SWEDISH ECONOMIC POLICY REVIEW 7 (2000) 89-122

Ethnic Enclaves and Assimilation

George J. Borjas *

Summary

■ There are substantial differences in the rate of wage growth experienced by different immigrant groups in the US. This paper argues that the clustering of immigrants into ethnic enclaves can help explain why different immigrants—and why different national origin groups—exhibit different rates of economic assimilation. It is well known that there is a great deal of residential segregation among immigrant groups in the US. The analysis uses the 1980 and 1990 Public Use Samples of the decennial Census to examine empirically the link between residential segregation and economic assimilation. The data consistently suggest that ethnic residential segregation hampers the process of economic assimilation, and that the numerical impact of residential segregation on wage growth is both statistically significant and numerically important. ■

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1. Introduction

The economic impact of immigration on a host country depends crucially on the skill differential between immigrant and native workers. The relative skills of the immigrant population at a point in time are determined by two factors: how the skills of immigrants compare to those of natives at the time of entry, and how the rate of skill accumulation (in the post-immigration period) differs between immigrants and natives. In other words, both entry conditions and the rate of economic assimilation—as measured by the wage convergence that occurs between immigrants and natives over time—matter.

These insights have guided much of the empirical research in the economics of immigration in the US, beginning with Chiswick's (1978) pioneering work. The accumulation of empirical evidence over the past two decades has generated a number of potentially important findings. For instance, the relative entry wages of successive immigrant cohorts have declined since the 1960s (Borjas, 1985).[1] Moreover, although the wage gap between immigrants and natives narrows over time as immigrants assimilate in the US, the rate of wage convergence is relatively slow. As a result, most recent immigrant waves will probably have a substantial wage disadvantage throughout their working lives (see the summary of the evidence in Smith and Edmonston, 1997).

It is also well known that there are substantial differences in wage *levels* across the various national origin groups that make up the immigrant population. In fact, some studies attribute much of the decline in the relative skills of immigrants across successive waves to the changing national origin mix of the immigrant population (Borjas, 1992; LaLonde and Topel, 1992). Recent research has begun to stress

* *This research was supported by a grant from the National Science Foundation.*

[1] There may have been a slight turnaround in the 1990s; see Funkhouser and Trejo (1995).

that the wage *growth* experienced by immigrants in the US also differs across national origin groups (Borjas, 2000; Duleep and Regets, 1997; and Schoeni, McCarthy and Vernez, 1996). Some national origin groups seem to experience faster economic assimilation than others.

Although there has been a great deal of lively debate over the methodological issue of how best to measure the rate of economic assimilation—or, more specifically, how best to measure the rate of wage convergence between immigrants and native—there has been little research to analyse *why* some wage convergence takes place and *why* this rate of wage convergence seems to differ across national origin groups. For the most part, the studies investigating the differential accumulation of human capital between immigrants and natives focus on one single factor, the acquisition of "language capital" in the host country.[2] The early work of Grenier (1984) concluded that US immigrants who are proficient in the English language have higher earnings than immigrants who are not (see also Chiswick and Miller, 1992). Presumably, proficiency in the host country's language increases immigrant earnings because bilingualism opens up many employment opportunities.

This paper argues that the clustering of immigrants into ethnic enclaves can help explain why different immigrants—and why different national origin groups—exhibit different rates of economic assimilation. It is well known that there is a great deal of residential segregation among immigrant groups in the US. In 1998, for example, 72 per cent of immigrants resided in only 6 states (California, New York, Texas, Florida, Illinois, and New Jersey). The ethnic clustering is even more striking at the level of the metropolitan area. In 1990, 42 per cent of immigrants lived in just five metropolitan areas (Los Angeles, New York, Miami, Chicago, and Anaheim), yet only 13 per cent of natives lived in those localities.

This paper shows that not only are immigrants—as a group—residentially segregated, but that different types of immigrants tend to become segregated in different places. This geographic sorting of the immigrant population has given rise to the large ethnic enclaves that are a prominent characteristic of major American cities. A disproportionately large number of Mexican immigrants, for instance, reside in Los Angeles; a disproportionately large number of Cuban immigrants

[2] Betts and Lofstrom (2000) have recently opened a new line of research by examining differences in school enrolment rates between immigrants and natives.

reside in Miami, and a disproportionately large number of immigrants from the Dominican Republic reside in New York.

