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Abstract
This paper investigates determinants of the earnings distribution for native-born workers and immigrant workers in two countries. The authors, using data from the 2000 U.S. Census and 2001 Australian Census, employ a methodology (quantile regression) that facilitates measurement of the native-born/immigrant earnings differential and the partial effect of explanatory variables such as schooling and experience at each decile of the earnings distribution. They find evidence that schooling and labor market experience had stronger earnings effects at higher deciles. The native/immigrant earnings gap varied by decile, and in particular increased in the United States at higher deciles. The results suggest that in the United States minimum wages compressed earnings at low deciles, whereas in Australia the minimum (administered) wage system compressed earnings across the entire distribution. A pattern of higher earnings for immigrants than for the native-born at the lowest earnings decile in Australia may reflect favorable selectivity in migration.

Keywords
immigrants' wages

HOW IMMIGRANTS FARE ACROSS THE EARNINGS DISTRIBUTION IN AUSTRALIA AND THE UNITED STATES

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This paper investigates determinants of the earnings distribution for native-born workers and immigrant workers in two countries. The authors, using data from the 2000 U.S. Census and 2001 Australian Census, employ a methodology (quantile regression) that facilitates measurement of the native-born/immigrant earnings differential and the partial effect of explanatory variables such as schooling and experience at each decile of the earnings distribution. They find evidence that schooling and labor market experience had stronger earnings effects at higher deciles. The native/immigrant earnings gap varied by decile, and in particular increased in the United States at higher deciles. The results suggest that in the United States minimum wages compressed earnings at low deciles, whereas in Australia the minimum (administered) wage system compressed earnings across the entire distribution. A pattern of higher earnings for immigrants than for the native-born at the lowest earnings decile in Australia may reflect favorable selectivity in migration.

Most research on the earnings situation of the foreign-born has compared their mean earnings to those of the native-born, with other variables held constant, and placed emphasis on the role of the standardizing factors in the earnings equation. Studies of this type for the U.S. labor market generally report that the foreign-born experience considerable earnings disadvantages. In 2000, the hourly earnings of adult male immigrants were, on average, around 17% below those of their native-born counterparts. Once the productivity-related characteristics of the two groups are controlled for, this gap in mean hourly earnings is narrowed, but it still remains at around 8 percentage points among recent arrivals.[1]

Butcher and DiNardo (2002), on the other hand, departed from this conventional focus on the conditional mean by estimating the earnings distributions of the native-born and the foreign-born using non-parametric methods. This paper extends that line of inquiry

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The data used in this paper are the U.S. 2000 Census of Population, PUMS file, 1% sample and the Australian 2001 Census of Population and Housing, 1% sample. While copies of these data need to be obtained from the U.S. Census Bureau and the Australian Bureau of Statistics, respectively, the computer code used in the analyses can be obtained from the authors. Contacts: brchis@uic.edu; Anh.tram.le@uwa.edu.au; Paul.miller@uwa.edu.au.

[1]Calculations based on the 2000 U.S. Census, 1% Public Use Microdata Sample.

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by using more recent data (from the 2000 U.S. Census and the 2001 Australian Census), employing semi-parametric techniques, and drawing international comparisons. We use a quantile regression approach.

Quantile regression facilitates a full characterization of the conditional distribution of earnings, and could offer advantages in the study of inequality when exogenous variables influence parameters of the conditional distribution of earnings other than the mean. The approach allows the increments in earnings associated with the conventional determinants of earnings to be compared across the percentiles of the distribution of earnings. For example, the increments in earnings associated with years of schooling, or years since migration among the foreign-born, can be compared for low-wage (low-skilled) workers and high-wage (high-skilled) workers. These comparisons may provide a more informative framework to assist understanding of the labor market processes responsible for the foreign-born/native-born differential in conditional mean earnings analyzed in past research.

Literature Review

There has been extensive research into the native/immigrant earnings differential in the U.S. labor market. The typical approach to modeling the native/migrant earnings differential, established in Chiswick (1978), is based on assessing the difference in mean earnings between the two groups. It has the advantage of allowing simple modeling of the earnings differential, and, as argued by Yuengert (1994:74), the sample mean "most exactly signifies what we mean when we say 'immigrants do relatively well' or 'immigrants do relatively poorly.'" Estimation of the determinants of the mean earnings of the native-born and the foreign-born using OLS facilitates use of the decomposition developed by Blinder (1973) and Oaxaca (1973), thereby providing an informative framework for analysis. Within this framework, the research has attempted to quantify the importance to the earnings gap of factors such as immigrants' skills, including schooling, labor market experience, and language. An example of this research is Daneshvary's (1993) application of the Blinder/Oaxaca decomposition in a study of the earnings differential between native-born and foreign-born workers with college degrees.[2] Daneshvary showed that the gross earnings differential between highly educated native-born and immigrant workers was only around 4%. Taking account of differences in productivity-related characteristics between these groups of highly educated workers actually widened the native-born/immigrant earnings gap by three percentage points.

Extensions to this work have considered the role of institutions, immigrant selection, motive for migration, and functional form. The importance of the composition of the immigrant intake was investigated by Antecol et al. (2003). They compared immigrants' educational attainment, language proficiency, and earnings for Australia, the United States, and Canada. Among long-term settlers, the native-born/immigrant differential in mean earnings was smaller in the United States and Canada than in Australia. Among recent arrivals, however, differences in mean earnings between immigrants and the native-born in the United States were larger than in Canada, and much larger than in Australia. However, that apparent disadvantage of immigrants in the United States is largely owing to the low level of educational attainment among Latin American immigrants—particularly immigrants from Mexico—and it is reduced when the analysis controls for age, education, and language proficiency; indeed, if Latin American immigrants are altogether excluded from the statistical analysis, U.S. immigrants' relative mean earnings position compares favorably with that of most arrival cohorts in Canada and Australia.

A study that extended the analysis beyond the general native-born/immigrant earnings differential was Cortes (2004), which

[2]Daneshvary (1993) argued that formal schooling is likely to be more internationally transferable for this group than for others. The empirical results support this conjecture, as he found no statistically significant difference between immigrants and the native-born in returns to education and U.S. labor market experience.

examined differences in human capital and earnings between newly arrived refugees and economic immigrants to the United States. Cortes showed that while refugees initially have lower mean earnings than economic immigrants, their earnings growth is faster. Among immigrants who arrived in the United States between 1975 and 1980, for example, the mean earnings of male refugees were 17% less than those of comparable male economic immigrants in 1980, but changed to 3% higher earnings by 1990. Labor supply was identified as the main contributor to the improvement in refugees' relative position, with two-thirds of the improvement being linked to relative increases in their annual hours worked, and one-third to relative increases in their annual weeks worked. The same patterns were reported among female immigrants, although among those who worked the earnings disadvantage of female refugees in 1980 was a minor 1 percentage point.[3]

A possible shortcoming of these conventional approaches to the study of immigrants' earnings is that they do not take into account differences in characteristics and outcomes between immigrants and the native-born at various points in the earnings distribution. Butcher and DiNardo (2002) attempted to overcome this limitation by using non-parametric methods to estimate the earnings distributions of the native-born and foreign-born. Their density estimates were used to analyze changes in the earnings distributions of recent immigrants and the native-born in the United States between 1970 and 1990, with the non-parametric approach permitting the identification of the parts of the distribution of earnings where the foreign-born were most disadvantaged. They showed that neither the native-born/immigrant earnings differential nor the factors that contributed to it were uniform across the earnings distribution. Summaries of the distributions for the 25th, 50th, and 75th percentiles were presented. When 1970 prices were used to value skills, the relative importance of changes in skills and changes in the structure of earnings varied across the earnings distribution, with changes in skills being more important among the less well paid, for both men and women.[4]

Butcher and DiNardo's (2002) findings suggest that research into the native-born/immigrant earnings differential should consider the entire earnings distribution rather than focus on the differential at the mean. This can be accomplished by quantifying the impact of the determinants of earnings across the distribution of earnings. The quantile regression approach is suited to this purpose.

Quantile Regression

Following Buchinsky (1998), and assuming (y_i, x_i), $i = 1, \ldots n$ is a sample of the population, y_i is the dependent variable, and x_i is the $k \times 1$ vector of explanatory variables, a simple quantile regression model can be written as

$$(1) \qquad y_i = x_i\beta_\theta + u_\theta, \; Quant_\theta(y_i|x_i) = x_i\beta_\theta,$$

where $Quant_\theta(y_i|x_i)$ refers to the quantile of y_1, conditional on the vector of the explanatory variables x_i, and $\theta \in (0,1)$. It is assumed that $Quant_\theta(u_{\theta i}|x_i) = 0$.

The quantile regression estimates are achieved by minimizing the weighted sum of the absolute value of the errors (see Bedard 2003). In other words, the θth conditional quantile regression estimator for β is obtained by

$$(2) \qquad \min_\beta \Big[\sum_{\{i:y_i \geq x_i\beta\}} \theta|y_i - x_i\beta| + \sum_{\{i:y_i \geq x_i\beta\}} (1-\theta)|y_i - x_i\beta| \Big].$$

A major benefit of quantile regression is that it allows the impact of explanatory variables on the dependent variable to be

[3]Butcher and DiNardo (2002) argued that the minimum wage plays a large role in shaping the wage distribution for women. It presumably could be associated with a compression of wage differentials among the lowest-paid groups, such as recently arrived female immigrants.

