

---

Speaking, Reading, and Earnings among Low-Skilled Immigrants

Author(s): Barry R. Chiswick

Source: *Journal of Labor Economics*, Apr., 1991, Vol. 9, No. 2 (Apr., 1991), pp. 149-170

Published by: The University of Chicago Press on behalf of the Society of Labor Economists and the NORC at the University of Chicago

Stable URL: <https://www.jstor.org/stable/2535238>

#### REFERENCES

Linked references are available on JSTOR for this article:

[https://www.jstor.org/stable/2535238?seq=1&cid=pdf-reference#references\\_tab\\_contents](https://www.jstor.org/stable/2535238?seq=1&cid=pdf-reference#references_tab_contents)

You may need to log in to JSTOR to access the linked references.

---

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <https://about.jstor.org/terms>



, The University of Chicago Press and Society of Labor Economists are collaborating with JSTOR to digitize, preserve and extend access to *Journal of Labor Economics*

JSTOR

# Speaking, Reading, and Earnings among Low-skilled Immigrants

Barry R. Chiswick, *University of Illinois at Chicago*

This article is concerned with the determinants of English language fluency among immigrants and the effects of fluency on earnings. Using special survey data on a sample of over 800 aliens, the analysis shows the importance of certain variables not previously available, speaking fluency at migration and English reading fluency. English speaking and reading fluency both increase with duration in the United States, and the increase with duration is greater for those with more schooling and who are not Hispanic. The article shows that reading fluency is more important than speaking fluency as a determinant of earnings.

The growing literature on the economic adjustment or economic assimilation of immigrants has focused on the human capital that is embodied in them, the relevance of this human capital to the destination labor market, and postmigration human capital investments. One important aspect of human capital is "language capital," that is, the speaking, reading, and writing skills in one or more languages.

Language capital, particularly spoken language, is partially developed during the course of a child's maturation, for example, the development

The survey analyzed in this article was financed by a grant from the Immigration and Naturalization Service, U.S. Department of Justice, and was conducted by the Survey Research Laboratory, University of Illinois. The research for this article was financed by grants from the Sloan Foundation and the Institute of Government and Public Affairs, University of Illinois. I appreciate the research assistance of Xiao-Bo Li and the comments received on an earlier draft from Evelyn Lehrer, Luis Locay, Evelina Tainer, and François Vaillancourt and from participants at a seminar at the University of Illinois at Chicago and a session of the American Economics Association annual meeting. I am, however, solely responsible for the contents of this article.

[*Journal of Labor Economics*, 1991, vol. 9, no. 2]

© 1991 by The University of Chicago. All rights reserved.

0734-306X/91/0902-0002\$01.50

of speaking fluency in one's "mother tongue." Important investments are made in school and elsewhere in developing further one's language capital in the mother tongue. For most immigrants, however, their mother tongue is not the majority or dominant language spoken in the destination. An immigrant who does not know the dominant language might find a language-minority enclave within which mother-tongue skills can be fruitfully used. A language-minority enclave may, however, limit training opportunities and job mobility, whether it is geographic, occupational, or employer mobility, and thereby limit earnings opportunities. Furthermore, greater dominant-language skills would enhance productivity in the enclave and the nonenclave labor market by increasing efficiency in job search and through greater productivity on the job. There is, therefore, a labor market incentive to acquire dominant-language skills. Whether, and under what circumstances, this incentive is worth the cost is of keen interest.

This article is concerned with both the determinants of fluency in dominant-language skills and how these skills are translated into labor market earnings. A unique data set, a sample of illegal aliens apprehended in the Los Angeles area, is used to study the issue.<sup>1</sup>

Section I briefly reviews the literature on the nexus between language and earnings in the labor market for immigrants. It indicates the strengths and limitations of this literature. The data used for this study are described in Section II. Section III is a multiple regression analysis of the determinants of fluency in speaking and reading English. This includes longitudinal changes in speaking skills. Section IV is a regression analysis of the determinants of earnings focusing on the roles of fluency in speaking and reading English. The article closes (Sec. V) with a summary and conclusion, including suggestions for the collection of data on immigrant populations.

## I. Language and Earnings

Ever since its recent development, the literature on the economic status of immigrants has been concerned with the "Americanization" or adjustment of immigrants (Chiswick 1978). One of the important interpretations of the variable for duration in the destination has been the acquisition of destination-specific skills, including labor market information and language skills. The earliest research, using the 1970 Census of Population, was limited by the absence of data on language skills, except for what could be inferred from country of birth.<sup>2</sup>

<sup>1</sup> The importance of dominant-language skills, even for low-skilled workers, has been explicitly recognized in the amnesty program in the 1986 Immigration Reform and Control Act. To change their status from "temporary resident alien" to "permanent resident alien" within the 1-year grace period, those granted amnesty need to demonstrate a minimal command of English or enroll in at least 40 hours of English language instruction in an approved program (see Chiswick 1988a).

<sup>2</sup> The person's "mother tongue," the language other than or in addition to English spoken in the home when the person was a child, was asked in the 1970 census

Substantial progress on the role of language in immigrant adjustment could not be made until the 1976 Survey of Income and Education (SIE) became available. The SIE asked a battery of questions about languages spoken and the use of these languages.<sup>3</sup> The 1980 census furthered research on language and earnings by including a self-reported question on fluency in spoken English at the time of the census, as well as a question on languages currently spoken in the home other than English, a pattern repeated in the 1990 census questions.

Two data deficiencies in the SIE and the 1980 census are corrected in the survey data studied in this article. First, the survey asked for self-reported fluency in English at the time of *first* arrival in the United States, as well as the SIE/census question on fluency at the time of interview.<sup>4</sup> Second, the survey included a question on self-reported fluency in reading English at the time of interview. Furthermore, the survey methodology included a bilingual interviewer and both English and Spanish versions of the survey instrument. This methodology should reduce reporting errors and nonresponse on the part of those least fluent in English.

Most of the American studies of English language fluency have focused on Hispanics. The earliest study was by McManus and his colleagues and concluded that once language skills are taken into account "the differentials in wages which are associated with Hispanic ethnicity, U.S. nativity, schooling abroad and time in the United States are no longer statistically significant" (see McManus, Gould, and Welch 1983, p. 121; see also Gould, McManus, and Welch 1982). They then indicate that the interpretation is not that these factors are unimportant but rather that "their effects are mediated through" measured English language skills. These findings, however, are the result of a specification error.<sup>5</sup>

---

questionnaire administered to 15% of the population, but a key variable, duration in the United States, was asked only on the questionnaire administered to a non-overlapping 5% of the population.