In this paper, I argue that this type of ethnic clustering will likely affect the rate of economic assimilation experienced by immigrants. The direction of this effect, however, is unclear *a priori*. On the one hand, the ethnic enclave can provide a "warm embrace" that gives immigrants information about labour market opportunities, provides many job contacts, and allows immigrants to escape the discrimination that they may have otherwise encountered in the labour market outside the enclave. On the other hand, the enclave can become an economic stranglehold by cutting off immigrants from many alternative job opportunities, and by reducing the incentives for immigrants to acquire the types of skills (such as English language proficiency) that American employers value.

The analysis uses the 1980 and 1990 Public Use Samples of the decennial Census to examine empirically the link between residential segregation and economic assimilation. The data consistently show that ethnic residential segregation hampers the process of economic assimilation, and that the numerical impact of residential segregation on wage growth is both statistically significant and numerically important.

2. Conceptual framework

There is a great deal of debate about how ethnic residential segregation affects the economic well being of immigrants in the US. Although it seems reasonable to suspect that this geographic clustering affects the economic performance of immigrant groups, it is not at all clear in which direction these effects should go.

Some observers of the immigrant experience argue that the geographic clustering of immigrants, and the "warm embrace" of the enclave, helps immigrants escape the discrimination that they would have otherwise encountered in the labour market. This argument would suggest that clustering helps: Immigrants who live in ethnic enclaves should do better than those who do not. One can also argue, however, that the clustering can have adverse economic effects. The ethnic enclave creates incentives for immigrants *not* to leave and *not* to acquire the skills that might be useful in the larger national market. In other words, the clustering may effectively hinder the move to better-paying jobs by reducing the immigrants' incentives to learn the culture and language of the American labour market. In a sense, immigrants

who live and work in an ethnic enclave are the victims of a monopsony, a "one-company" town.

An important channel through which enclaves influence economic assimilation arises because the enclave provides a self-contained labour market for immigrants.[3] Immigrants belonging to a particular national origin group have an obvious comparative advantage in operating certain types of businesses.[4] A native person born, raised, and living in Milwaukee, for instance, will find it quite difficult to open up, staff, and run a small family restaurant serving Korean food. An immigrant from Korea obviously knows much more about Korean cuisine, and is better skilled at operating this type of business. More importantly, enclaves influence not only the economic opportunities available to immigrants in the self-employment sector, but also the opportunities available to the much larger group of salaried workers. After all, immigrant entrepreneurs are likely to hire a disproportionately large number of their compatriots. Because members of the same national origin group share the same culture, language, and work habits, immigrant employers could use the cultural idiosyncrasies of the national origin group to the advantage of the work environment, whereas these same attributes may create friction and reduce productivity in a non-enclave working environment.

The available evidence suggests that members of particular national origin groups are very likely to find employment in businesses owned by their compatriots. Portes (1987) reports that even after being in the US for six years, about 40 per cent of Cuban immigrants are employed by Cubans, and 15 per cent of Mexican immigrants are employed by Mexicans. Similarly, Light et al. (1994) report that 58 per cent of the workers in Iranian-owned businesses in Los Angeles were of Iranian origin.

The evidence, however, seems to be less conclusive on whether the immigrant workers benefit from being hired by immigrant entrepreneurs, and there has been a contentious debate on the nature of this relationship.[5] By working for immigrant entrepreneurs, immigrants may avoid the labour market discrimination that may be operating against them outside the enclave. But immigrants who work outside the enclave have a greater set of job opportunities to choose

[3] See Portes and Rumbaut (1996) and Light and Gold (2000).

[4] Camarota (2000) presents a detailed discussion of the trends in self-employment rates for immigrants in the US.

[5] See Portes and Jensen (1989) and Sanders and Nee (1987).

from. Typically, the immigrants who leave the enclave are more proficient with the English language and can, in effect, trade with a much larger number of employers in the mainstream American economy. In a comprehensive study, Light and Gold (2000) conclude that "ethnic economies pay lower wages than the general labour market."