[4]Butcher and DiNardo (2002) showed that the results are sensitive to the choice of base period. This reinforces comments by Yuengert (1994), among others.

analyzed along the total distribution of a data sample. For example, the impact of schooling or immigrant status at the 10th percentile of the conditional log earnings distribution might be examined, and compared with the effects of the variables at the median, 90th, or other percentiles of the log earnings distribution, holding all other variables constant. Eide et al. (2002) argued that a focus on the tails of the distribution rather than on the mean may be more appropriate in some situations, such as in their study of the effects of secondary school quality on earnings. The pattern of high concentrations of immigrants among the least skilled and among the most skilled in the United States suggests that the quantile regression approach may have merit in the study of immigrant earnings in some cases.

Moreover, Butcher and DiNardo (2002), Miller and Neo (2003), and Antecol et al. (2006) have drawn attention to the effects of minimum wages on the native-born/immigrant earnings comparisons. We would expect these effects to be more apparent in the left-hand earnings tail than elsewhere in the distribution. Among high wage earners, the glass ceiling effects discussed in the gender wage determination literature (for example, Albrecht et al. 2003), analogous to the greater immigrant wage disadvantage among the more skilled suggested by Greeley (1976) and quantified by Beach and Worswick (1993), and any unique features of the market for top executive talent, may influence the native-born/immigrant earnings comparisons.

For these and other reasons, quantile regression has been increasingly used in the labor economics field. For example, Garcia et al. (2001) and Sakellariou (2004) used this methodology to examine gender wage effects, Eide et al. (2002) and Martins and Pereira (2004) used it to study the rates of return to education, and Nielsen and Rosholm (2001) and Mueller (1998) used it to study public-sector/private-sector wage differentials. Applications to the study of scholastic achievements include Bassett et al. (2002). The research reported below extends application of the technique to the immigrant labor market.

Estimates for the United States

Descriptive Statistics

The data for the estimations presented in this section are for 25–64-year-old men from the 2000 U.S. Census of Population, Public Use Microdata Sample (1% sample). Both the native-born and the foreign-born are considered. Within the foreign-born sample, immigrants from English-speaking countries are distinguished from those from non-English-speaking countries, as past research has shown that the labor market outcomes of these groups differ appreciably.[5]

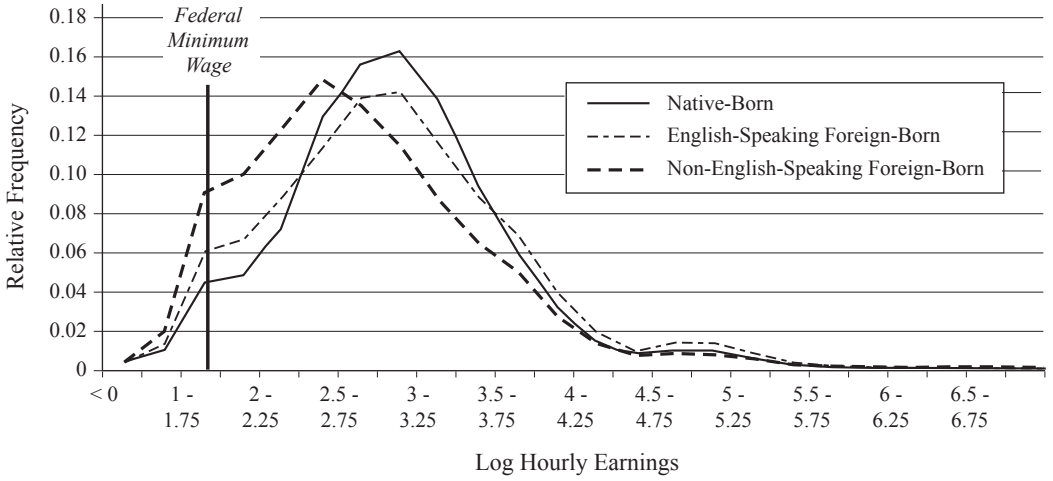
Figure 1 presents the distribution of log hourly earnings for the native-born, the foreign-born from non-English-speaking countries, and the foreign-born from English-speaking countries. The distribution of log hourly earnings for the native-born (the solid line) is centered around 2.79 (the equivalent of $16.28 per hour). It is presented here to provide a benchmark against which the distributions for the foreign-born can be evaluated.

The distribution of log hourly earnings for the foreign-born from English-speaking countries (the thin broken line) is less peaked than the distribution for the native-born. It is to the left of that for the native-born over the lower third of the distribution. The foreign-born from English-speaking countries have a slightly greater relative frequency at the upper end of the range of earnings. Being a foreign-born person from an English-speaking country apparently means different things at different points along the distribution of earnings.

The distribution of log hourly earnings for immigrants born in non-English-speaking countries (the thick broken line) is centered at a lower level of log earnings—at around 2.53 (the equivalent of $12.55 per hour). It is to the left of the distribution for the native-born, though the differences between the distributions are less apparent at very low and very high earnings. Hence, the impact

[5]The main English-speaking countries are the United Kingdom, Ireland, Canada, Australia, New Zealand, and the English-speaking Caribbean islands.

Figure 1. Distribution of Log Hourly Earnings, Employed Workers Aged 25-64 in the United States, by Nativity.



Source: 2000 U.S. Census, 1% PUMS.

of being a foreign-born worker from a non-English-speaking country appears from this initial assessment to be far more pronounced across the middle percentiles of the earnings distribution than at the two tails.

Each of the distributions in Figure 1 has a minor "peak," or perhaps a bunching up, around the minimum wage ($5.15 per hour), which is marked on the figure. The evidence here of fairly large numbers of workers earning below the minimum is seconded by other recent analyses of the distribution of earnings (see Healy and Richardson 2006). The workers with sub-minimum wages could be employed in the underground economy (where they miss out on their legal entitlements)[6] or in uncovered firms. Alternatively, the indications of their presence could simply be spurious, the product of data errors. (We discuss the potential impact of data errors on our analyses later in the paper.)

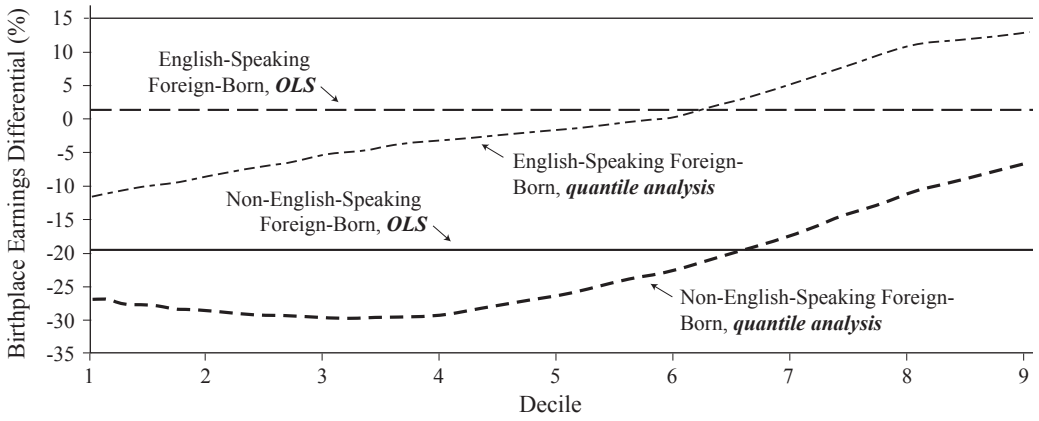
The differences across the birthplace groups in the earnings distributions presented in Figure 1 can be quantified using OLS and quantile regressions, with an estimating equation that has only two regressors: dichotomous variables for immigrants from English-speaking countries (ENG) and for immigrants from non-English-speaking countries (NENG). Estimation of this model using OLS gives the difference in the mean hourly earnings of these birthplace groups as +1% for ENG and –20% for NENG, compared to the native-born.

Quantile regressions estimated at each decile show, however, that the difference between the earnings of the foreign-born and the native-born varies across the earnings distribution.[7] The differences at the first decile are –0.12 (12% lower earnings) for the immigrants from the ENG group and –0.27 (27% lower earnings) for the immigrants from the NENG group. The earn-

[6]Because workers who are paid less than the minimum wage can, in principle, sue their employers for back wages plus penalties, there is in principle a self-policing mechanism. Compared to other workers, however, illegal aliens are much less likely to avail themselves of this legal recourse, for fear of deportation if their illegal status comes to light.

[7]The quantile regressions reported here are estimated only at each decile, as the uniformity of the patterns indicated that little extra information would be gained by examining additional quantiles. 500 quantiles, from 0.001 through to 0.999, in intervals of 0.002, are used in the decomposition outlined below.

Figure 2. Simple Comparisons of Earnings of Native-Born and Foreign-Born Men Aged 25-64 in the United States, by Decile of the Earnings Distribution, 1999.



Source: 2000 U.S. Census, 1% PUMS.

ings disadvantage for the ENG group widens when the focus is on the second decile, but becomes progressively smaller as higher deciles are considered. Indeed, beyond the 6th decile, migrants from English-speaking countries actually have higher earnings than the native-born.

At the 2nd, 3rd, and 4th deciles, the differential for the NENG group translates to a nearly 30% disadvantage relative to native-born earnings. This exceeds the differential at the 1st decile. Moreover, up to around the 7th decile, this differential is greater than that found from the comparison of the means. Conversely, the NENG group's disadvantage at the upper deciles, while not inconsiderable, is *below* that at the mean.