<sup>3</sup> The SIE also included a question on reading: "How often does (the respondent) read an English language newspaper?" with "most days," "occasionally," and "(almost) never" as the acceptable responses. While it is not clear what the reading question does measure, it is clearly not a satisfactory measure of English reading fluency.

<sup>4</sup> The longitudinal data on a skill relevant in the labor market can be used to address the critique of Borjas (1985) that the improvement in earnings with duration in the destination observed in cross-sectional data is due to declining cohort quality, with no change in the skills relevant for the U.S. labor market as duration of residence increases. Although reestimations using the Borjas data and technique do find "assimilation" effects (see, e.g., Chiswick 1986; and LaLonde and Topel 1990), the longitudinal data in this study provide a more direct test.

<sup>5</sup> McManus et al. (1983) used a two-step procedure (p. 121). First, standard earnings functions were computed "to identify important interactions and to identify important questions." Three language questions that had the highest explanatory

Other studies have used the SIE and the 1980 census for the United States and 1971 and 1981 Canadian census data to analyze the effect of dominant and minority language proficiency at time of interview on the earnings or occupational status of immigrants.<sup>6</sup> In general, the studies find that dominant-language fluency, entered directly or using an instrumental variables approach, explains some (perhaps one-third) of the observed immigrant-native earnings differential, other variables the same, and accounts for some of the effect of duration in the destination on earnings.

Veltman (1988, pp. 545–46) notes that “no comprehensive account of the language shift process has as yet been produced for immigrants, although several relevant variables have been suggested.” He cites only age at migration and length of time in the destination. Using the 1976 SIE data on Hispanics and univariate analysis, he confirms findings reported elsewhere that the propensity to speak English decreases with age at migration and increases with duration in the United States. He did not use the SIE data on schooling or other variables and, of course, did not have data on English fluency at migration. Chiswick and Miller (in press) used the 1980 U.S. and the 1981 Canadian censuses to analyze dominant-language fluency as a function of demographic, human capital, household characteristic, and minority-language concentration variables. They also

---

power for earnings were retained. They then write: “Using interactive responses to these questions we identified seven groups that captured most of the information about wages in the SIE language questionnaire and that, at the same time, are arguably well ordered in terms of proficiency in English. By design, they are ordered in terms of wage predictions after the common variables [e.g., region, marital status, schooling, and experience] are taken into account.” Thus, the seven English language proficiency groups used in the McManus et al. earnings analysis are proxies for earnings intervals or categories. Predictable results emerge. They find that their seven dichotomous English fluency variables are very highly statistically significant—far more so than in other studies. They also find that the effects of other determinants of earnings are reduced and that Hispanic ethnicity loses its statistical significance. The statistical methodology has insured that the partial effects of the variables other than language are biased downward. McManus et al. also analyze the determinants of their English language proficiency variable (pp. 119–20). They combine the seven categories into a single index to serve as a dependent variable. Weights are obtained from the earnings function with the dichotomous language variables on the right-hand side. They find that U.S. schooling and U.S. experience raise English language proficiency, but that foreign schooling and foreign experience lower it. What is less clear, however, is whether the analysis is reflecting the effects of the explanatory variables on the language categories or on the earnings weights.

<sup>6</sup> For the United States, these studies include Reimers (1983), Grenier (1984), Chiswick (1987), Kossoudji (1988), Tainer (1988), Rivera-Batiz (1989), and Chiswick and Miller (in press). For studies of the determinants of language fluency and the impact of language fluency on earnings in Canada, where promoting English-French bilingualism is official policy, see e.g., Carliner (1981), Grenier and Vaillancourt (1983), and Chiswick and Miller (1988, in press). One of the few studies of language proficiency among women is in Boyd (in press).

analyzed the effect of dominant-language fluency on earnings and the endogeneity of language skills. Their analyses were, of course, limited by the variables available in the censuses.

Research on the role of language in the labor market has been limited by the absence of data on English speaking ability at immigration. Furthermore, the research has not been able to resolve the issue as to whether speaking ability is sufficient or whether the speaking variable is reflecting some of the effects of an important unmeasured variable with which it is correlated, fluency in reading English. The analysis in this paper addresses both issues.

## II. The Survey Data

The data for this study are from a survey of illegal aliens apprehended by the Los Angeles District Office of the Immigration and Naturalization Service (INS) during the 12-month period starting October 1986.<sup>7</sup> The survey instrument was administered to all illegal aliens detained and processed during this period who satisfied the following criteria: age 15 and over, in the United States for at least 4 days during the current stay, non-violent, and not held for felony prosecution. The interviewer was fully bilingual in English and Spanish, and the survey instrument was available in both languages. The interviewer was clearly identified as not being an employee or agent of INS, and the interviews were conducted in private.

The questionnaire was designed to elicit information on the income, employment, and household structure of the illegal alien population of the United States who would not be eligible for legalization under the Immigration Reform and Control Act of 1986.<sup>8</sup> In addition to standard demographic, skill, and labor market questions the survey included the following language questions:

- 1) What languages did you usually speak at home as a child? (Circle all that apply.) Spanish, English, Other (specify).
- 2) How well did you speak English when you first came to the United States? Would you say: Very well, Well, Not well (a little bit), or Not at all?
- 3) Currently how well do you *speak* English? Would you say: Very well, Well, Not well (a little bit), or Not at all?
- 4) Currently how well do you *read* English? For example, an English language newspaper. Would you say: Very well, Well, Not well (a little bit), or Not at all?

<sup>7</sup> A detailed discussion of the survey procedures, an analysis of the survey methodology, and discussion of the randomness of the sample and the characteristics of the population can be found in Chiswick (1989, app. A). Chiswick (1989) also provides an extensive analysis of these data.

<sup>8</sup> For an analysis of the provisions of the 1986 act and its implications for the characteristics of aliens not eligible for legalization, see Chiswick (1988a).

Self-assessment of language skills is always problematical. A test of English language competency that may be more reliable would be very costly to implement for a large sample. The procedure adopted here also has the advantage of comparability to questions asked by the U.S. Bureau of the Census on English speaking fluency. Reliability should be enhanced by the survey procedure of having a bilingual interviewer and English and Spanish versions of the questionnaire. Furthermore, there is no reason to believe the procedure generates systematic biases in the interpretation of the findings.

The survey resulted in 836 completed interviews for males. There were only 14 refusals, for an interview refusal rate of only 1.6%. The item non-response rates were also very low. The average length of the interview was 36 minutes and did not differ between Mexican and non-Mexican men. Among the 836 men, 94% of the interviews were conducted in Spanish, 4% in English (primarily for men from Canada and the Eastern Hemisphere), and 2% in English and Spanish. In only two instances was it not possible to conduct the interview because a translator fluent in a third language was not available.