Even in the absence of immigrant entrepreneurs, immigrant workers might find different types of job opportunities available within and outside the ethnic enclave. The ethnic enclave, in effect, clusters a particular type of skill group within a compact geographic area. Many native employers—who demand the types of skills available in the enclave—may then find it profitable to open up firms within the enclave, and to hire many ethnic workers. For instance, there has been a great deal of study in the US about the growth of the garment industry in immigrant neighbourhoods in Los Angeles (Light, Bernard, and Kim, 1999). The sweatshops in this industry tend to pay relatively low wages, offer unpleasant working conditions, and are often accused of exploiting the immigrant work force.

The proximity between these types of jobs and the places where immigrants reside, as well as the job contacts that will naturally arise through the social and cultural interactions that occur among persons belonging to the same ethnic group, increases the likelihood that many immigrants in the enclave end up employed in these native-owned firms. The decision to remain in the enclave, however, is sure to have long-run repercussions. Since the immigrants need not learn the language and culture of the mainstream economy, the immigrants become captive in the types of jobs that employers in the enclave choose to offer. This shrinking of job opportunities could then have a harmful impact on the immigrant's long run economic status.

3. Data and basic results

The empirical analysis uses the 1980 and 1990 Public Use Samples of the decennial US Census. A person is classified as an immigrant if he was born outside the US and is either an alien or a naturalised citizen; all other workers are classified as "natives".[6] I extracted a 1/100 random sample of natives and a 5/100 random sample of immigrants

[6] This classification implies that persons born abroad of American parents and persons born in a US possession are classified as natives.

from each of the two decennial Censuses.[7] The analysis is restricted to salaried men who do not reside in group quarters.[8]

I use these Census extracts to construct data files that attempt to match specific immigrant groups between the 1980 and 1990 Census. To analyse the impact of residential segregation on economic assimilation, I use the metropolitan area as the geographic unit of analysis. All of the workers who do not reside in one of the identifiable metropolitan areas in either Census are omitted from the analysis. In addition, I restrict the sample to the group of metropolitan areas that can be matched across Censuses.

Define a particular immigrant group as the sample of foreign-born workers who were born in country *i*, live in metropolitan area *j*, and arrived in the US in calendar year *k*. I use the 1980 Census to calculate the average log hourly wage earned by workers aged 18-54 in cell (*i*, *j*, *k*). Similarly, I use the 1990 Census to calculate the average log wage received by the same group of workers (who are now aged 28 to 64) ten years later. All wages are deflated to 1989 dollars by using the Consumer Price Index. I also restrict the analysis to the 90 largest national origin groups in the US so that there are a sufficiently large number of observations in most cells to calculate the mean log wage.[9] These national origin groups contain over 90 per cent of the immigrants who entered the US between 1960 and 1980. Finally, the year-of-migration cohorts indexed by *k* are: immigrants who entered the country between 1975 and 1979; between 1970 and 1974; between 1965 and 1969; between 1960 and 1964; between 1950 and 1959, and before 1950.

Table 1 shows the rate of wage growth between 1980 and 1990 for selected (*i*, *j*, *k*) cells. There is a great deal of dispersion in these data, suggesting that the rate of economic assimilation (as defined in this paper) probably varies across immigrant cohorts who were born in the same country, but who reside in different metropolitan areas. Consider, for example, the cohort of immigrants who entered the country between 1970 and 1979. The wage of the cohort of Mexican

[7] The Public Use Sample of the 1990 Census is not a random sample of the population. I used the 1990 sampling weights in all the calculations.

[8] The study omits the group of self-employed workers because the income reported by these workers is not comparable to the earnings information reported by the salaried men who make up the bulk of the data. In preliminary tabulations, I included the group of self-employed men in the data extracts. The inclusion of the self-employed sample did not alter the qualitative nature of the results.

[9] See the appendix for a list of the 90 national origin groups.

immigrants who entered the US at that time grew by 25 per cent over the subsequent decade if the immigrants settled in Los Angeles, by 14.8 per cent if they settled in Chicago, and by 29.8 per cent if they settled in San Francisco. Similarly, the wage growth of Korean immigrants who entered the US in the 1970s was 28.8 per cent if they settled in Anaheim, 39.9 per cent if they settled in Los Angeles, and 1.7 per cent if they settled in Chicago. Obviously, part of these within-group differences in the rate of wage growth may be accounted by regional variation in demand shifts. The empirical analysis presented below, however, shows that the within-group differences remain even after the regional variation in demand shifts has been netted out.