The smaller earnings gap at the first decile compared to that at the 2nd to 4th deciles for the foreign-born from non-English-speaking countries may be linked to minimum wages that compress the left-hand tail of the earnings distribution. Institutional explanations for immigrants' relative wage outcome are considered in detail below.

Figure 2 illustrates these patterns. Clearly a focus on means masks considerable variation in the birthplace earnings differential across the distribution of earnings.

The foreign-born differ from the native-born in a number of ways that may account for this variation. For example, the mean level of education for the foreign-born is almost two years less than that for the native-born, though the foreign-born are more concentrated in the tails—particularly in the left (low end) tail—than are the native-born.[8] The foreign-born also have lower levels of proficiency in English, which may account for the relatively low earnings of the NENG group.[9]

The multivariate analyses of the variations in log hourly earnings presented below take account of these differences in productivity-related characteristics between the foreign-born and native-born. The specification of the estimating equation is standard, including years of education, labor market experience and its square, marital status, region of residence, a dichotomous variable for reporting

[8]Only 5% of the native-born, compared to 28% of the foreign-born, have 10 or fewer years of schooling; conversely, only 10% of the native-born, versus 13% of the foreign-born, have more than 16 years of schooling.

[9]Butcher and DiNardo (2002) showed that a large part of the earnings gap between native-born and foreign-born workers can be attributed to differences in their characteristics, and this is more important in the lower deciles of the earnings distribution.

Table 1. OLS and Quantile Regression Estimates, Adult Native-Born Men, 2000 U.S. Census.

	OLS	***Quantile***								
Variable		*0.1*	*0.2*	*0.3*	*0.4*	*0.5*	*0.6*	*0.7*	*0.8*	*0.9*
Constant	0.797	0.371	0.511	0.623	0.716	0.796	0.876	0.965	1.077	1.186
	(73.64)	(20.19)	(42.43)	(61.12)	(70.51)	(86.57)	(98.89)	(113.55)	(106.76)	(87.43)
Educational Attainment	0.099	0.082	0.091	0.094	0.098	0.100	0.103	0.105	0.109	0.118
	(178.75)	(88.43)	(152.78)	(177.83)	(192.20)	(215.57)	(226.94)	(229.56)	(211.69)	(170.86)
Experience	0.026	0.024	0.027	0.028	0.029	0.029	0.030	0.030	0.029	0.029
	(53.94)	(26.42)	(46.27)	(59.56)	(74.61)	(70.33)	(69.44)	(65.07)	(56.74)	(35.11)
Experience Squared/1,000	–0.377	–0.509	–0.475	–0.454	–0.431	–0.408	–0.393	–0.366	–0.329	–0.246
	(36.23)	(25.01)	(36.73)	(43.13)	(51.05)	(45.31)	(42.10)	(37.97)	(30.74)	(14.26)
Married	0.206	0.290	0.253	0.231	0.207	0.192	0.179	0.165	0.154	0.147
	(81.06)	(73.24)	(92.34)	(94.55)	(93.16)	(85.42)	(87.13)	(74.61)	(56.23)	(32.55)
Black	–0.097	–0.137	–0.130	–0.123	–0.118	–0.112	–0.108	–0.101	–0.093	–0.087
	(24.58)	(20.31)	(26.71)	(27.46)	(30.45)	(31.68)	(31.85)	(25.38)	(19.76)	(12.93)
Metropolitan	0.210	0.206	0.193	0.186	0.183	0.188	0.184	0.184	0.182	0.187
	(35.36)	(22.94)	(30.03)	(33.06)	(36.37)	(40.57)	(36.67)	(37.37)	(28.65)	(22.39)
South	–0.075	–0.073	–0.084	–0.092	–0.095	–0.091	–0.085	–0.080	–0.073	–0.072
	(30.66)	(19.96)	(31.13)	(35.28)	(37.87)	(41.23)	(40.96)	(34.61)	(27.59)	(17.95)
Speaks English Very Well/Well	–0.049	–0.098	–0.094	–0.078	–0.072	–0.063	–0.042	–0.034	–0.013	0.018
	(9.60)	(12.75)	(18.56)	(15.78)	(18.16)	(13.34)	(9.37)	(7.14)	(2.31)	(2.01)
Speaks English Not Well/ Not at All	0.012	–0.087	–0.066	–0.041	–0.011	–0.011	0.005	0.030	0.047	0.133
	(0.57)	(2.64)	(2.95)	(2.26)	(0.63)	(0.80)	(0.31)	(1.56)	(2.12)	(2.78)

Source: 2000 U.S. Census, Public Use Microdata Sample (1% Sample). Sample size is 533,906.

black as the racial origin, the number of years the foreign-born have lived in the United States (in quadratic form), and information on English proficiency. Two dichotomous variables for English proficiency are used, the first for those who speak a language other than English at home and speak English "very well" or "well," and the second for those who speak a language other than English at home and speak English either "not well" or "not at all."[10] The benchmark language group is those who speak only English at home. The variables are defined in Chiswick, Le, and Miller (2006).

Multivariate Analyses

Tables 1, 2, and 3 contain the regression results for the native-born, immigrants from English-speaking countries, and immigrants from non-English-speaking countries, respectively. The first column in each table lists results obtained using OLS; the remaining columns are for each decile from the quantile regression analysis. As might be expected given the sample sizes, these coefficients are estimated fairly precisely (that is, the standard errors are relatively small).

The conventional estimate of the return to one year of schooling for the native-born, obtained using OLS (Table 1, column 1), is 9.9%. An additional year of labor market experience for the native-born in the OLS analysis is shown to increase mean earnings by 1.8%, when evaluated at 10 years of experience. Estimates of the returns to schooling and experience of these magnitudes are typical when the focus is on the conditional mean. The quantile regression analyses, however, show that the increments in earnings associated with these skills among the native-born vary across the earnings distribution. Moreover, the quantile regression results display the same patterns in the earnings increments associated with these skills as have been reported in recent research for other countries. For example, education has a smaller impact on earnings at the lower deciles (8%) than it has

[10]We choose these regressors both for consistency with past research and to provide a reasonable basis for the cross-country comparisons provided in the following section.

Table 2. OLS and Quantile Regression Estimates, Adult Foreign-Born Men from English-Speaking Countries, 2000 U.S. Census.

	OLS	***Quantile***								
Variable		*0.1*	*0.2*	*0.3*	*0.4*	*0.5*	*0.6*	*0.7*	*0.8*	*0.9*
Constant	1.467	0.652	0.906	1.155	1.239	1.334	1.539	1.737	2.067	2.287
	(8.53)	(2.74)	(6.35)	(8.84)	(12.41)	(12.70)	(12.65)	(9.64)	(11.18)	(8.90)
Educational	0.072	0.068	0.072	0.075	0.078	0.078	0.077	0.077	0.078	0.093
Attainment	(20.47)	(10.40)	(17.78)	(19.39)	(22.57)	(20.32)	(24.60)	(21.90)	(20.14)	(19.75)
Experience	0.021	0.015	0.020	0.021	0.021	0.022	0.023	0.025	0.024	0.027
	(6.24)	(2.86)	(4.31)	(5.23)	(7.13)	(6.68)	(7.59)	(6.81)	(5.53)	(3.66)
Experience	–0.283	–0.278	–0.354	–0.306	–0.278	–0.269	–0.261	–0.282	–0.221	–0.142
Squared/1,000	(4.05)	(2.70)	(3.66)	(3.76)	(4.92)	(3.97)	(4.22)	(3.80)	(2.61)	(0.98)
Married	0.162	0.216	0.187	0.165	0.158	0.162	0.133	0.110	0.124	0.124
	(8.35)	(7.57)	(8.27)	(8.67)	(9.51)	(9.10)	(7.33)	(5.94)	(5.86)	(3.56)
Black	–0.173	–0.024	–0.088	–0.125	–0.144	–0.155	–0.177	–0.234	–0.268	–0.324
	(8.66)	(0.78)	(3.64)	(6.12)	(8.41)	(9.04)	(10.11)	(12.16)	(12.69)	(9.21)
Metropolitan	0.207	0.176	0.187	0.124	0.174	0.231	0.190	0.165	0.033	–0.094
	(1.24)	(0.86)	(1.51)	(1.13)	(2.06)	(2.71)	(1.96)	(1.02)	(0.21)	(0.41)
South	–0.076	–0.046	–0.075	–0.080	–0.093	–0.108	–0.106	–0.074	–0.067	–0.079
	(3.80)	(1.52)	(3.19)	(4.46)	(5.77)	(5.89)	(5.13)	(3.18)	(2.55)	(2.06)
Speaks English	–0.210	–0.220	–0.227	–0.235	–0.243	–0.235	–0.222	–0.210	–0.184	–0.163
Very Well/Well	(10.26)	(6.12)	(9.29)	(11.95)	(12.98)	(12.82)	(12.91)	(9.18)	(8.05)	(4.21)
Speaks English	–0.370	–0.261	–0.363	–0.404	–0.417	–0.419	–0.390	–0.380	–0.343	–0.328
Not Well/ Not at All	(11.04)	(5.61)	(10.40)	(14.28)	(11.70)	(9.61)	(9.77)	(9.48)	(6.06)	(4.40)
Years Since	–0.004	0.006	0.005	0.002	–0.001	–0.004	–0.005	–0.006	–0.010	–0.013
Migration (YSM)	(1.36)	(1.62)	(1.53)	(0.60)	(0.19)	(1.46)	(2.17)	(2.38)	(3.33)	(2.46)
YSM Squared/1000	0.059	–0.097	–0.058	–0.012	0.020	0.069	0.091	0.123	0.164	0.192
	(0.96)	(1.09)	(0.84)	(0.21)	(0.37)	(1.21)	(1.75)	(2.10)	(2.41)	(1.43)

Source: 2000 U.S. Census, Public Use Microdata Sample (1% Sample). Sample size is 9,395.

at the upper deciles (12%) of the earnings distribution.[11]

Another way of putting this is that if education on average enhances earnings, a highly educated person in the bottom decile must, by definition, have much lower earnings than would be predicted, and the earnings difference between the highly educated and those with little education in this decile must be compressed. Martins and Pereira (2004) argued that there are three possible explanations for this pattern: (a) over-education affects the bottom deciles more than the other deciles; (b) ability as an omitted variable is of greater importance among the better educated; or (c) differences in field of study or school quality are positively related to years of schooling.