The sample demonstrates characteristics typical of illegal aliens in the Los Angeles labor market (Chiswick 1984, 1988*b*, and 1989; Kossoudji and Ranney 1984; and Massey 1987). In the sample, 84% of the men were from Mexico, 11% from Central America, 2% from South America, and 3% from Canada and the Eastern Hemisphere. Half of the Mexican men were born in the northern part of the Central Plateau, the home of 22% of the population of Mexico.

The mean age of the sample was young, only 23 years. The average for the Mexican men was 22 years and about 28 years for the others. They had a relatively short mean duration in the United States during their current stay, 1.5 years overall, 1.4 years for the Mexicans, and 2.2 years for the others. However, the Mexican men were more likely to have had previous stays or episodes; 28% for the Mexicans, only 15% for the others.

The schooling levels in this population are very low. The mean level of schooling outside the United States was 7.1 years overall and 7.0 years for both the Mexican and other Latin American aliens. It was 8.3 years for the Canadian/European men and 13.2 years for the other Eastern Hemisphere men. This generally low educational attainment was not substantially augmented by schooling in the United States. Among the Mexican men 77% had no schooling in the United States, and another 14% had less than 1 year. Among the non-Mexican men, 61% had no U.S. schooling, and another 20% had less than 1 year. Among the small number currently enrolled in school, about half reported enrollment in an "English-as-a-second-language" program for both the Mexican and other aliens.

Reflecting the languages spoken in their countries of origin, nearly all of the Mexican and other Latin American aliens reported that only Spanish



was spoken in the home when they were a child. Among the 18 Asian, African, and Middle Eastern aliens, all reported a language other than English, but nearly 40% also reported English was spoken in the home when they were a child.

III. Speaking and Reading English

This section analyzes the English language speaking and reading skills of the sample of aliens. Although several studies have included analyses of current English language proficiency, this study is unique in being able to analyze speaking fluency at immigration and fluency in both speaking and reading English at the time of interview. This section first analyzes the speaking skills of the aliens. It closes with the analysis of English reading skills.

A. Speaking English

The aliens came to the United States with very poor English language skills. Among the Mexican men, nearly 80% reported that they could not speak English at all, another 20% reported that they spoke “not well,” only 1% reported speaking “well,” and none said “very well.” For the men from other countries, English language skills at migration were only slightly higher: 70% spoke “not at all,” nearly 20% reported “not well,” 8% spoke “well,” and only 5% (primarily from Canada and the United Kingdom) spoke “very well.”

Language skills increased by the time of the interview, in spite of the short duration in the United States. Among the Mexican migrants, the proportion reporting that they spoke English “not at all” fell by half from four-fifths to two-fifths (see table 1). Those reporting “not well” increased from one-fifth to over one-half. And 6% reported speaking “well” or “very well,” in contrast with the 1% prior to coming to the United States.

The male aliens from other countries experienced greater improvements

Table 1  
English Speaking Fluency of Mexican Men

When First Came to United States	At Time of Interview				Total	%
	Very Well	Well	Not Well	Not at All		
Very well	0	0	0	0	0	.0
Well	2	3	1	0	6	.8
Not well	1	15	119	1	136	19.3
Not at all	2	19	252	291	564	79.9
Total	5	37	372	292	706*	...
%	.7	5.2	52.7	41.4	...	100.0

\* One nonrespondent to both questions.



**Table 2**  
**English Speaking Fluency of Non-Mexican Men**

When First Came to United States	At Time of Interview				Total	%
	Very Well	Well	Not Well	Not at All		
Very well	6	0	0	0	6	4.7
Well	2	8	0	0	10	7.8
Not well	1	10	13	0	24	18.6
Not at all	2	8	44	35	89	69.0
Total	11	26	57	35	129	...
%	8.5	20.2	44.2	27.1	...	100.0

in their speaking skills (see table 2). Less than 30% reported that they spoke English “not at all,” a decline from nearly 70% at arrival. And nearly 30% reported speaking “well” or “very well,” more than doubling the 13% at arrival.

The data on English language proficiency prior to first coming to the United States and at the time of interview permit a multivariate analysis of the determinants of increased fluency in English. It is hypothesized that, controlling for language skills at arrival, the longer aliens are in the United States, the greater their fluency in English. It is also hypothesized that, due to the complementarity of schooling and language fluency, in a low-fluency population those with higher levels of schooling would have a greater increase in English language fluency. Furthermore, the effect of a higher level of schooling would be greater the longer the duration of residence. That is, controlling for initial speaking ability, education would have no separate effect at arrival but would have an increasing effect with duration of residence. Finally, it is hypothesized that the greater extent of temporary migration of Mexican aliens, because of the low cost of to-and-from migration, and the existing Spanish speaking Mexican-origin enclave in the Los Angeles area would retard their investments in developing English fluency.<sup>9</sup>

The variables used in the econometric analysis of speaking English (and the analyses below for reading English and for earnings) are defined in the Appendix.<sup>10</sup> The multiple regression analysis of speaking English is reported in table 3. The dichotomous dependent variable SPEKWELL takes

<sup>9</sup> Chiswick and Miller (in press) show that in the United States and in Canada residence in an area in which many others speak the same minority language has a significant negative effect on the acquisition of the dominant language. It is not possible to explicitly test the minority-language concentration effect on language fluency in the survey under study that is limited to the Los Angeles area.

<sup>10</sup> The means and standard deviations of the variables are reported in Chiswick (1989).

the value of one if the respondent reports speaking English “well” or “very well” at the time of interview; otherwise it is zero.<sup>11</sup> The equations are computed overall and separately for Mexican and other Latin American men, using ordinary least squares (OLS) and logit analysis.<sup>12</sup>

The first two columns in table 3 report the simple linear regression for speaking well or very well (SPEKWELL) both with and without the statistical control variables for initial English speaking ability. The explanatory power of the equation is increased significantly (from 34% to 39%) when speaking skills at arrival are held constant. Perhaps most important, the partial effects of education and Canadian/Eastern Hemisphere origin are biased upward when speaking skills at arrival are not held constant. That is, part of the greater fluency of those with more schooling and from Canada/Eastern Hemisphere is due to their greater English fluency at arrival. There is little substantive difference between the results of the OLS specification and the logit specification (cf. table 3, cols. 2 and 6).

Controlling for speaking skills at arrival, there is a highly significant positive relationship between the ability to speak English well or very well and variables for duration in the United States, schooling, and a non-Mexican origin (table 3). Overall, an extra year in the United States during the current stay is associated with a 3 percentage point higher probability of speaking well or very well, but the effect differs by country of origin. It is only 2 percentage points for Mexican aliens and 7 percentage points from other Latin American aliens, and the difference is statistically significant (table 3, cols. 4 and 5).

