0.001	-0.004	-0.004	-0.006
Migration	(0.27)	(1.99)	(0.32)	(4.19)	(2.00)	(8.12)
(YSM)						
$YSM^2/100$	-0.014	(b)	-0.009	(b)	-0.003	(b)
	(0.89)		(1.87)		(0.57)	
Log Weeks	1.137	1.140	1.123	1.125	0.986	0.987
Worked	(12.37)	(12.43)	(23.11)	(23.19)	(24.38)	(24.45)
Married	0.233	0.233	0.227	0.226	0.280	0.280
	(3.86)	(3.87)	(10.21)	(10.18)	(14.17)	(14.17)
South	-0.289	-0.292	-0.111	-0.112	-0.024	-0.024
	(4.17)	(4.20)	(4.33)	(4.38)	(1.22)	(1.21)
Rural[(a)]	-0.126	-0.131	-0.092	-0.092	-0.279	-0.280
	(1.34)	(1.39)	(3.37)	(3.36)	(4.43)	(4.44)
English Very	-0.153	-0.154	-0.035	-0.033	0.017	0.018
Well/Well	(2.62)	(2.62)	(1.30)	(1.25)	(0.74)	(0.77)
English Not	-0.028	-0.025	-0.031	-0.031	0.211	0.213
Well/Not at All	(0.23)	(0.20)	(0.27)	(0.27)	(1.90)	(1.91)
$\bar{R}^2$	0.3014	0.3014	0.2881	0.2878	0.2817	0.2817
Sample Size	1,733	1,733	7,956	7,956	9,581	9,581

Notes: (a) Definition of variable changes appreciable across data sets; (b) Variable not entered.
Sources: 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.

Table B-7
Means and Standard Deviations of Variables in Immigrant Adjustment Earnings Function, 25-64 Year Old Male Immigrants from Australia or New Zealand, 1980, 1990 and 2000 US Censuses

Variable	1980	1990	2000
Log Earnings	9.663	10.265	10.770
	(0.94)	(1.29)	(1.08)
Educational	15.496	15.188	15.233
Attainment	(3.81)	(3.00)	(2.79)
Experience (EXP)	16.563	17.950	20.613
	(10.73)	(10.37)	(10.09)
Years Since	11.895	13.555	14.622
Migration (YSM)	(12.20)	(12.05)	(12.49)
Log Weeks Worked	3.843	3.799	3.820
	(0.28)	(0.45)	(0.41)
Married	0.688	0.637	0.664
	(0.47)	(0.48)	(0.47)
South	0.214	0.211	0.230
	(0.41)	(0.41)	(0.42)
Rural[(a)]	0.063	0.103	0.007
	(0.24)	(0.30)	(0.08)
English Very	0.080	0.110	0.090
Well/Well	(0.27)	(0.31)	(0.29)
English Not Well/Not	0.000	0.004	0.005
at All	(0.00)	(0.06)	(0.07)
Sample Size	112	794	1,250

Note: (a) Definition of variable changes appreciable across data sets.
Sources: 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.

Table B-8
Estimates of Immigrant Adjustment Earnings Function, 25-64 Year Old Male Immigrants from Australia or New Zealand, 1980, 1990 and 2000 US Censuses