Similarly, the returns to experience for the native-born are lower across the first few deciles of the distribution of earnings than they are across the upper deciles. For example, when evaluated at 10 years of experience, the increment in earnings associated with one year of experience is 1.4% at the first decile, 1.8% at the second decile, and rises monotonically to 2.4% at the ninth decile. That is, the upward mobility gained through additional years of labor market activity is far less for workers in low-wage jobs than for those in high-wage jobs. In other words, career paths are flatter in low-pay jobs than in high-pay jobs.

The effects of education and labor market experience on earnings for immigrants from English-speaking countries and non-English-speaking countries are similar to those described for the native-born. Figures 3 and 4 show that, as for the native-born, skilled (high-wage) immigrant workers achieve more through additional years of education and

[11]Martins and Pereira's (2004) analysis, based on quantile regression for 16 countries, showed that returns to education are higher for the more skilled (highly educated) workers.

Table 3. OLS and Quantile Regression Estimates, Adult Foreign-Born Men from Non-English-Speaking Countries, 2000 U.S. Census.

	OLS	***Quantile***								
Variable		*0.1*	*0.2*	*0.3*	*0.4*	*0.5*	*0.6*	*0.7*	*0.8*	*0.9*
Constant	1.669	1.164	1.297	1.406	1.471	1.609	1.732	1.848	1.962	2.192
	(47.83)	(25.07)	(31.80)	(46.22)	(55.54)	(44.84)	(49.71)	(48.97)	(47.05)	(30.79)
Educational	0.052	0.034	0.040	0.046	0.050	0.053	0.057	0.060	0.063	0.066
Attainment	(60.65)	(27.30)	(45.31)	(57.60)	(61.58)	(63.89)	(71.64)	(76.57)	(76.24)	(53.75)
Experience	0.003	–0.001	0.002	0.002	0.002	0.001	0.002	0.003	0.005	0.012
	(2.36)	(0.77)	(1.71)	(2.26)	(2.36)	(1.24)	(1.92)	(2.27)	(3.79)	(5.90)
Experience	0.010	–0.002	–0.043	–0.014	0.003	0.042	0.049	0.065	0.058	–0.012
Squared/1,000	(0.43)	(0.05)	(1.68)	(0.77)	(0.17)	(1.90)	(2.38)	(2.78)	(2.21)	(0.29)
Married	0.172	0.168	0.165	0.160	0.169	0.174	0.177	0.183	0.174	0.169
	(25.24)	(19.11)	(21.96)	(23.30)	(25.22)	(27.34)	(27.74)	(26.68)	(19.27)	(13.92)
Black	–0.065	0.004	–0.011	–0.006	–0.021	–0.053	–0.083	–0.087	–0.106	–0.081
	(3.66)	(0.14)	(0.53)	(0.35)	(1.52)	(3.52)	(5.22)	(3.95)	(4.22)	(2.92)
Metropolitan	0.138	0.067	0.103	0.112	0.146	0.153	0.153	0.164	0.204	0.202
	(5.04)	(1.83)	(2.91)	(4.77)	(6.89)	(5.06)	(5.51)	(5.23)	(5.64)	(3.37)
South	–0.087	–0.077	–0.071	–0.075	–0.080	–0.084	–0.087	–0.086	–0.089	–0.072
	(12.31)	(6.67)	(8.77)	(11.67)	(12.47)	(12.17)	(12.61)	(11.34)	(11.81)	(5.89)
Speaks English	–0.051	–0.010	–0.027	–0.041	–0.047	–0.051	–0.059	–0.059	–0.057	–0.076
Very Well/Well	(4.24)	(0.58)	(2.42)	(3.44)	(4.33)	(4.50)	(5.10)	(5.16)	(4.23)	(3.65)
Speaks English Not	–0.217	–0.157	–0.188	–0.217	–0.223	–0.237	–0.251	–0.251	–0.238	–0.244
Well/ Not at All	(15.94)	(8.83)	(16.21)	(18.05)	(20.33)	(18.78)	(19.54)	(18.78)	(14.51)	(9.31)
Years Since	0.009	0.012	0.013	0.014	0.013	0.011	0.009	0.006	0.004	0.001
Migration (YSM)	(9.57)	(8.62)	(12.42)	(15.57)	(14.94)	(12.68)	(10.56)	(6.24)	(3.17)	(0.64)
YSM Squared/1000	–0.045	–0.079	–0.075	–0.101	–0.094	–0.061	–0.038	0.004	0.009	0.042
	(2.04)	(2.45)	(2.96)	(5.06)	(4.64)	(3.06)	(1.84)	(0.20)	(0.34)	(0.98)

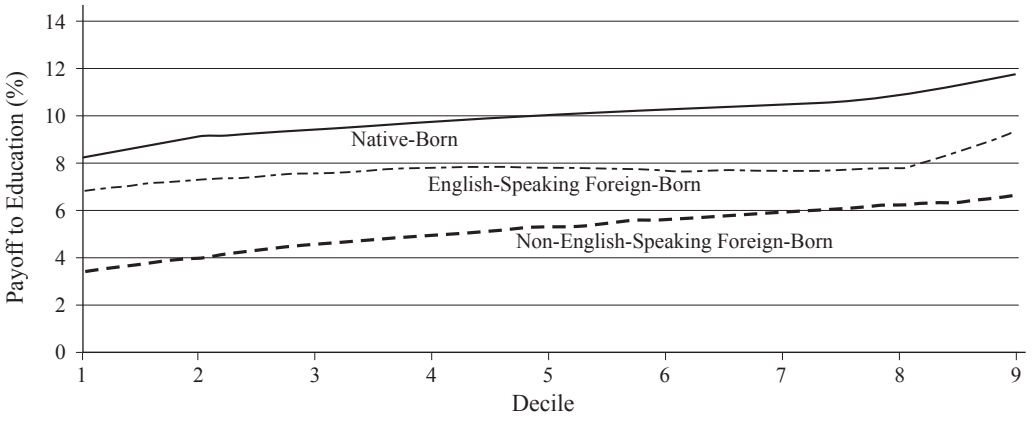
Source: 2000 U.S. Census, Public Use Microdata Sample (1% Sample). Sample size is 74,895.

labor market experience than do their unskilled (low-wage) counterparts.[12] However, for these forms of human capital, immigrants from non-English-speaking countries have far lower payoffs to human capital skills at each decile of the earnings distribution than do immigrants from English-speaking countries. In turn, immigrants from English-speaking countries have lower payoffs than the native-born at each decile, with the exception of the increments in earnings associated with experience at the upper deciles. Consequently, the greatest increase in earnings associated with schooling for immigrants from non-English-speaking countries, 6.6% (at the 9th decile), falls well short of the lowest increase in earnings associated with schooling for the native-born, 8.2% (at the 1st decile). Similarly, the greatest increase in earnings associated with labor market experience (evaluated at 10 years) for immigrants from non-English-speaking countries, 1.18% (at the 9th decile), is below the lowest increase in earnings associated with labor market experience for the native-born, 1.38% (at the 1st decile).

The estimated coefficients for several demographic variables do not vary greatly across the deciles of the distribution of earnings for particular birthplace groups. For example, the estimated negative effect of black racial origin varies only between 9% and 13% across the deciles of the earnings distribution for the native-born; and although the earnings disadvantage for black immigrants increases as higher deciles of the earnings distribution are considered, the increases

[12]The OLS estimates of the payoff to education are 9.9%, 7.2%, and 5.2%, respectively, for the native-born, immigrants from English-speaking countries, and immigrants from non-English-speaking countries (see Chiswick and Miller 2008). The payoffs to labor market experience (pre-immigration in the case of the foreign-born), evaluated at 10 years, for these three birthplace groups are 1.85%, 1.53%, and 0.28%, respectively.

Figure 3. Payoffs to Education by Decile, Adult Men in the United States, by Nativity, 1999.



Source: Tables 1, 2, and 3.

are not dramatic. Among the native-born, living in a metropolitan area is associated with 18–21% higher earnings. The metropolitan area variable displays considerable variation, in both statistical significance and numerical impact, across the earnings distributions for immigrants from English-speaking countries. Relatively few of these immigrants, however, live outside metropolitan areas. Living in the South is typically associated with between 7% and 10% lower earnings.

The years the foreign-born have spent in the United States, controlling for total labor market experience, are associated with higher earnings for immigrants from non-English-speaking countries, but not, in general, for immigrants from English-speaking countries. The latter effect is consistent with the high degree of the transferability to the U.S. labor market of the pre-immigration skills, including language and labor market information, of the ENG immigrants.