An additional year of schooling is also associated with a higher probability of speaking well or very well. Overall the effect is 1.3 percentage points per year of schooling. However, it is 1.0 percentage point for Mexican aliens and 2.4 percentage points for other Latin American aliens. Again the difference is statistically significant.

Table 3, column 3, analyzes SPEKWELL by including interaction variables. As hypothesized, differences in schooling at immigration have no effect on language skills when initial speaking skills are held constant. However, the effect of a higher level of schooling increases with duration in the United States. At 3 years in the United States, an extra year of schooling raises the proportion speaking well or very well by 2.0 percentage points overall. Separate regressions by origin indicate the effect is 1.7 percentage points for Mexicans and 3.2 percentage points for other Latin American men.

The analysis indicates that older migrants have more difficulty adapting to English. As hypothesized, at arrival there is no effect of age on English

<sup>11</sup> Tests indicate this is the most efficacious dichotomization of the four-category language variable for analyses of spoken language fluency.

<sup>12</sup> Essentially the same results emerge from the OLS and logit analyses.

**Table 3**  
**Analysis of Fluency in Speaking English (SPEK WELL) by Country**  
**of Origin, OLS, and Logit**

Variable	OLS					Logit All <sup>a</sup>
	All	All	All	Mexico	Other Latin American Countries	
AGE	-.0003 (-.216)	-.0007 (-.592)	.0018 (1.376)	.0003 (.199)	.0004 (.128)	-.0374 (-1.21)
EDUC	.0178 (6.405)	.0135 (4.891)	.0049 (1.548)	.0105 (3.595)	.0243 (3.151)	.2984 (4.86)
DURNOW*	.0317 (8.401)	.0292 (8.004)	.0243 (1.776)	.0212 (5.602)	.0706 (5.862)	.3372 (6.09)
SPOKE1	<sup>b</sup>	.4199 (3.458)	.3896 (3.290)		.6282 (2.419)	21.675 (.0006)
SPOKE2	<sup>b</sup>	.4195 (6.239)	.4141 (6.316)	.6446 (7.278)	.3430 (1.328)	3.7311 (2.97)
SPOKE4	<sup>b</sup>	-.0745 (-3.639)	-.0694 (-3.473)	-.0602 (-2.870)	-.0700 (-.979)	-1.0672 (-3.01)
OTHLATIN	.0423 (1.651)	.0452 (1.835)	-.0552 (1.649)	<sup>b</sup>	<sup>b</sup>	.6307 (1.42)
OTHER	.7576 (13.492)	.5905 (7.621)	.6671 (6.927)	<sup>b</sup>	<sup>b</sup>	3.3483 (2.99)
(EDUC)(DURNOW*)	<sup>b</sup>	<sup>b</sup>	.0051 (4.587)	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>
(AGE)(DURNOW*)	<sup>b</sup>	<sup>b</sup>	-.0013 (-2.920)	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>
(OTHLAT)(DURNOW*)	<sup>b</sup>	<sup>b</sup>	.0366 (3.328)	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>
(OTHER)(DURNOW*)	<sup>b</sup>	<sup>b</sup>	-.0878 (-2.497)	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>
CONSTANT	-.1101 (-3.028)	.0101 (-.248)	.0095 (-.212)	-.0115	-.1506	-4.5847 (-5.36)
R <sup>2</sup>	.3438	.3947	.4339	.1732	.4940	...
Adjusted R <sup>2</sup>	.3397	.3886	.4263	.1671	.4621	...
N	802	802	802	680	102	802

NOTE.—Men who spoke only some English (SPOKE3) before coming to the United States are the benchmark in cols. (2)–(5). In the pooled equation Mexican men are also the benchmark. *t*-ratios are in parentheses.

<sup>a</sup> Logit analysis final value of log-likelihood ratio = -134.7. There are very few observations in the SPOKE1 category.

<sup>b</sup> Variable not included.

skills, but the age-duration interaction variable indicates that the improvement in English-language skills with duration is significantly slower for older migrants, other variables the same. It is slower by 1.3 percentage points for each year difference in age.

The level and improvement in language skills also varies by country of origin. Although in table 3, column 3, other Latin American aliens have a poorer fluency at arrival than Mexican aliens (coefficient = -0.055, *t* = -1.65), their skills increase more sharply with duration (coefficient

= 0.037,  $t = 3.3$ ), and they surpass the Mexican aliens after 18 months.<sup>13</sup>

The small sample of other aliens (Canadian and Eastern Hemisphere = OTHER) initially have much greater proficiency in English (table 3, col. 3, coefficient = 0.667,  $t = 6.927$ ). However, the interaction term indicates the difference narrows with duration (coefficient =  $-0.087$ ,  $t = -2.497$ ).

The primary purpose of the SPOKE variables in table 3 is to control for initial conditions.<sup>14</sup> The coefficients indicate the not surprising result that those who had greater English speaking fluency at arrival were more likely to have greater fluency at the time of interview.

In summary, controlling for English speaking ability at immigration, spoken English fluency improves with duration in the United States after immigration. This improvement is steeper for those with higher levels of schooling, who are younger at immigration, and who came from Latin American countries other than Mexico. Those with greater speaking fluency at arrival also have greater fluency at the time of interview.

### B. Reading English

It is unfortunate that questions on English literacy no longer appear in most surveys and censuses that have been used to study immigrant labor. Believing that this is still an important issue, especially for low-skilled immigrants, I included a question in the survey instrument on the self-reported ability to read English at the time of interview. The responses could fall into one of four categories: "very well," "well," "not well," or "not at all."

The Mexicans reported very low skills in reading English. Nearly two-thirds of the Mexican men reported "not at all," and one-third reported "not well." For other nationals, the situation was somewhat better. Nearly half reported "not at all," over a third reported "not well," and nearly one-quarter reported "well" or "very well." Aliens who had been in the United States for 3 or more years during their current stay had a higher level of reading ability than more recent arrivals (see table 4). Yet, only 11% of the Mexicans and 37% of other nationals in the United States for 3 or more years read English "well" or "very well."

It is to be expected that English speaking fluency would be an important determinant of English reading skills. Those more fluent in speaking English would be more adept at learning how to read and at increasing their fluency. Therefore, the determinants of speaking skills discussed above are

<sup>13</sup> There is also a large and highly significant difference in the effect of duration on English speaking fluency between Mexican and other Latin American men when the equations are computed separately by origin, where the effect is larger for the latter group.

<sup>14</sup> The statistical control for fluency at arrival may also control for individual differences in self-assessment of the same "objective" level of fluency.