Variable	1980		1990		2000	
Constant	3.411	3.388	4.715	4.715	4.708	4.769
	(3.24)	(3.11)	(5.04)	(5.04)	(9.67)	(9.60)
Educational	0.070	0.069	0.091	0.091	0.104	0.103
Attainment	(2.14)	(2.21)	(6.53)	(6.52)	(11.14)	(11.08)
Experience	0.032	0.031	0.042	0.043	0.062	0.057
(EXP)	(1.65)	(1.67)	(2.79)	(2.84)	(4.99)	(4.77)
$EXP^2/100$	-0.010	-0.009	-0.077	-0.077	-0.105	-0.095
	(0.30)	(0.24)	(2.10)	(2.15)	(3.50)	(3.29)
Years Since	-0.011	-0.003	-0.000	-0.000	-0.014	-0.004
Migration	(0.35)	(0.55)	(0.03)	(0.11)	(2.21)	(1.42)
(YSM)						
$YSM^2/100$	0.018	(b)	-0.000	(b)	0.026	(b)
	(0.25)		(0.02)		(1.71)	
Log Weeks	1.218	1.219	0.965	0.965	1.042	1.034
Worked	(4.87)	(4.94)	(4.13)	(4.14)	(11.44)	(11.37)
Married	0.080	0.088	0.223	0.223	0.213	0.211
	(0.43)	(0.48)	(2.51)	(2.51)	(4.30)	(4.25)
South	0.076	0.069	-0.113	-0.113	-0.036	-0.032
	(0.50)	(0.45)	(1.28)	(1.27)	(0.53)	(0.48)
Rural[(a)]	-0.014	-0.028	-0.217	-0.217	0.231	0.266
	(0.05)	(0.10)	(1.74)	(1.74)	(0.70)	(0.77)
English Very	0.090	0.089	-0.259	-0.259	-0.078	-0.090
Well/Well	(0.17)	(0.17)	(1.66)	(1.69)	(1.01)	(1.17)
English Not	(b)	(b)	0.421	0.421	-0.412	-0.367
Well/Not at All			(1.97)	(1.98)	(0.89)	(0.76)
$\bar{R}^2$	0.2117	0.2187	0.1864	0.1874	0.2668	0.2655
Sample Size	112	112	794	794	1,250	1,250

Notes: (a) Definition of variable changes appreciable across data sets; (b) Variable not entered or not relevant.

Sources: 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.

Table B-9
Estimates of Immigrant Adjustment Earnings Function, 25-64 Year Old Male Immigrants from Developed English-Speaking Countries, Without Language Variables, 1980, 1990 and 2000 US Censuses

Variable	1980		1990		2000	
Constant	3.563	3.592	4.230	4.248	4.522	4.521
	(13.28)	(13.37)	(33.71)	(33.91)	(35.74)	(35.71)
Educational	0.066	0.065	0.078	0.078	0.104	0.104
Attainment	(12.79)	(12.85)	(29.17)	(29.19)	(42.36)	(42.42)
Experience	0.058	0.059	0.047	0.048	0.048	0.048
(EXP)	(10.85)	(11.18)	(19.30)	(19.59)	(19.27)	(19.30)
$EXP^2/100$	-0.094	-0.096	-0.073	-0.074	-0.074	-0.074
	(9.11)	(9.52)	(14.44)	(14.75)	(14.90)	(14.98)
Years Since	0.003	-0.003	-0.000	-0.004	-0.007	-0.007
Migration	(0.54)	(1.90)	(0.28)	(6.17)	(4.36)	(13.41)
(YSM)						
$YSM^2/100$	-0.011	(b)	-0.007	(b)	0.001	(b)
	(1.15)		(1.99)		(0.15)	
Log Weeks	1.152	1.155	1.130	1.131	0.975	0.975
Worked	(16.86)	(16.94)	(36.03)	(36.13)	(33.55)	(33.61)
Married	0.256	0.255	0.246	0.246	0.256	0.256
	(6.48)	(6.46)	(16.72)	(16.66)	(19.44)	(19.45)
South	-0.173	-0.176	-0.134	-0.135	-0.069	-0.069
	(4.23)	(4.29)	(8.42)	(8.46)	(5.15)	(5.16)
Rural[(a)]	-0.043	-0.045	-0.102	-0.102	-0.294	-0.294
	(0.69)	(0.73)	(5.24)	(5.23)	(6.14)	(6.14)
Ireland	-0.095	-0.089	0.001	0.000	-0.004	-0.004
	(1.97)	(1.86)	(0.04)	(0.00)	(0.19)	(0.19)
Canada	0.001	0.002	-0.019	-0.019	-0.010	-0.009
	(0.03)	(0.07)	(1.34)	(1.31)	(0.75)	(0.74)
Australia &	-0.076	-0.086	-0.065	-0.068	-0.007	-0.007
New Zealand	(0.93)	(1.06)	(1.55)	(1.62)	(0.25)	(0.25)
$\bar{R}^2$	0.3281	0.3280	0.3057	0.3056	0.2706	0.2707
Sample Size	3,480	3,480	18,046	18,046	21,777	21,777

Notes: (a) Definition of variable changes appreciable across data sets; (b) Variable not entered.
Sources: 1980 1 percent Public Use Microdata Sample (PUMS); 1990 5 percent PUMS; 2000 5 percent PUMS.