Among immigrants from non-English-speaking countries, the increases in earnings with duration of residence are greater in the lower deciles of the earnings distribution than in the upper deciles. Hence, evaluated at 10 years of residence, an extra year in the United States is associated with increments in earnings of 1% or more across the first five deciles, and with much lower changes in earnings in the top two deciles. The quantile regression results appear to be a reflection of the general finding from the immigrant adjustment literature that the greatest post-arrival gains in relative earnings are recorded by the immigrants with relatively low earnings at arrival (see Duleep and Regets 1996, 1997).[13] As with other studies based on cross-sectional data, caution needs to be exercised in interpreting these length-of-residence effects as "immigrant economic adjustment" rather than selective exit from the sample, or "cohort effects."[14]

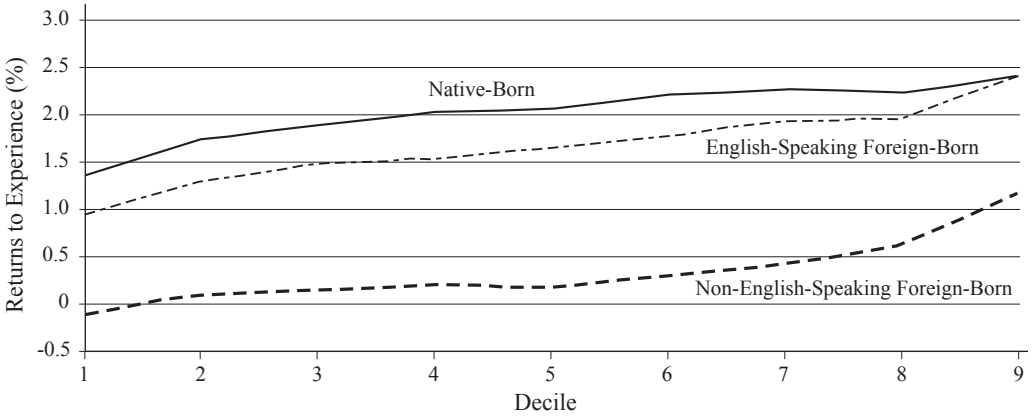
Decomposition Analysis

The estimates presented in Tables 1–3 may be used to quantify the differences between

[13]The analysis of immigrant adjustment at a particular quantile is problematic, as the adjustment phenomenon will presumably move an immigrant to a higher part of the skills distribution (see Butcher and DiNardo 2002:115). Similarly, Buchinsky (1998:98) noted that the interpretation of the coefficients in quantile regression as the marginal change in the θ^{th} conditional quantile due to a marginal change in the independent variable "does not imply that a person who happens to be in the θ^{th} quantile of one conditional distribution will also find himself/herself at the same quantile had his/her *x* changed" (sic).

[14]For a recent assessment of these issues, see Beenstock, Chiswick, and Paltiel (2005).

Figure 4. Payoffs to Experience by Decile, Adult Men in the United States, by Nativity, 1999.



Source: Tables 1, 2, and 3.

immigrants and the native-born at various points in the earnings distribution using a decomposition analogous to that developed by Blinder (1973) and Oaxaca (1973). This approach will be informative where the payoff to the determinants of earnings for the birthplace groups vary across the wage distribution, as is clearly the case in the current analysis. Thus, Figure 3 shows that the gap between the payoff to schooling for the native-born and for the two foreign-born groups rises by earnings distribution decile. Compared to the native-born, the gap is 1.4 percentage points at the first decile for immigrants from English-speaking countries, and 2.5 percentage points for this birthplace group at the 9th decile. For immigrants from non-English-speaking countries, it is 4.8 percentage points at the 1st decile and 5.2 percentage points at the 9th decile.

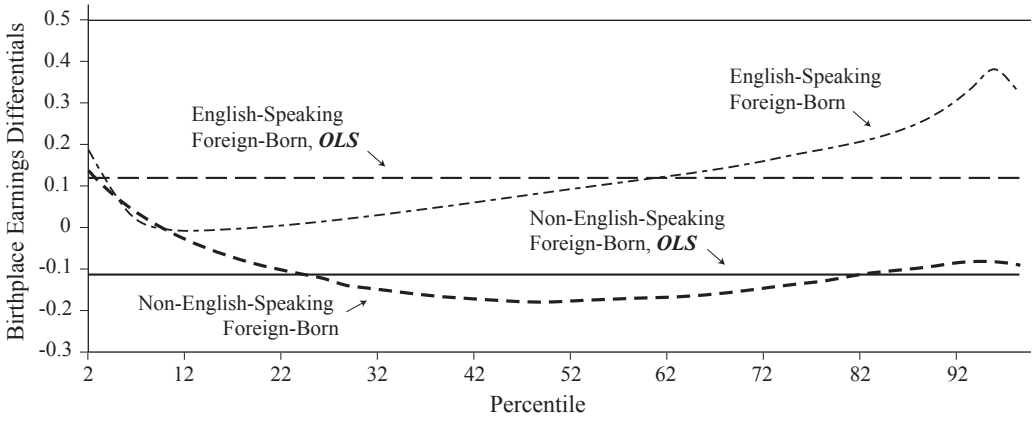
Of the several methods that could be employed in the analysis, the one we adopt is a variant of Machado and Mata (2005) and Albrecht et al. (2003) based on Autor, Katz, and Kearney (2005). This method involves obtaining estimates of the model of earnings determination for 500 quantiles at intervals of 0.002: that is, 0.001, 0.003,…, 0.997, 0.999. These estimates are based on the entire sample for the two birthplace groups, but on a 30% subset of the native-born workers used in the compilation of the Table 1 estimates for the deciles. This smaller sample was chosen owing to the computational burden of estimating the 500 quantile regressions on samples of around 530,000 observations. The smaller sample was shown to be adequate to characterize the distribution, since pre-tests for several quantiles showed that the 30% subset of observations yielded estimates of the impact on the explanatory variables similar to the full sample. The matrix of quantile regression coefficients obtained for each sample is denoted by β^j, j = native-born, ENG, or NENG. β^j in this application is a 500 × 12 matrix.[15] In the second stage of the decomposition, a random sample of 5,000 (with replacement) is drawn from the relevant data base (differentiated by nativity). This sample is denoted by the 12 × 5,000 data matrix x^j.

The simulated distribution within each birthplace group is then formed by $\beta^j x^j$, which gives a set of 250,000 predicted wages covering the full distribution.[16] The

[15]For ease of exposition, the length of residence parameters and variables are set to zero for the native-born.

[16]Autor, Katz, and Kearney (2005) used the entire sample to construct their simulated distributions. Given the size of the data set in the current analysis, however,

Figure 5. Standardized Hourly Wage Differentials of Foreign-Born Men Aged 25-64 by Percentile of the Hourly Wage Distribution, Computed from Analyses on Separate Samples of Native-Born and Foreign-Born Workers, United States, 1999.



Source: Computations based on estimates in Tables 1, 2, and 3.

quantiles of the simulated distribution can be readily computed. Denote these by $q_\theta^{j,j}$, where θ is the θth quantile of the simulated distribution.[17] Counterfactual distributions can be formed by $\beta^i x^j$, where the superscript on β indicates which set of coefficients (for native-born, ENG, or NENG) is used to simulate the counterfactual distribution, and the superscript on the *x* indicates which data set (for native-born, ENG, or NENG) is used. The difference between the quantiles of two simulated distributions can be used to quantify the birthplace difference across the distribution, namely $[q_\theta^{fb,nb} - q_\theta^{nb,nb}]$, θ in (0,1), or $[q_\theta^{fb,fb} - q_\theta^{nb,fb}]$, θ in (0,1), or as an average of these two constructs, where *nb* denotes the native-born and *fb* denotes one of the foreign-born groups. The latter magnitude, $[q_\theta^{fb,fb} - q_\theta^{nb,fb}]$, appears to be what most have in mind when talking about an immigrant earnings differential, and is presented below. It provides an assessment of the extent to which immigrants' earnings would increase if they were paid in the same way as the native-born, that is, if they had the same payoff to schooling, labor market experience, and so on.

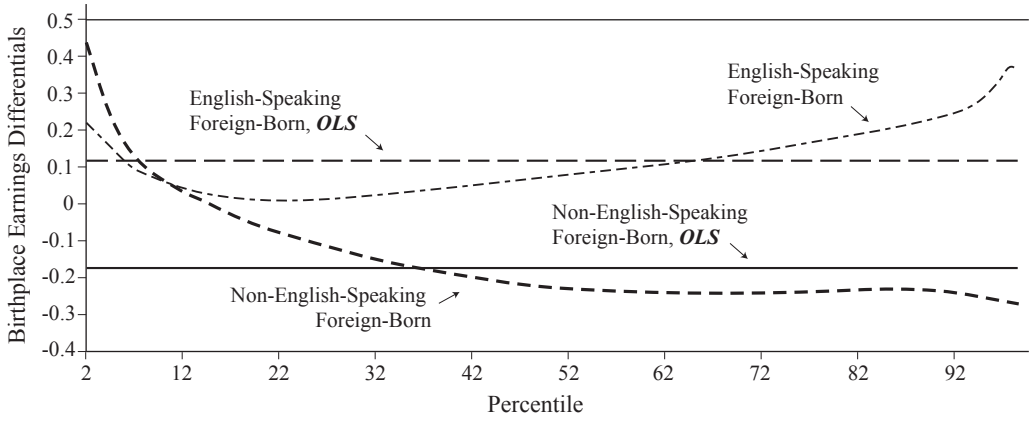
Figure 5 indicates that the earnings disadvantage of NENG immigrants is slightly less at the lower percentiles of the earnings distributions than it is across the middle percentiles. The relatively better hourly earnings of the less-skilled could, as argued above, be associated with minimum wages, though the fact that this pattern obtains for about one-quarter of the earnings distribution may suggest that other forces are at work. The earnings disadvantage for this birthplace group does not deviate much from the estimate obtained using OLS beyond around the 2nd decile.