Table 1. Log wage growth in 1980-1990, for selected national origin groups and metropolitan areas (immigrant cohort arrived in 1970-1979)

	National origin group							
Metrop. area	Canada	China	Cuba	Dom. Repub.	Haiti	Korea	Mexico	Philip-pines
Anaheim	.686 (18)	.342 (11)	--	--	--	.288 (44)	.266 (552)	.604 (19)
Chicago	.152 (29)	-.231 (19)	.409 (8)	-1.494 (4)	.381 (6)	.017 (86)	.148 (979)	.207 (130)
Dallas	-.057 (16)	-1.244 (9)	--	--	--	-.220 (15)	.131 (368)	1.114 (4)
Houston	-.064 (22)	.040 (24)	.781 (2)	--	--	-.650 (16)	.064 (744)	.464 (12)
Los Angeles	.159 (46)	.209 (103)	.421 (19)	--	2.406 (2)	.399 (265)	.250 (3437)	.351 (332)
Miami	.817 (8)	-.642 (2)	.230 (173)	.235 (17)	.415 (108)	--	.231 (7)	.245 (2)
New York	.075 (26)	.120 (236)	.526 (19)	.362 (380)	.461 (163)	-.030 (109)	.109 (59)	.455 (86)
Philadel-phia	.308 (13)	-.551 (7)	--	.185 (1)	-.022 (3)	.143 (37)	1.243 (11)	.741 (20)
San Di-ego	.160 (9)	-.106 (10)	--	--	--	.589 (9)	.213 (250)	.225 (45)
San Francisco	.524 (24)	.413 (155)	--	1.842 (1)	--	.245 (38)	.298 (206)	.235 (267)

Notes: The cell's sample size is reported in parentheses.

It is well known that different national origin groups in the US also tend to settle in different areas.[10] Initially I will use an exposure measure of segregation defined by:[11]

$$\text{Exposure Index} = \frac{N_{ij}}{N_j}, \tag{1}$$

where N_{ij} gives the total number of persons who were born in country i and live in metropolitan area j as of 1980; and N_j gives the total number of persons (including natives) who live in metropolitan area j as if 1980. The counts N_{ij} and N_j are calculated using the *entire* population of persons aged 18-64 who were enumerated by the 1980 Census in metropolitan area j, regardless of their work status or gender. Note also that the measure of exposure is calculated within each (i, j) cell, and hence aggregates across different year-of-arrival immigrant cohorts. The exposure index, therefore, simply gives the fraction of the metropolitan area's adult-age population that belongs to the particular national origin group.

The top panel of Table 2 shows that there is a great deal of variation in the exposure index. For example, 11 per cent of the population of Los Angeles is of Mexican origin, but only 3 per cent of the population in Chicago and .1 per cent of the population in New York are of Mexican origin. Similarly, 26.7 per cent of the population of Miami is of Cuban origin, as compared to .6 per cent of the population of Los Angeles and .9 per cent of the population of New York. Note that different national origin groups tend to cluster in different metropolitan areas in the US. It is this geographic variation that permits the type of empirical analysis that will be carried out below.

I will also use an index of "relative clustering" to measure residential segregation. This relative measure deflates the exposure index in equation (1) by the fraction of the US population that belongs to the particular national origin group. In particular, define:

[10] Cutler, Glaeser, and Vigdor (1999) present a detailed analysis of the trends in residential segregation in the immigrant population.

[11] See Cutler and Glaeser (1997) for a good discussion of the various measures of segregation.

$$\text{Relative Clustering Index} = \frac{N_{ij}/N_j}{N_i/N}, \tag{2}$$

where N_i gives the total number of persons who were born in country *i*; and N gives the total number of persons in the US.[12] As before, the relative clustering index is calculated using the 1980 Census data. Note that the relative clustering index in equation (2) equals one when the fraction of type-*i* immigrants who live in metropolitan area *j* is the same as the fraction of type-*i* immigrants in the entire population of the US. Immigrants and natives are, in effect, "balanced out" in metropolitan area *j* in equal proportions. The relative clustering index exceeds one if the particular national origin group is over-represented in the particular metropolitan area, and is less than one if the group is under-represented.