**Table 4**  
**Ability to Read English at the Time of Interview by Country of Origin and Duration in the United States**

Reading Ability	Mexico*		Other Countries		Total
	Less Than 3 Years	3 or More Years	Less Than 3 Years	3 or More Years	
Very well	2	1	5	6	14
Well	15	13	5	13	46
Not well	162	67	21	22	272
Not at all	392	51	46	11	500
Total	571	132	77	52	832

\* Duration not reported for three Mexican males, and reading ability not reported for a fourth.

also determinants of reading skills. Yet the inquiry here is whether reading fluency is related to demographic and human capital variables after controlling for speaking fluency.

The acquisition of reading skills is a form of investment in human capital. The accumulated stock of reading capital would increase with greater exposure to the United States, even when speaking skills are held constant. This implies that reading skills would increase with the duration of the current residence in the United States. It also implies that, for aliens from countries where multiple stays in the United States are not uncommon (such as Mexico), reading skills would increase with age when duration of the current stay is held constant.

Because of the complementarity among types of human capital, the costs involved in acquiring English reading skills would be smaller for those with more schooling, while the benefits from doing so would be larger. The effect of schooling, however, is expected to increase with the length of time in the United States.

The regression equations are reported in table 5 for the dichotomous dependent variable, READWELL, which is unity for those who read “well” or “very well,” using both OLS and logit analysis.<sup>15</sup> The simplest functional forms are presented in table 5, columns 1–3, which examine the effects of adding speaking fluency to a reading skills equation. As indicated in column 1, English reading skills are significantly greater among those with more schooling, who have been in the United States a longer period of time, and who are of Canadian/Eastern Hemispheric origin. The addition of English speaking skills at immigration (STSPWELL) significantly increases

<sup>15</sup> Tests indicate this is the most efficacious dichotomization of the four-category variable. Similar results emerge when “not at all” is compared to all other reading categories.

**Table 5**  
**Regression Analysis of Fluency in Reading English Well or Very Well**  
**(READWELL), OLS, and Logit**

Variable	OLS				Logit <sup>a</sup> (5)
	(1)	(2)	(3)	(4)	
AGE	.0018 (1.66)	.0010 (1.08)	.0019 (2.25)	.0009 (.79)	.0654 (1.94)
EDUC	.0168 (6.78)	.0131 (5.82)	.0072 (3.56)	.0060 (2.27)	.2433 (3.01)
DURNOW*	.0266 (7.92) <sub>b</sub>	.0229 (7.52) <sub>b</sub>	.0095 (3.41) <sub>b</sub>	-.0155 (-1.33) <sub>b</sub>	.1852 (2.49) <sub>b</sub>
STSPWELL		.7051 (13.43) <sub>b</sub>		.7319 (11.01) <sub>b</sub>	
SPEKWELL	<sub>b</sub>		.5390 (21.42) <sub>b</sub>		4.4105 (8.36) <sub>b</sub>
OTHLATIN	.0096 (.42)	.0105 (.51)	-.0132 (-.72)	-.0495 (-1.77)	-.6697 (-1.01)
OTHER	.6177 (12.35) <sub>b</sub>	.2326 (4.34) <sub>b</sub>	.2093 (4.74) <sub>b</sub>	.3742 (4.47) <sub>b</sub>	.3472 (.44) <sub>b</sub>
(AGE)(DURNOW*)				.0003 (.76) <sub>b</sub>	
(EDUC)(DURNOW*)	<sub>b</sub>	<sub>b</sub>	<sub>b</sub>	.0043 (4.54) <sub>b</sub>	<sub>b</sub>
(OTHLAT)(DURNOW*)	<sub>b</sub>	<sub>b</sub>	<sub>b</sub>	.0228 (2.46) <sub>b</sub>	<sub>b</sub>
(OTHER)(DURNOW*)	<sub>b</sub>	<sub>b</sub>	<sub>b</sub>	-.0743 (-2.47) <sub>b</sub>	<sub>b</sub>
(STSPWELL)(DURNOW*)	<sub>b</sub>	<sub>b</sub>	<sub>b</sub>	-.0149 (-1.18) <sub>b</sub>	<sub>b</sub>
CONSTANT	-.1551 (-4.79)	-.1139 (-3.87)	-.0958 (-3.69)	-.0577 (-1.72)	-8.4380 (-6.88)
R <sup>2</sup>	.3277	.4519	.5738	.4804	...
Adjusted R <sup>2</sup>	.3234	.4478	.5705	.4732	...
N	802	802	802	802	802

NOTE.—Mexican men are the benchmark. *t*-ratios are in parentheses.  
<sup>a</sup> Logit analysis, final value of log-likelihood function = -72.1.  
<sup>b</sup> Variable not included.

the explanatory power of the equation (adjusted  $R^2$  increases from 0.32 to 0.45). The inclusion of STSPWELL reduced by about one-quarter the partial effects on reading skills of schooling and duration and reduces by almost two-thirds the coefficient on Canada/Eastern Hemisphere, but these explanatory variables remain highly significant. Controlling for speaking skills at immigration, each extra year of schooling increases the probability of reading English well or very well by 1.3 percentage points, while each extra year in the United States raises it by 2.3 percentage points. Furthermore, as would be expected, those who spoke English well or very well at immigration had greater reading ability in English at the time of interview.

In column 3 of table 5, the variable for English speaking skills at migration is replaced by the same variable at the time of the interview (SPEK-

WELL). Presumably because similar processes enhance speaking and reading skills, this substitution increases the explanatory power of the equation (adjusted  $R^2$  increases from 0.45 to 0.57). Since current speaking skills have been shown above to increase with schooling level and duration in the United States, substituting current for initial speaking fluency lowers the partial effects of these variables. However, even after controlling for current English speaking skills, current reading ability is significantly greater for those with more schooling, in the United States a longer period of time, from Canada/Eastern Hemisphere, and for those who immigrated at an older age.

The logit equation in table 5, column 5, demonstrates the statistical importance of the same variables as in the OLS analysis, schooling, duration, English speaking skills, and country of origin (cf. table 5, cols. 3 and 5).

Interaction variables are added to the equation in table 5, column 4, and regressions were also computed separately by country of origin. If speaking skills at migration are controlled for, an extra year of schooling increases English reading skills, with the partial effect increasing with the duration of residence. At 3 years of residence an extra year of schooling increases the probability of reading well or very well by 1.9 percentage points. The partial effect is 1.3 percentage points per year of schooling overall, but it is smaller for Mexican immigrants, 1.0 percentage point, compared to 2.1 percentage points for other Latin Americans. Age, however, shows no statistically significant effect on reading skills when initial speaking skills are held constant.