Immigrants from English-speaking countries do relatively well across most of the earnings distribution, according to the Figure 5 information. The pattern of wage effects for this birthplace group in the first decile is remarkably similar to that for their NENG counterparts. After the first decile, however, ENG immigrants are depicted as having an earnings advantage that rises with the decile under consideration. For deciles 1–5, the earnings differential yielded by the quantile regression approach is below that

we use a 5,000 random sample (with replacement), and this data matrix multiplied by the coefficient matrix, to generate the simulated data.

[17]The simulated distribution tracks the actual distribution extremely closely for each sample.

Figure 6. Standardized Annual Earnings Differentials of Foreign-Born Men Aged 25-64 by Percentile of the Annual Earnings Distribution, Computed from Analyses on Separate Samples of Native-Born and Foreign-Born Workers, United States, 1999.



Source: Authors' computations from the 2000 U.S. Census 1% PUMS.

indicated using OLS, while for deciles 6–9 the reverse is true.

Sensitivity Analysis

The analyses reported above were repeated using annual earnings as the dependent variable. Minimum wages and other institutional rigidities should compress hourly wages, but they should increase the inequality of annual earnings because of the increased inequality in hours worked per year. Figure 6 provides information on the standardized annual earnings differentials of the foreign-born adult men by nativity and by decile of the annual earnings distribution.[18]

The data for adult male immigrants from English-speaking countries in Figure 6 mirror quite well the information on hourly wages for this birthplace group in Figure 5. However, as this group generally does at least as well as, and usually much better than, the native-born in the U.S. labor market, this might be expected.

For adult male immigrants from non-English-speaking countries, however, the information on annual earnings in Figure 6 differs from that for hourly earnings in Figure 5. There are two main differences. First, the disadvantage for immigrants from non-English-speaking countries is greater when the focus is on annual earnings (on average, an 18% disadvantage) than when the focus is on hourly earnings (on average, a 12% disadvantage). In other words, there is greater inequality between the native-born and immigrants from non-English-speaking countries in annual earnings than in hourly earnings, because of the greater inequality in hours worked per year. Second, the standardized annual earnings disadvantage of immigrants from non-English-speaking countries across the distribution (except in the first decile, where the NENG group has an advantage) is accentuated compared to that established from the study of hourly earnings.

The sensitivity of the findings to regional differences in earnings and to outlier observations was also investigated. The examination of the influence of regional differences beyond those captured by the "South" variable was based on inclusion of State fixed effects in

[18]Figures displaying the payoffs to education and experience by decile of the annual earnings distribution are very similar to Figures 3 and 4, which are based on the effects on hourly earnings.

the estimating equation. This augmentation of the specification of the earnings equation was associated with a modest reduction in the payoff to education across the distribution of earnings for each birthplace group. It was also associated with an increase in the earnings disadvantage associated with black racial origin for the native-born, but few other systematic changes in the estimated coefficients were observed. The standardized earnings of immigrants from English-speaking countries fell by about two percentage points compared to those of the native-born over the first one-third of the earnings distribution, but there was little impact elsewhere in the earnings distribution. The standardized earnings of the NENG group fell by at least two percentage points compared with the native-born across the earnings distribution, and by 3–4 percentage points over the first one-fifth of the distribution. The general findings from the analysis, however, remain the same.

In past studies, researchers have varied in their treatment of potential outlier observations. For example, Kuhn and Weinberger (2005) focused on hourly wages between $1 and $50, while Bayard, Hellerstein, Neumark, and Troske (2003) restricted their sample to hourly wages between $2.50 and $500. Four supplementary analyses were conducted in this study, based on trimming the tails of the distribution of hourly earnings. In the first, the bottom 1% (cut-off of $1.80) of hourly earnings observations and the top 1% (cut-off of $148.26) of hourly earnings observations were removed from the sample. In the second, the 1% cut-off was replaced by 2% ($2.88/$110.07), while in the third and fourth exercises, 3% ($3.75/$79.81) and 5% ($4.80/$52.88) cut-offs were used. These changes to the sample are more severe than those implemented by Kuhn and Weinberger (2005) at the bottom of the earnings distribution, and more severe than that implemented by Bayard et al. (2003) at the top of the earnings distribution. This progressive trimming of the tails of the distribution compresses the earnings differentials on the basis of birthplace at either end of the earnings distribution (though particularly for the ENG group at the upper end of the distribution), but has very modest consequences elsewhere in the distribution. The pattern of the earnings disadvantage of NENG being smaller at the first decile of the distribution than it is at the second decile carries across to these analyses.

These analyses show clearly that being an immigrant in the U.S. labor market means different things at different points in the earnings distribution. These patterns may be associated with the minimum wage or union wage floors, which compress the left-hand tail of the distribution. The payoffs to labor market experience and education appear to be less at the lower quantiles, where minimum wages, whether instituted by law, custom, or union behavior, may be important.

While minimum wages may explain a narrowing of the standardized immigrant-native earnings gap, they cannot explain the higher earnings of immigrants than of the native-born in the bottom deciles of the distribution. This may be due to the favorable selectivity of immigrants being relatively more important for earnings among workers with low levels of skill. The favorable selectivity would be expected to be greater among immigrants for whom the migration process is more costly relative to their earnings, for example, for immigrants from non-English speaking origins, than among those from the English-speaking developed countries (Chiswick 1999; Chiswick and Miller 2006, 2008). This is in fact what we find.

Results for Australia

Background

The patterns of effects across the wage distribution for the United States suggest that it may be instructive to compare this quantile regression analysis with a similar analysis for Australia—a labor market associated with a far higher degree of institutional wage-setting (see Miller and Neo 2003; Antecol et al. 2006). Antecol et al. (2006:15), for example, noted that "in 1990, Australia was ranked first (tied with Austria, Belgium, Finland, Norway, Portugal, and Sweden) among 19 countries in bargaining centralization by the OECD." Miller and Neo (2003) argued that this centralized system offers employed

Table 4. OLS and Quantile Regression Estimates, Adult Native-Born Men, 2001 Australian Census.

	OLS	***Quantile***								
Variable		*0.1*	*0.2*	*0.3*	*0.4*	*0.5*	*0.6*	*0.7*	*0.8*	*0.9*
Constant	1.409	1.187	1.286	1.190	1.191	1.256	1.239	1.223	1.531	1.984
	(43.76)	(19.36)	(32.04)	(32.65)	(26.52)	(39.44)	(48.61)	(32.03)	(34.36)	(39.49)
Educational Attainment	0.101	0.089	0.089	0.098	0.104	0.105	0.112	0.119	0.114	0.099
	(55.33)	(26.28)	(40.38)	(50.54)	(43.22)	(57.45)	(69.32)	(49.46)	(40.78)	(36.59)
Experience	0.020	0.009	0.016	0.024	0.025	0.026	0.028	0.031	0.024	0.021
	(11.23)	(2.70)	(7.19)	(11.24)	(11.53)	(17.01)	(20.84)	(14.20)	(9.21)	(8.42)
Experience Squared/100	–0.034	–0.028	–0.031	–0.043	–0.043	–0.043	–0.045	–0.048	–0.032	–0.023
	(9.45)	(3.95)	(6.80)	(10.68)	(10.51)	(13.71)	(17.33)	(11.21)	(6.14)	(4.57)
Speaks English Very Well/Well	–0.077	–0.152	–0.069	–0.067	–0.053	–0.043	–0.037	–0.039	–0.069	–0.061
	(4.25)	(3.67)	(3.48)	(3.54)	(3.14)	(3.04)	(1.94)	(2.41)	(2.96)	(1.66)
Speaks English Not Well/Not at All	–0.302	–0.500	–0.565	–0.399	–0.373	–0.381	–0.105	–0.059	–0.055	–0.004
	(2.05)	(0.35)	(2.09)	(2.05)	(1.84)	(1.64)	(0.43)	(0.27)	(0.18)	(0.00)
Married	0.076	0.048	0.069	0.080	0.102	0.104	0.115	0.129	0.102	0.083
	(8.90)	(3.13)	(7.20)	(9.08)	(12.13)	(13.93)	(14.84)	(13.51)	(11.19)	(7.43)

Source: 2001 Australian Census of Population and Housing Household Sample File. Sample size is 21,505.

low-wage immigrants in Australia a degree of wage rate protection, a contention that is supported by Antecol et al.'s (2006) finding, in effect, that Australia has a more compressed wage distribution than the United States. Of importance to this study is the fact that the wage-setting system in Australia establishes a plethora of occupation-specific "award wages," and not just a single, minimum wage as in the United States. These award wages affect workers across the wage distribution.

