ASSIMILATION AND THE EARNINGS OF YOUNG INTERNAL MIGRANTS

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Abstract—This paper investigates if young internal migrants in the United States experience economic assimilation as they adapt to their new residential location. Using data from the National Longitudinal Survey of Youth, we examine how the hourly earnings of interstate migrants are affected by the number of years they have spent in their destination state. Our study indicates that internal migrants initially earn less than natives, but that this wage differential disappears within a few years. Moreover, the initial wage disadvantage of internal migrants depends upon the distance moved and economic conditions in the destination labor market.

Many studies have found a positive relationship between the earnings of immigrants in the host country and the length of time that has elapsed since immigration (Chiswick, 1978; Carliner, 1980; Borjas, 1985). This finding is often interpreted as an indication that immigrants "assimilate" in the host country's labor market.

In this paper, we investigate whether young internal migrants in the United States experience a similar assimilation process. Using data from the National Longitudinal Survey of Youth, we examine how the hourly earnings of interstate migrants are affected by the number of years they have spent in their destination state. To our knowledge, no previous research has estimated the effect of years since migration on the earnings of internal migrants. Although the concept of location-specific human capital has been used in studies of repeat and return migration (DaVanzo and Morrison, 1981; Herzog and Schlottmann, 1982; DaVanzo, 1983), previous work has not emphasized that some of this location-specific capital may involve knowledge about the local labor market and therefore would be expected to influence the post-migration earnings path.[1]

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[1] Several studies, however, do provide indirect but suggestive evidence on the earnings assimilation of internal migrants. Masters (1972), Yezer and Thurston (1976), and Grant and Vanderkamp (1980) all find that recent internal migrants earn less than earlier migrants, whereas Polachek and Horvath (1977) and Krumm (1983) present evidence which suggests that the post-migration wage growth experienced by movers exceeds that of non-movers.

I. Empirical Framework

The labor market assimilation of international migrants is typically modeled by a regression equation of the form

$$\ln w = X\beta + \gamma_1 E + \gamma_2 E^2 + \delta_0 M + \delta_1 M \cdot T + \delta_2 M \cdot T^2 + \epsilon, \quad (1)$$

where w represents the (U.S.) hourly wage, X is a vector of worker characteristics, E measures labor market experience, M is a dummy variable identifying international migrants, T measures years since migration, and ϵ is a random error term.

The specification in (1) assumes that labor market experience abroad is not a perfect substitute for U.S. experience. The coefficient δ_0 measures the differential between immigrant and native earnings upon arrival in the United States, and is expected to be negative because immigrants lack U.S.-specific skills. The coefficients δ_1 and δ_2 measure how immigrant earnings vary with the length of time spent in the United States. Assimilation causes immigrant earnings to grow more rapidly over time than native earnings ($\delta_1 > 0$), but this effect diminishes over time as immigrants accumulate U.S. experience and become more like natives ($\delta_2 < 0$).

It is reasonable to suppose that a similar type of learning process influences the post-migration earnings profiles of workers who relocate *within* a country. After all, local labor markets across the United States display enormous diversity in terms of the types of jobs available, the legal and institutional environment, and the specific skills that firms demand. If internal migrants acquire this knowledge over time as they become more familiar with their new locale, the earnings of internal migrants should increase with duration of residence.

We analyze the assimilation of internal migrants using the 1979–1986 waves of the National Longitudinal Survey of Youth (NLSY). Respondents are between the ages of 14 and 22 at the time of the first interview, and the subsequent annual interviews provide a detailed history of each individual's labor force activity and migratory behavior. Because many of the respondents are still in school during the early years of the survey, we use labor market information from the 1986 interview in order to maximize the number of employed workers available for analysis.

The NLSY reports the individual's state of birth, his state of residence at age 14, and his state of residence

at the time of each of the eight interviews. To focus exclusively on internal migration, we exclude individuals born outside of the United States or ever observed to reside abroad. A "native" is defined to be an individual whose state of residence in 1986 is the same as at age 14 and for all observed years in between. A "migrant" has changed states at least once between age 14 and the 1986 interview. For migrants, state-specific human capital will be measured by the number of years since age 14 that the individual has resided in his current (1986) state.[2] This variable represents the internal migration analog to the "years since migration" variable used to analyze the earnings assimilation of international migrants.