The partial effect of duration of residence is a highly statistically significant 2.3 percentage points per year in this sample controlling for initial speaking fluency. This effect varies with schooling level: it is larger for those with more schooling (table 5, col. 4). It also varies by country of origin, being larger for the other Latin American migrants than for the Mexicans.

In summary, the analysis indicates that English reading ability among low-skilled immigrants is related to their overall skill level. Reading fluency is significantly greater for those with more schooling, in the United States a longer period of time, more fluent in speaking English at immigration, and from Canada/Eastern Hemisphere countries. Duration in the United States has a larger positive impact for those with more schooling and for Latin American men other than Mexicans.

#### IV. Earnings

This section reports the results of the multiple regression analysis of earnings for the sample of illegal aliens. Two dependent variables are considered: the usual weekly earnings during the current stay and the most recent hourly wage in the current stay. Because of missing values for one



or more of the variables in the analysis, particularly the earnings variables, the analysis of usual weekly earnings is for about 380 observations, and the analysis for hourly wages is for 605 observations.<sup>16</sup>

Following standard practice, the natural logarithm of earnings is regressed on demographic and human capital variables.<sup>17</sup> It is hypothesized that earnings increase with the level of schooling attainment (EDUC), labor market experience in the current stay (DURNOW\*), and total labor market experience (T) and that earnings are lower for those who are not currently married (SPOUSEAB). It is also hypothesized that earnings are greater for those more fluent in English (SPEKWELL and READWELL).

The regression analysis of usual weekly earnings is presented in table 6 with a statistical control for the natural logarithm of usual hours of work per week (LNHOURS/WK) in columns 1 and 2 but not in columns 3 and 4. When hours per week are held constant, the coefficients of the other variables in the equation measure their effects on usual earnings per hour worked. Columns 2 and 4 include the speaking and reading variables (SPEKWELL and READWELL). The regression analysis for the most recent hourly wage is reported in table 7 for the full sample and separately by country of origin, where the regressions in this table differ by the inclusion of the language variables.

As has been shown elsewhere, schooling has a highly significant effect on the earnings of the illegal alien (see, e.g., Chiswick 1984, 1988*b*; Kos-soudji and Ranney 1984; and Massey 1987). In these data, weekly or hourly earnings rise by about 2% and 3%, respectively, for each additional year of schooling. The effect is somewhat larger, 3.5%–4%, for the aliens from other Latin American countries. These partial effects are comparable to coefficients found in other analyses for illegal aliens, although they are lower than what is found in studies of legal immigrants (Chiswick 1984 or 1988*b*).

Labor market experience in the United States during the most recent stay (DURNOW\*) has a significant effect on usual weekly earnings (table 6). When hours of work are not held constant and there are no controls for language fluency (table 6, col. 3), the partial effect of duration in the United States during the current stay is 3.8% per year, with a *t*-ratio of 3.9. The statistical control for usual hours of work lowers the partial effect of current U.S. experience to 2.0% (*t* = 2.4) because usual hours worked per week increases with duration. The partial effect of duration on usual

<sup>16</sup> The average usual weekly earnings during the current stay for the 398 adult men who responded to this question was \$174. The earnings were lower for the Mexican men (\$172) than for the men from other Latin America (\$182) or other countries (\$180).

<sup>17</sup> For previous applications to illegal aliens, see Chiswick (1984 or 1988*b*), Kos-soudji and Ranney (1984), and Massey (1987).

**Table 6**  
**Regression Analysis of the Natural Logarithm of the Usual Weekly Earnings during the Current Stay (Dependent Variable: LNWKERN)**

Variable	(1)	(2)	(3)	(4)
EDUC	.01906 (2.500)	.01447 (1.858)	.02370 (2.599)	.01967 (2.102)
T	.01122 (1.655)	.01055 (1.566)	.01339 (1.641)	.01263 (1.548)
TSQ	-.00024 (-1.429)	-.00024 (-1.439)	-.00038 (-1.920)	-.00038 (-1.894)
DURNOW*	.01961 (2.405)	.01441 (1.678)	.03779 (3.895)	.03276 (3.254)
SPOUSAB	-.08312 (-1.644)	-.08742 (-1.736)	-.13167 (-2.177)	-.13818 (-2.283)
LNHOURS/WK	.72461 (12.804)	.73138 (12.972)	<sup>a</sup>	<sup>a</sup>
SPEKWELL	<sup>a</sup>	-.02862 (-.320)	<sup>a</sup>	.05836 (.538)
READWELL	<sup>a</sup>	.26992 (2.467)	<sup>a</sup>	.16031 (1.209)
OTHWHEM	-.03722 (-.730)	-.04660 (-.914)	-0.05654 (-0.923)	-.06784 (-1.102)
OTHER	-.07369 (-6.71)	-.25913 (-1.955)	-0.23439 (-1.779)	-.40360 (-2.516)
CONSTANT	2.26849	2.29021	4.87120	4.91345
R <sup>2</sup>	.3686	.3811	.0912	.0993
Adjusted R <sup>2</sup>	.3550	.3644	.0743	.0777
N	380	380	385	385

NOTE.—Mexican men are the benchmark. *t*-ratios are in parentheses.

<sup>a</sup> Variable not included.

weekly earnings is reduced from 3.8% to 3.3% (or when hours are held constant, from 2.0% to 1.4%) when the language variables are held constant.

When the most recent hourly wage is the dependent variable, the coefficient of the duration variable is smaller and is less significant (table 7). Indeed, when the language variables are included in the hourly wage equation, duration in the United States is not statistically significant. Controlling for language skills reduces the effect of duration in the United States on the hourly wage because, as was shown above, English language fluency itself increases with duration.

The coefficients of the variables for total labor market experience (T) and its square (TSQ) and marital status (SPOUSAB) are not sensitive to the inclusion of language variables. In table 6, those who are not married have lower usual weekly earnings (by about 13%). About one-third of this differential arises because they work fewer hours and two-thirds because they earn less even when hours worked are held constant (about 8% lower earnings). In the analysis of hourly wages, however, there is generally no significant marital status effect.