In 2000, around one-quarter of the work force in Australia had their pay set by awards, and while this form of setting pay was more prevalent for low wage earners than for other workers, employees paid by award wage were found across the earnings distribution (see Australian Bureau of Statistics 2001:9). Moreover, registered collective agreements, which covered a further 35% of workers in 2000, are often negotiated by unions, and may build on rather than completely replace awards. Consistent with these observations, the OECD (2004) reported that Australia had one of the highest rates of collective bargaining coverage (at 80%) among member countries in 2000. Accordingly, if institutional factors are responsible for the features of the quantile regression analysis results across the first few deciles of the earnings distribution in the United States, then similar features might be expected in Australia, but more prominently and across much more of the earnings distribution.

Multivariate Analyses and Decomposition

The analyses for Australia are based on the 2001 Australian Census of Population and Housing (see Australian Bureau of Statistics 2003). Our variable definitions follow those for the U.S. analyses as closely as possible.[19] The income data for Australia are for weekly income, and both these data and those for hours worked per week are collected in categorical form.[20] Midpoints have been used to form a continuous variable. The broad upper open-ended categories appear to affect the estimates in the upper deciles, though the

[19]As the unit record file released from the 2001 Census on CD-ROM contains limited information on year of arrival (only three categories: 2000–2001, 1996–1999, and before 1996), a duration of residence variable has not been included in the estimating equation for Australia. Past research (for example, Chiswick and Miller 2006), however, has shown that duration of residence has a very small effect on the earnings of immigrants in Australia, suggesting the omission should not matter.

[20]The weekly income categories are zero, $1–$39, $40–$79, $80–$119, $120–$159, $160–$199, $200–$299, $300–$399, $400–$499, $500–$599, $600–$699, $700–$799, $800–$999, $1,000–$1, 499, and $1,500+. The hours worked categories are 1–15, 16–24, 25–34, 35–39, 40, 41–48, and 49+.

Table 5. OLS and Quantile Regression Estimates, Adult Foreign-Born Men from English-Speaking Countries 2001, Australian Census.

	OLS	***Quantile***								
Variable		*0.1*	*0.2*	*0.3*	*0.4*	*0.5*	*0.6*	*0.7*	*0.8*	*0.9*
Constant	1.774	1.553	1.632	1.494	1.420	1.391	1.565	1.538	1.971	2.449
	(21.59)	(13.26)	(23.76)	(19.28)	(14.97)	(25.13)	(18.54)	(14.26)	(14.89)	(11.45)
Educational	0.086	0.066	0.073	0.086	0.095	0.100	0.098	0.103	0.098	0.083
Attainment	(20.26)	(8.33)	(19.60)	(17.79)	(17.15)	(41.95)	(21.04)	(18.41)	(17.46)	(7.70)
Experience	0.012	0.006	0.005	0.012	0.018	0.024	0.019	0.025	0.013	0.020
	(2.74)	(0.75)	(1.44)	(3.03)	(4.69)	(6.60)	(3.60)	(4.45)	(1.52)	(2.28)
Experience	–0.022	–0.017	–0.010	–0.022	–0.031	–0.042	–0.030	–0.041	–0.018	–0.035
Squared/100	(2.64)	(1.03)	(1.47)	(2.70)	(4.41)	(6.59)	(2.83)	(4.04)	(1.16)	(2.18)
Speaks English	–0.048	0.061	–0.030	–0.065	–0.089	–0.068	–0.088	–0.096	–0.056	0.000
Very Well/Well	(0.98)	(0.94)	(0.89)	(1.80)	(1.83)	(1.63)	(1.99)	(1.23)	(0.76)	(0.00)
Speaks English Not	–0.053	0.010	–0.125	–0.078	–0.183	–0.151	–0.181	–0.173	0.092	0.240
Well/Not at All	(0.41)	(0.01)	(0.98)	(0.59)	(1.69)	(1.34)	(1.14)	(0.73)	(0.24)	(0.22)
Married	0.070	0.044	0.067	0.106	0.116	0.111	0.111	0.157	0.076	0.007
	(3.23)	(1.43)	(3.58)	(6.82)	(5.05)	(5.51)	(4.51)	(4.89)	(2.44)	(0.14)

Source: 2001 Australian Census of Population and Housing Household Sample File. Sample size is 3,623.

uniform pattern in the results suggests this does not unduly affect the findings.

Tables 4 to 6 present a comparison set of quantile regression results for the Australian labor market. These results can be compared with those for the United States presented in Tables 1 to 3.

There are several differences between the Australian and U.S. labor markets with respect to immigrants' relative earnings position. First, immigrants from English-speaking countries have a mean hourly earnings advantage over the native-born of 3 percentage points in Australia, compared to 1 percentage point in the United States. Among immigrants from non-English-speaking countries, there is a 6 percentage point disadvantage in mean hourly earnings in Australia, versus a 20 percentage point disadvantage in the United States. Thus, in terms of the hourly wage rate, immigrants appear to be better off in Australia than in the United States (see also Antecol et al. 2003).

Figure 7 illustrates the payoffs to schooling in the Australian labor market. The general pattern in the payoff to schooling across the earnings distribution for Australia mirrors that for the United States. Notably, the payoff to schooling for each birthplace group tends to rise at higher deciles of the earnings distribution. However, the particular shape of that relationship differs for different birthplace groups in Australia, and this pattern of variation differs from that in the United States. Specifically, for the native-born, the percentage-point spread between the lowest and highest returns to schooling across the wage distribution is 2.5 in Australia, versus 3.6 in the United States; for the ENG group, 3.2 versus 2.5; and for the NENG group, 4.3 versus 3.2.

The considerably higher returns to education for NENG workers in Australia than for those in the United States is striking. Whereas in the United States the highest payoff to schooling for the NENG group is less than even the lowest payoff for the native-born, in Australia the top half of NENG income earners have payoffs to schooling close to those received by the bottom one-third of native-born income earners. One possible explanation for these findings is that immigration and settlement programs in Australia accord more recognition to skills acquired abroad than do similar U.S. programs; particularly important may be the greater role that skills play in the allocation of visas in Australia.

Figure 8 illustrates the payoffs to labor market experience in Australia. These payoffs are quite minor across the bottom one-third of the earnings distribution, irrespective

Table 6. OLS and Quantile Regression Estimates, Adult Foreign-Born Men from Non-English-Speaking Countries, 2001 Australian Census.

	OLS	***Quantile***								
Variable		*0.1*	*0.2*	*0.3*	*0.4*	*0.5*	*0.6*	*0.7*	*0.8*	*0.9*
Constant	1.881	1.705	1.625	1.619	1.704	1.715	1.784	1.739	1.927	2.590
	(25.49)	(12.53)	(21.67)	(23.02)	(24.79)	(26.28)	(27.10)	(22.75)	(15.76)	(20.11)
Educational	0.081	0.054	0.073	0.080	0.084	0.091	0.092	0.095	0.097	0.082
Attainment	(21.65)	(6.80)	(18.66)	(21.16)	(24.49)	(24.54)	(27.65)	(22.02)	(18.07)	(15.09)
Experience	0.003	0.004	0.005	0.006	0.003	0.002	0.006	0.013	0.011	–0.003
	(0.92)	(0.69)	(1.46)	(1.84)	(0.97)	(0.50)	(1.84)	(2.75)	(1.61)	(0.51)
Experience	–0.001	–0.005	–0.005	–0.005	–0.001	0.002	–0.004	–0.014	–0.011	0.016
Squared/100	(0.09)	(0.47)	(0.68)	(0.75)	(0.12)	(0.41)	(0.61)	(1.64)	(0.93)	(1.27)
Speaks English	–0.156	–0.145	–0.158	–0.155	–0.154	–0.133	–0.153	0.132	–0.149	–0.176
Very Well/Well	(8.49)	(4.73)	(8.13)	(8.65)	(10.38)	(8.37)	(8.49)	(5.99)	(5.73)	(5.87)
Speaks English Not	–0.278	–0.171	–0.290	–0.286	–0.284	–0.289	–0.307	–0.319	–0.280	–0.351
Well/Not at All	(7.71)	(3.74)	(11.19)	(10.40)	(10.28)	(11.99)	(8.63)	(7.35)	(5.42)	(4.46)
Married	0.051	–0.054	0.006	0.042	0.063	0.080	0.055	0.103	0.089	0.069
	(2.47)	(1.80)	(0.30)	(2.21)	(3.62)	(3.75)	(2.56)	(4.23)	(2.74)	(1.55)

Source: 2001 Australian Census of Population and Housing Household Sample File. Sample size is 4,570.

of nativity. Moreover, in the NENG group, labor market experience is generally not a statistically significant determinant of earnings across the earnings distribution. While labor market experience was a statistically significant determinant of earnings for the NENG group in the United States, its partial effect was very minor across most of the earnings distribution. This aspect of the earnings determination process in the two countries appears, therefore, to be much the same. The somewhat smaller impact of experience on hourly wages in the Australian labor market may well be due to the greater role played by administered wage awards (minimum wages) across the occupational distribution.