The sample is restricted to civilian wage and salary workers with positive earnings and hours of work in the calendar year preceding the 1986 interview. In addition, we require that the individual is not currently enrolled in school and that his completed years of education did not change between the 1985 and 1986 interviews.[3] Finally, the dependent variable is the logarithm of average hourly earnings, computed as the ratio of annual earnings to annual hours of work. Observations with computed hourly earnings less than $1 or greater than $100 were considered outliers and excluded.

The control vector of worker characteristics (X) requires some discussion. The assimilation process often involves job mobility as migrants search for higher-paying positions. This implies that we do *not* want to control for characteristics of the individual's job such as industry, occupation, union status, or government employment, because one of the main ways that migrants can benefit from any location-specific labor market knowledge they acquire is by using this knowledge to secure a better job.[4] Therefore, we include only personal and family background variables in X, such as education, gender, race, marital status, and health.[5] To control for regional cost-of-living differences, we also include dummy variables indicating if the individual resides in the central city of an SMSA or elsewhere in an SMSA, as well as a vector of dummy variables designating in which of the nine census geographic divisions the individual currently resides.

II. Assimilation of Internal Migrants

Table 1 reports least squares estimates of the coefficients on migrant status and years in the current state from alternative specifications of the hourly earnings regression. In column (1), the dummy variable for migrant status is entered without the years in current state variables. After controlling for demographic characteristics, migrants earn roughly 3% less than natives. Column (2) adds the years in current state variables. The data reveal a pattern of earnings assimilation whereby internal migrants initially earn 10% less than demographically comparable natives, but over time the hourly wage earned by migrants converges rapidly toward that of natives. The estimated coefficients imply that the wage of migrants equals that of natives after six years of residence in their new state.

The regression reported in column (3) imposes a less restrictive specification by using dummy variables for various duration of residence intervals. For migrants who have spent less than seven years in their current state, we find the expected pattern of earnings increasing with duration of residence but at a decreasing rate. However, migrants with seven or more years of residence in their current state also earn significantly less than natives. This puzzling result is also implied by the quadratic specification of assimilation, since after six years in the current state the negative quadratic term dominates the positive linear term and migrant earnings fall with duration of residence.

This finding is partly attributable to the construction of the data. We do not know an individual's state of residence between age 14 and the first interview in 1979, so this information was imputed as described in footnote 2. Because we have only eight annual observations on an individual's location between 1979 and 1986, most migrants with long durations of residence accumulated some of the years in their current state from the imputed period between age 14 and 1979. By definition, migrants must have changed their state of residence sometime between age 14 and 1986, so that many migrants with durations of residence of at least

[2] Calculation of this variable is straightforward except for the time period between age 14 and the 1979 interview, because the NLSY does not provide state of residence information for the intervening years. We therefore employed the following procedure. If an individual's state of residence both at age 14 and in 1979 matched that for 1986, then all of this time period was included as years in the current state. If neither of these potential matches occurred, then none of this time period was counted. If only one match occurred, then half of the intervening years were assigned as years in the current state.

[3] Sample means reveal that almost 30% of the workers in our data are migrants in the sense that they have not continuously resided in their current state since the age of 14, and migrants have spent on average about six years in their current state since age 14.

[4] Consistent with this argument, regressions which include job characteristics (including years with the current employer) produce estimates of the assimilation parameters that are qualitatively similar but smaller in absolute value than those reported below.

[5] Because of well-known differences between male and female wage equations, we allow the effects of experience, education, and marital status to vary by gender.