Other variables the same, there is no difference in usual weekly earnings or hourly wages between Mexican and other Latin American aliens and

**Table 7**  
**Regression Analysis of the Natural Logarithm of the Most Recent Hourly Wage during the Current Stay (Dependent Variable: LN<sub>W</sub>AGENW)**

Variable	All Countries			Mexico	Other Latin American Countries
	(1)	(2)	(3)		
EDUC	.02962 (4.065)	.02814 (3.778)	.02587 (3.456)	.02266 (2.630)	.03434 (2.304)
T	.02226 (3.389)	.02183 (3.315)	.02153 (3.281)	.01846 (2.443)	.03405 (2.401)
TSQ	-.00036 (-2.223)	-.00035 (-2.169)	-.00035 (-2.179)	-.00029 (-1.590)	-.00060 (-1.674)
DURNOW*	.01370 (1.726)	.01153 (1.398)	.00927 (1.120)	.01445 (1.560)	-.03593 (-1.770)
SPOUSAB	-.04835 (-.941)	-.05039 (-.980)	-.04908 (-1.958)	-.02105 (-.338)	-.10868 (-1.135)
SPEKWELL	<sup>a</sup>	.07669 (.969)	-.04529 (-.478)	-.07627 (-.684)	.06082 (.318)
READWELL	<sup>a</sup>	<sup>a</sup>	.25881 (2.326)	.31667 (2.320)	.35649 (1.623)
OTHLATIN	-.04827 (-.951)	-.05247 (-1.030)	-.05277 (-1.039)	<sup>a</sup>	<sup>a</sup>
OTHER	-.00520 (-.046)	-.06365 (-.493)	-.15758 (-1.169)	<sup>a</sup>	<sup>a</sup>
CONSTANT	1.09180	1.10725	1.12692	1.13753	1.03475
R <sup>2</sup>	.0672	.0687	.0771	.0580	.2692
Adjusted R <sup>2</sup>	.0563	.0562	.0631	.0447	.2044
Sample size	87	605	605	605	502

NOTE.—Mexican men who are the benchmark in the pooled equations. *t*-ratios are in parentheses.  
<sup>a</sup> Variable not included.

no effect of adding statistical controls for language fluency. By way of contrast, although the coefficient is always negative, Canadian and Eastern Hemisphere aliens (OTHER) show no significant weekly earnings or hourly wage difference from the Mexican men when language variables are not included in the equation.<sup>18</sup> When English language fluency is held constant, however, the usual weekly earnings of the Canadian/Eastern Hemisphere illegal aliens (OTHER) are significantly lower than the earnings of Mexican aliens.<sup>19</sup>

<sup>18</sup> The only exception is the large and marginally significant effect (coefficient = -0.23, *t* = 1.8) when hours are not held constant. Mexican men have a longer workweek, 40.7 hours, in contrast to the 37.7 hours for the Canadian and Eastern Hemisphere men.

<sup>19</sup> The coefficient for Canada/Eastern Hemisphere (OTHER) is -0.40 (*t* = -2.5) but declines to -0.26 (*t* = -2.0) when hours worked per week are held constant. These represent earnings that are lower by 33% and 23%, respectively. When the hourly wage is the dependent variable, the coefficient of OTHER becomes more

Last, consider the coefficients of the English language fluency variables, SPEKWELL and READWELL. Alternative specifications, the most informative of which are presented in tables 6 and 7, indicate that the variable for reading English consistently has a larger coefficient and a higher *t*-ratio than the variable for speaking. In the analysis for weekly earnings with a control for hours worked per week (table 6, col. 2), reading well or very well increases earnings by a highly statistically significant 31% (converting the coefficient of 0.27 to a percent increase), while the speaking coefficient is very small and not significant (coefficient of  $-3\%$ ,  $t = -0.3$ ). In the analysis of hourly wages (table 7, col. 3), reading well or very well increases wages by a highly statistically significant 30% (converting the coefficient of 0.26 to a percent increase). Comparable findings appear when separate analyses are performed for Mexican and other Latin American aliens—speaking fluency has no separate effect, and reading well or very well increases wages by a statistically significant 37% and 42%, respectively, for the Mexican and other Latin American men.

Thus, reading skills dominate speaking skills in the analysis of the effect of English language fluency on earnings. Furthermore, the inclusion of language fluency variables reduce, but do not eliminate, the measured effect on earnings of experience in the U.S. labor market. Finally, the inclusion of language variables alters the relative differences in earnings by country of origin. The relative earnings of Hispanic aliens is enhanced when there is an adjustment for their lower level of fluency in English.

## V. Summary and Conclusion

This article is concerned with the determinants of English language fluency and the effects of English language fluency on the earnings of a sample of low-skilled aliens. Using special survey data on over 800 illegal aliens, the analysis shows the importance of certain variables that are not available in the Census Bureau data that have been used previously to study immigrant labor market activities. These variables are English speaking fluency at migration and English reading fluency.

Using longitudinal data from self-reported responses to questions on English speaking fluency at arrival in the United States and at the time of interview, I show that English speaking fluency improves with duration in the United States. The improvement is greater for those with higher levels of schooling, presumably because of the complementarity of schooling and language acquisition and utilization. The improvement with du-

---

negative but remains insignificant when the language variables are added to the equation. Many of the Eastern Hemisphere illegal aliens were students in the United States who had violated a condition of their visa, usually by working. Their low hourly wage may reflect the adverse effects on job opportunities of dovetailing work with schooling (Lazear 1977).

ration is also greater for those who came to the United States at a younger age, reflecting the greater ease of language acquisition for younger people. The improvement with duration is slower for Mexican aliens. This may reflect the greater temporary nature of their stays and the adverse effects on English language acquisition of living in a language-minority enclave. Furthermore, tests indicate that analyses of English speaking fluency result in upward-biased estimated effects of schooling and non-Mexican origin if fluency at arrival is not held constant.

The men in the sample reported very poor English reading skills, particularly the Mexican nationals. The regression analysis of English reading ability demonstrates the large and highly significant effect of English speaking skills at migration and at the time of interview. Yet, even after speaking skills are controlled for, there are important effects on reading of demographic and human capital variables. Reading skills increase with schooling level and duration in the United States, and the increase with duration is greater for those with more schooling. This presumably reflects the complementarity of various types of human capital. Age at immigration apparently has no independent effect on reading fluency when speaking fluency at immigration is held constant, but it has a positive effect when speaking fluency at the time of the interview is held constant. Hispanic aliens reported poorer English reading skills than those from Canada/Eastern Hemisphere, even when other variables are the same. This may be reflecting adverse impacts on the acquisition of English reading skills of living in a language-minority enclave.

The analyses of the usual weekly earnings and most recent hourly wages of the illegal aliens show patterns consistent with other studies. Earnings increase with level of schooling, total labor market experience, and experience in the U.S. labor market. Adding variables for English language fluency (speaking and reading) reduces, but does not eliminate, the partial effect of duration in the United States on earnings. The coefficients of the schooling, marital status, and total experience variables are not affected.

In the analyses of weekly earnings and hourly wages, the variable measuring English reading proficiency dominates the variable measuring English speaking skills. That is, measures of reading skills are more important statistically for understanding labor market outcomes than merely measures of speaking English.