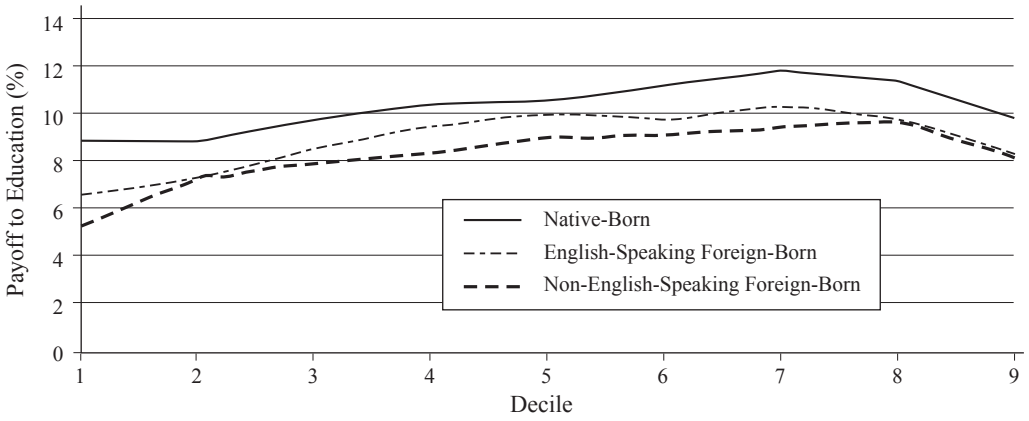
How these differences in payoffs affect the relative earnings of three birthplace groups is summarized in Figure 9. This figure displays the results of earnings decompositions both at the conditional mean and across the earnings distribution.

Low-skilled immigrants from English-speaking countries appear to enjoy a larger advantage in hourly earnings, relative to the native-born, than do low-skilled workers in the NENG group. Even for immigrants from non-English-speaking countries, however, we find an earnings advantage, *ceteris paribus*, over the native-born up to the 17th percentile of the earnings distribution. However, the main pattern we find for Australia is the near uniformity across the earnings distribution of the standardized earnings position of immigrants from English-speaking countries, indicating that this group enjoys a modest earnings advantage over the native-born. Among immigrants from non-English-speaking countries, there is evidence of a standardized earnings disadvantage beyond the second decile, and while this widens across the upper-middle segment of the earnings distribution (up to the 7th decile), the change in this instance is not great, and the earnings disadvantage beyond the second decile could be called reasonably constant.

Note the finding in Figure 9 that at the very bottom of the earnings distribution, other variables being the same, earnings are highest for immigrants from the non-English-speaking countries, followed by immigrants from English-speaking origins, followed by the native-born. The same pattern was found for the United States. This pattern is consistent with favorable selectivity in migration being most important in determining earnings for those with the lowest levels of skill, and with a positive association between this favorable selectivity and out-of-pocket costs of migration (Chiswick 1999; Chiswick and Miller 2006, 2008).

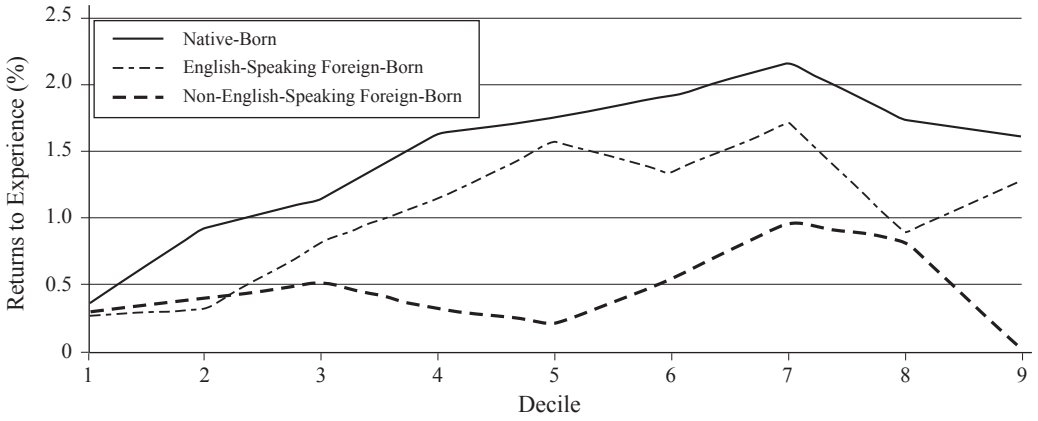
There are thus three main differences

Figure 7. Payoffs to Education by Decile, Adult Men in Australia, by Nativity, 2001.



Source: Tables 4, 5, and 6.

Figure 8. Payoffs to Experience by Decile, Adult Men in Australia, by Nativity, 2001.

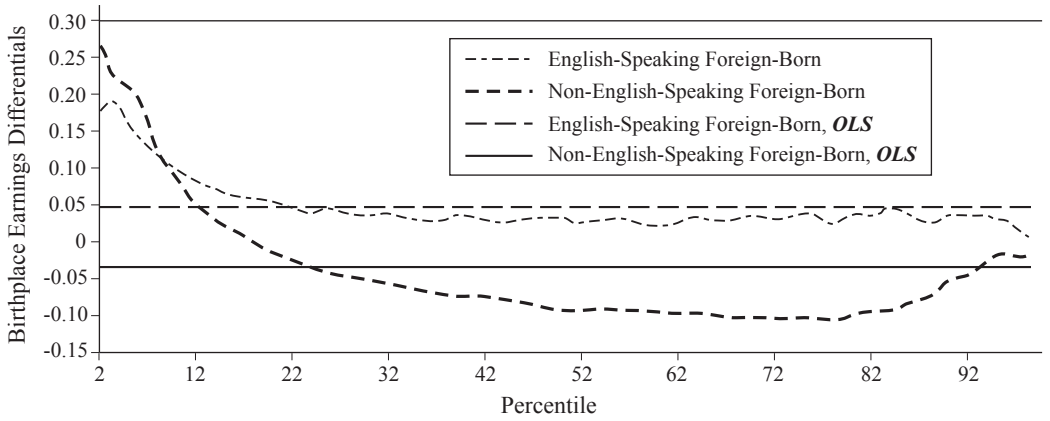


Source: Tables 4, 5, and 6.

between these findings for Australia (Figure 9) and the corresponding findings for the United States (Figure 5). First, immigrants in the bottom decile of the hourly earnings distribution do particularly well in Australia compared to the United States. This is presumably a consequence of the greater impact of minimum and award wages in Australia. Second, NENG immigrants in Australia at all points of the hourly earnings distribution, and ENG immigrants in the bottom four deciles of the hourly earnings distribution, fare better than their counterparts in the United States, relative to the native-born. Third, high-wage ENG immigrants in the United States are able to establish a considerable earnings advantage over their native-born counterparts, but this is not a feature of the Australian labor market.

Hence institutions apparently matter to labor market outcomes for immigrants. Low-skilled immigrants suffer greater relative disadvantages in the United States than in Australia, but by the same token, the more skilled immigrants in the United States do relatively well. The greater rigidity of the

Figure 9. Standardized Hourly Earnings Differentials of Foreign-Born Men Aged 25-64 by Percentile of the Hourly Earnings Distribution, Computed from Analyses on Separate Samples of Native-Born and Foreign-Born Workers, Australia, 2001.



Source: Computations based on estimates in Tables 4, 5, and 6.

Australian labor market appears to offer the least-skilled immigrants a degree of wage protection, but would appear to restrict the upward earnings mobility of immigrants.[21]

Conclusion

The empirical analyses reported in this paper show that in the U.S. labor market, when other factors are held constant, immigrants from English-speaking countries have mean hourly earnings around 12% above those of the native-born, evaluated at their mean duration of residence. In comparison, immigrants from non-English-speaking countries have mean hourly earnings around 12% below those of native-born workers. However, the application of quantile regressions indicates that the relative earnings positions of both birthplace groups vary across the earnings distribution.

Ceteris paribus, at the very lowest decile, immigrants from non-English speaking countries earn more than those with English-speaking origins, who in turn earn more than the native-born. Between the first and second deciles, the relative earnings of those from non-English-speaking countries declines, falling below the earnings of the two other groups. These earnings patterns may be due to a combination of minimum wage effects and the greater importance of favorable selectivity in migration in the very bottom of the earnings distribution than elsewhere in the distribution.

Across the first three deciles of the earnings distribution, the variation in the earnings disadvantage of immigrants from English-speaking countries is only modest. Beyond the third decile of the distribution, however, this birthplace group appears to have an earnings advantage over the native-born that rises with higher deciles.

We expected Australia's economy-wide institutional wage-setting to affect more of the wage distribution than just the low end that might be affected by minimum wages in the United States. All immigrants in the bottom decile of the earnings distribution do particularly well in Australia compared to the United States, but high-wage immigrants from English-speaking countries do not do

[21]Miller and Neo (2003) made the same point based on a comparison of the mean earnings of immigrants and the native-born in the United States and Australia using earlier census data (1991 for Australia, 1990 for the United States).

as well in Australia as in the United States. The greater rigidity of the Australian labor market appears to offer the least-skilled immigrants a degree of wage protection, and also appears to flatten earnings-experience profiles and to impede the upward earnings mobility of more skilled immigrants.

Among the labor market outcomes that our quantile regression analysis has brought to light—patterns that would not have been revealed using a conventional OLS analysis of the conditional mean—are some with important policy implications. For example, we have found that in the United States, high-skilled immigrants fare better than low-skilled immigrants, relative to the labor market outcomes of the native-born. One implication of this finding for U.S. immigration policy is that the criteria for visa allocation should assign considerable weight to skill if favorable relative labor market outcomes are a goal. Similarly, the minimal variation in the relative wage outcomes of immigrants in the upper two-thirds of the wage distribution in Australia has implications for Australian wage-setting policy. Existing policies appear to hinder immigrants' post-immigration skill formation and labor market adjustments. As argued by Miller and Neo (2003:353), "award wages and unionism in Australia offer immigrants a high wage floor … at a cost of … opportunities for training that might be foregone due to inability to accept a sufficiently low 'training wage.'"

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