TABLE 1.—THE EFFECT OF MIGRANT ASSIMILATION ON HOURLY EARNINGS (REGRESSION COEFFICIENTS)

Variable	Full Sample			Excluding Return Migrants		
	(1)	(2)	(3)	(4)	(5)	(6)
Migrant	−.0347	−.0999		−.0151	−.1141	
	(.0164)	(.0412)		(.0187)	(.0471)	
Migrant × (years in state)		.0332			.0466	
		(.0143)			(.0204)	
Migrant × (years in state)^2		−.0027			.0037	
		(.0011)			(.0017)	
Migrant × (1–2 years in state)			−.0755			−.0734
			(.0299)			(.0303)
Migrant × (3–4 years in state)			.0098			.0540
			(.0392)			(.0424)
Migrant × (5–6 years in state)			.0273			.0347
			(.0366)			(.0415)
Migrant × (7+ years in state)			−.0455			−.0148
			(.0213)			(.0279)
R^2	.2151	.2160	.2161	.2160	.2169	.2174

Notes: Standard errors are in parentheses. Dependent variable is the natural logarithm of average hourly earnings. Also included as independent variables are controls for potential labor market experience, experience squared, education, gender, race, marital status, health, metropolitan status, census geographic division of residence, and interaction terms between gender and the experience, education, and marital status variables. Data are from the 1979–86 waves of the National Longitudinal Survey of Youth. The sample sizes are 5199 for the full sample, and 4766 for the sample which excludes return migrants.

seven years are *return* migrants in the sense that they resided in the same state in 1979 and in 1986, but they left that state for a year or two in between. It is likely that these return migrants differ in important ways from other migrants. Low earnings in the initial state may have prompted these individuals to move in the first place, and even lower earnings in the destination state might have precipitated their return to the initial state. This could explain the negative coefficient on the dummy variable indicating migrants with seven or more years in the current state.

The last three columns of table 1 report coefficients from regressions estimated after excluding return migrants from the sample. The estimates are similar to those reported in the first three columns, except that in column (6) the coefficient on the dummy variable for migrants with seven or more years in the current state is no longer significantly different from zero. The quadratic specification implies that internal migrants initially earn about 11% less than natives, but within three years the migrant wage disadvantage vanishes. The dummy variable specification indicates that internal migrants earn 7% less than natives during their first two years in a state, and wage differentials for migrants with longer durations of residence are not statistically significant.

Of course, the potential endogeneity of the decision to migrate may bias our results. We tried two corrections, and in each case the results were similar to those reported above. First, we exploited the panel aspect of the NLSY data and estimated first-differenced regressions where the dependent variable was the change in average hourly earnings between 1985 and 1986. This method eliminates person-specific fixed effects and directly estimates the difference in wage growth between migrants and natives. Although measured imprecisely, point estimates of the assimilation parameters from the wage growth regressions were similar to those obtained from cross-section regressions. Second, we estimated native and migrant wage equations using the Heckman (1979) selectivity correction. We found no evidence of selectivity bias. The selectivity-corrected coefficients were similar to those reported above, and the coefficients of the selection variables were not significantly different from zero.[6]

III. Determinants of the Rate of Assimilation

Internal migrants have been shown to experience a relatively short period of labor market adjustment in which they earn lower wages than otherwise similar natives. What factors determine the severity of this initial wage disadvantage for migrants? Two candidate variables are the distance of the move and economic conditions in the destination. Previous studies (Yezer and Thurston, 1976; Grant and Vanderkamp, 1980) suggest that the initial wage disadvantage increases with the distance moved. In addition, if assimilation involves learning how to find the best jobs available in

[6] The selection variable added to the second-stage wage regression for natives has a coefficient of 0.069 with a standard error of 0.066, whereas the corresponding variable in the migrant wage equation has a coefficient of 0.043 with a standard error of 0.058.

TABLE 2.—HOW EARNINGS ASSIMILATION VARIES WITH DISTANCE MOVED AND DESTINATION ECONOMIC CONDITIONS (REGRESSION COEFFICIENTS)

Variable	Full Sample		Excluding Return Migrants	
	(1)	(2)	(3)	(4)
Migrant × (1–2 years in state)	−.0763	−.2450	−.0739	−.2220
	(.0299)	(.0595)	(.0303)	(.0607)
Migrant × (3+ years in state)	−.0226	−.0236	.0118	.0094
	(.0180)	(.0180)	(.0216)	(.0217)
(Migrant within census region) × (1–2 years in state)		.1295		.1161
		(.0565)		(.0572)
State employment growth rate, 1980–86		.1983		.2482
		(.1279)		(.1357)
Migrant × (1–2 years in state) × (state employment growth rate)		.7693		.6595
		(.3145)		(.3229)
R^2	.2155	.2177	.2170	.2192

Note: See notes to table 1.

a given area, then growing labor markets may give natives less of a natural advantage.