These findings indicate the importance of English language proficiency, especially reading and writing skills, for the labor market success of immigrants. They also suggest that future surveys of immigrants should include questions on English proficiency at arrival as well as at the time of interview and that questions on reading skills may be more useful than merely asking the respondent's fluency in spoken English. Furthermore, tests designed by the immigration authorities to evaluate the applicant's likely adjustment to the U.S. labor market for purposes of legalization,

immigration, or naturalization would be more effective if they also measure English reading skills.

## Appendix

### Table A1

#### List of Variables Used in the Statistical Analysis

Variable	Code	Description
Language skills	SPEKWELL, READWELL  SPOKE1, SPOKE2, SPOKE3, SPOKE4 STSPWELL	Dichotomous variable, equal to unity if speak English or read English well or very well; zero otherwise. English speaking ability when came to the United States for the first time: 1 = very well, 2 = well, 3 = not well, 4 = not at all. Dichotomous variable equal to unity if SPOKE1 or SPOKE2 are unity; otherwise zero.
Earnings	LNWKEARN, LNWAGENW	The natural logarithm of the usual weekly earnings, current stay or of the most recent hourly wage, current stay.
Schooling	EDUC	Total years of schooling.
Age and experience	AGE T	Age in years. Years of labor market experience. (Age – schooling – 5, or years since age 15, for those with 10 or fewer years of schooling.)
Marital status	SPOUSAB	Dichotomous variable, equal to unity if divorced, widowed, or never married; zero otherwise.
Duration in United States	DURNOW*	Years in the United States, current stay. DURNOW* = (year and month of interview) minus (year and month last entered).
Hours of work	LNHOUR/WK	The natural logarithm of hours worked per week, current stay.
Country of birth*	MEXICO, OTHLATIN, OTHER	Dichotomous variable, equal to unity if born in Mexico, another Latin American country, or another country.

\* OTHLATIN includes Belize, Colombia, Chile, Costa Rica, El Salvador, Ecuador, Guatemala, Honduras, Nicaragua, Peru, and Venezuela. OTHER includes Canada, India, Iraq, Israel, Italy, Korea, Lebanon, Morocco, Nigeria, Pakistan, Philippines, Syria, Taiwan, and United Kingdom.

## References

- Borjas, George. "Assimilation, Changes in Cohort Quality and the Earnings of Immigrants." *Journal of Labor Economics* 3, no. 4 (October 1985): 463–89.
- Boyd, Monica. "Adding Gender: Immigration Trends and Language Fluency Issues in Canada and the United States." In *Immigration, Language and Ethnicity: Canada and the United States*, edited by Barry R. Chiswick. Washington, D.C.: American Enterprise Institute (in press).
- Carliner, Geoffrey. "Wage Differences by Language Group and the Market for Language Skills in Canada." *Journal of Human Resources* 16, no. 3 (Summer 1981): 384–99.

- Chiswick, Barry R. "The Effect of Americanization on the Earnings of Foreign-born Men." *Journal of Political Economy* 85, no. 5 (October 1978): 897-921.
- . "Illegal Aliens in the United States Labor Market: Analysis of Occupational Attainment and Earnings." *International Migration Review* 18, no. 3 (Fall 1984): 714-32.
- . "Is the New Immigration Less Skilled than the Old?" *Journal of Labor Economics* 4, no. 2 (April 1986): 168-92.
- . "The Labor Market Status of Hispanic Men." *Journal of American Ethnic History* 7, no. 1 (Fall 1987): 30-58.
- . "Illegal Immigration and Immigration Control." *Journal of Economic Perspectives* 2, no. 3 (Summer 1988): 101-15. (a)
- . *Illegal Aliens: Their Employment and Employers*. Kalamazoo, Mich.: Upjohn, 1988. (b)
- . "Unlegalized Aliens: A Survey and Analysis of Aliens Not Eligible for Legalization." Report prepared for the Immigration and Naturalization Service, U.S. Department of Justice, Washington, D.C., April 1989.
- Chiswick, Barry R., and Miller, Paul W. "Earnings in Canada: The Roles of Immigrant Generation, French Ethnicity and Language." *Research in Population Economics* 6 (1988): 183-224.
- . "Language in the Labor Market: The Immigrant Experience in Canada and the United States." In *Immigration, Language and Ethnicity, Canada and the United States*, edited by Barry R. Chiswick. Washington, D.C.: American Enterprise Institute (in press).
- Gould, William; McManus, Walter; and Welch, Finis. "Hispanic Earnings Differentials: The Role of English Language Proficiency." Unicon Report no. 82-02. Los Angeles: Unicon Research Corporation, 1982.
- Grenier, Gilles. "The Effects of Language Characteristics on the Wages of Hispanic American Males." *Journal of Human Resources* no. 1 (Winter 1984): 35-52.
- Grenier, Gilles, and Vaillancourt, François. "An Economic Perspective on Learning a Second Language." *Journal of Multicultural and Multilingual Development* 4, no. 6 (1983): 471-83.
- Kossoudji, Sherrie A. (1988). "English Language Ability and the Labor Market Opportunities of Hispanic and East-Asian Immigrant Men." *Journal of Labor Economics* 6, no. 2 (April 1988): 205-28.
- Kossoudji, Sherrie A., and Ranney, Susan I. "Wage Rates of Temporary Mexican Migrants to the U.S.: The Role of Legal Status." Paper presented at the Econometric Society annual meetings, Dallas, December 1984.
- LaLonde, Robert J., and Topel, Robert H. "The Assimilation of Immigrants in the U.S. Labor Market." Mimeographed. Chicago: University of Chicago, January 1990.
- Lazear, Edward. "Schooling as a Wage Depressant." *Journal of Human Resources* 12, no. 2 (Spring 1977): 164-76.
- McManus, Walter; Gould, William; and Welch, Finis. "Earnings of Hispanic Men: The Role of English Language Proficiency." *Journal of Labor Economics* 1, no. 2 (April 1983): 101-3.



- Massey, Douglas S. "Do Undocumented Migrants Earn Lower Wages than Legal Immigrants? New Evidence from Mexico." *International Migration Review* 21, no. 2 (Summer 1987): 236–74.
- Reimers, Cordelia R. "Labor Market Discrimination against Hispanic and Black Men." *Review of Economics and Statistics* 65 (November 1983): 570–79.
- Rivera-Batiz, Francisco. "English Language Proficiency and the Wages of Immigrants in the United States." Mimeographed. Rutgers, N.J.: Rutgers University, May 1989.
- Tainer, Evelina. "English Language Proficiency and Earnings among Foreign-born Men." *Journal of Human Resources* 23, no. 1 (Winter 1988): 108–22.
- Veltman, Calvin. "Modelling the Language Shift Process of Hispanic Immigrants." *International Migration Review* 22, no. 4 (Winter 1988): 545–62.