Table 2 presents selected coefficients from wage regressions which examine these hypotheses. For simplicity, migrant status and duration of residence are collapsed into two dummy variables: one indicating migrants with less than three years in the current state, and another identifying all other migrants.[7] In columns (1) and (3), the migrant dummies are entered without further interactions, and the estimates imply that migrants earn about 7% less than natives during their first two years in a state, but after this the migrant wage differential disappears.

Columns (2) and (4) test for the effects of distance moved and local economic conditions on migrant earnings assimilation. To proxy for the distance of the move, we created a dummy variable identifying migrants who moved within Census regions (i.e., Northeast, North-Central, South, and West) rather than across regions. In our sample, more than half of those who migrated across state lines also crossed regional boundaries. As a barometer of the local economy, we use the percentage growth in nonagricultural employment experienced by the state between 1980 and 1986 (U.S. Bureau of Census, 1987, table 641).[8] State employment growth over this period ranged from a decline of almost 8% in West Virginia to an increase of over 32% in Arizona.

Columns (2) and (4) introduce interactions between recent migrant status and the distance and employment growth variables.[9] By identifying recent migrants who did not change census regions, we allow the initial wage differential to vary for interregional and intraregional migrants. State employment growth is included by itself as well as interacted with the dummy variable for recent migrants. The estimates indicate that, holding constant employment growth in the destination state, interregional migrants suffer an initial wage disadvantage which is about double that experienced by migrants who remain within the same census region. In addition, migrants suffer less of an initial wage disadvantage when they relocate to expanding labor markets. Among interregional migrants, the estimates in column (4) imply that individuals moving to states with zero employment growth earn 22% less than natives during their first two years of residence, whereas migrants to a state with the mean employment growth rate of around 10% earn only 16% less, and those moving to a state growing as rapidly as Arizona suffer virtually no wage disadvantage.

IV. Assimilation of International Migrants

It is of interest to contrast the assimilation of internal migrants with that experienced by immigrants to

[7] This aggregation of the migrant dummies cannot be rejected by the data, and is consistent with the assimilation pattern revealed by the dummy variable specification reported in column (6) of table 1.

[8] An alternative measure, the unemployment rate in the local labor market, produced similar results.

[9] For simplicity, these regressions include only selected interaction terms. We omit an interaction identifying intraregional migrants with more than two years in the current state, and we omit a similar interaction between state employment growth and migrants with long durations of residence. We also exclude interactions between intraregional migrant status and state employment growth. The regressions were initially estimated with a complete set of interactions, but none of the omitted interactions proved to be statistically significant, and their inclusion did not appreciably affect the reported coefficients.

TABLE 3.—ESTIMATES OF EARNINGS ASSIMILATION FOR INTERNATIONAL MIGRANTS (REGRESSION COEFFICIENTS)

Variable	1980 Cross-Section (1)	1980 Cross-Section (2)	1970/1980 Pooled (3)
Immigrant	−.1055	−.0794	
	(.0056)	(.0060)	
Immigrant × (years in U.S.)	.0169	.0155	.0019
	(.0009)	(.0010)	(.0014)
Immigrant × (years in U.S.)^2	−.00046	−.00046	−.00004
	(.00004)	(.00004)	(.00003)
Immigrant × (arrived in 1975–80)			−.1603
			(.0069)
Immigrant × (arrived in 1970–74)			−.0427
			(.0102)
Immigrant × (arrived in 1965–69)			.0118
			(.0126)
Immigrant × (arrived in 1960–64)			.0369
			(.0172)
Immigrant × (arrived in 1950–59)			.0473
			(.0226)
Immigrant × (arrived before 1950)			.0526
			(.0418)
Ability to speak English of those for whom English is a second language:			
Very well		−.0033	
		(.0054)	
Well		−.0399	
		(.0064)	
Not well		−.1098	
		(.0079)	
Not at all		−.1332	
		(.0106)	
Observation drawn from 1980 Census			.6848
			(.0100)
R^2	.0879	.0903	.3333

Notes: Standard errors are in parentheses. Dependent variable is the natural logarithm of average hourly earnings. Also included as independent variables are control variables similar to those used in table 1. Data are from the public use samples of the 1970 and 1980 U.S. Censuses. The sample sizes are 111,837 for the 1980 cross-section and 123,812 for the pooled data.

the United States. Our estimates of internal assimilation are for young migrants and previous estimates of assimilation are not available for a comparable sample of immigrants. To facilitate such a comparison, table 3 reports the extent of assimilation experienced by young immigrants in the United States. The dependent variable is average hourly earnings, and the regressions reported in columns (1) and (2) employ a cross-section of individuals between the ages of 21 and 29 from the 1890 U.S. Census. In this context, natives refer to individuals born in the United States, and immigrants are those born in a foreign country but now living in the United States.

The data reveal a pattern of assimilation which resembles that detected by studies using broader age groups. The results in column (1) imply that young immigrants start out earning about 11% less than natives, but this differential disappears after the immigrant has spent eight years in the United States.

International migrants often must master a new language, an adjustment problem not typically encountered by internal migrants. To explore how this affects assimilation patterns, the regression reported in column (2) adds dummy variables indicating English proficiency, with the omitted group being those for whom English is the native language. The results reveal a sizable return to speaking English. Although controlling for English proficiency reduces the initial wage disadvantage of immigrants, there is little change in the assimilation coefficients.

Therefore, both young internal migrants and young immigrants go through a period of labor market adjustment in which they earn less than natives but at the same time experience more rapid wage growth.[10] How-

[10] It is surprising that the initial wage disadvantage suffered by internal migrants relative to natives appears to be similar in magnitude to that experienced by immigrants. However, it is difficult to compare these estimates of the initial wage differential since the data for immigrants lumps together all those with less than five years in the United States. Moreover, as noted below, the initial wage differential for immigrants varies across cohorts.

ever, differences in the assimilation patterns of internal and international migrants are also revealing. Internal migrants appear to completely assimilate within a couple of years, whereas the assimilation process for immigrants lasts nearly a decade.

The cross-section estimates of immigrant assimilation presented do not control for the confounding effects of secular changes in the quality of immigrant cohorts. By tracking immigrant cohorts across successive censuses as in Borjas (1985), it is possible to separately identify assimilation and cohort effects. Column (3) reports the results of estimating such a regression on a pooled sample of observations from the 1970 and 1980 Censuses. Individuals selected from the 1970 Census are between the ages of 21 and 29, and in order to follow this same group ten years later, individuals taken from the 1980 Census are between 31 and 39. The coefficients on the years since migration variables measure assimilation, while the year of arrival dummies capture earnings differences across immigrant cohorts. Finally, the dummy variable indicating that an observation comes from the 1980 Census measures a period effect.[11]

The data reveal large differences in the earnings of immigrant cohorts. For example, immigrants arriving in 1975–80 earned 16% less upon arrival than demographically comparable natives, whereas immigrants arriving in 1965–69 did not suffer any initial wage disadvantage. The pooled regression also implies a much slower rate of immigrant assimilation than do the cross-section estimates. Therefore, the differences between internal and international migrants with regard to the rate of assimilation become even larger if we use the pooled rather than cross-section estimates.

V. Conclusion

The process of labor market assimilation, known to be important for immigrants, is also useful for understanding the earnings profiles of internal migrants. Our analysis indicates that internal migrants initially earn less than natives, but because the earnings growth experienced by recent migrants exceeds that of natives, this wage differential disappears within a few years. Moreover, the initial wage disadvantage suffered by internal migrants depends upon the distance moved and economic conditions in the destination labor market. Individuals moving within the same census region experience much less earnings disruption than do interregional migrants, and the initial wage differential between natives and migrants is smaller in states enjoying more rapid employment growth. Finally, earnings assimilation is found to take place at a faster pace and end sooner for internal migrants than for immigrants.

[11] In order to separately identify the period, assimilation, and cohort effects, the period effect is assumed to be the same for natives and immigrants. Because the 1970 Census did not ask questions about English language ability, these variables are excluded from the pooled regressions.

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