Not surprisingly, the bottom panel of Table 2 shows that there is a great deal of variation in the relative clustering index across metropolitan areas. The index for Mexican immigrants, for instance, takes on a value of 7.4 in Los Angeles, 2.0 in Chicago, .1 in New York, and .2 in Miami. In contrast, the relative clustering index for Cuban immigrants takes on a value of 1.3 in Los Angeles, .5 in Chicago, 1.8 in New York, and 55.4 in Miami. The key insight is again quite clear: different national origin groups tend to cluster in different cities.

[12] The totals N_i and N are calculated in the sample of persons who live in the metropolitan areas used in the analysis.

Table 2. Indices of residential segregation in 1980, for selected national origin groups and metropolitan areas

	National origin group							
Metrop. Area	**Canada**	**China**	**Cuba**	**Dom. Repub.**	**Haiti**	**Korea**	**Mexico**	**Philippines**
Exposure index(× 100):								
Anaheim	1.256	.330	.235	.000	.000	.461	5.174	.428
Chicago	.252	.171	.253	.024	.046	.278	2.960	.590
Dallas	.184	.086	.118	.000	.010	.104	2.056	.110
Houston	.205	.253	.224	.013	.000	.119	4.032	.185
Los Angeles	.849	.564	.613	.016	.012	.808	10.966	1.168
Miami	.509	.080	26.729	.549	1.330	.059	.262	.104
New York	.245	.950	.872	1.881	.811	.324	.128	.375
Philadelphia	.171	.102	.081	.017	.018	.182	.033	.143
San Diego	.887	.167	.046	.000	.000	.119	5.253	2.026
San Fran.	.708	2.030	.128	.004	.000	.324	1.957	2.414
Relative clustering index:								
Anaheim	2.895	1.422	.488	.000	.000	2.423	3.475	1.171
Chicago	.582	.735	.525	.170	.578	1.464	1.988	1.615
Dallas	.424	.372	.244	.000	.128	.548	1.381	.301
Houston	.472	1.092	.465	.090	.000	.624	2.708	.506
Los Angeles	1.957	2.432	1.270	.111	.150	4.249	7.365	3.196
Miami	1.174	.345	55.412	3.850	16.823	.310	.176	.284
New York	.564	4.093	1.808	13.179	10.261	1.706	.086	1.025
Philadelphia	.394	.439	.168	.120	.225	.959	.022	.392
San Diego	2.044	.720	.095	.000	.000	.628	3.528	5.544
San Franc.	1.632	8.747	.265	.028	.000	1.704	1.314	6.605

4. Regression analysis

As I argued earlier, there is likely to be a link between the economic mobility of immigrants and the clustering of immigrants in particular geographic areas, although the sign of the expected correlation cannot be determined from theory. I investigate the empirical nature of this

link by stacking the (i, j, k) cells across groups and estimating the regression model:

$$\Delta \log w_{ijk} = \alpha \log w_{ijk}(0) + \beta X_{ijk} + \delta S_{ij} + v_i + \omega_j + \lambda_k + \varepsilon_{ijk}, \qquad (3)$$

where $\Delta \log w_{ijk}$ gives the change in the average log wage experienced by cell (i, j, k) in the 1980-1990 period; $w_{ijk}(0)$ gives the "initial" wage for that cell in 1980; X_{ijk} is a vector of standardising variables (described below); S_{ij} is a measure of residential segregation (either the exposure index or the relative clustering index); and v_i, ω_j, and λ_k are vectors of fixed effects controlling for the group's national origin, metropolitan area of residence, and year of migration, respectively. In estimating equation (3), I weigh each observation by the size of the (i, j, k) cell in the 1980 Census and correct the standard errors for sample clustering.

The regression specification in equation (2) has a number of important properties. First, note that the regression resembles the typical "convergence" model estimated in the cross-country growth literature (Barro, 1991; Mankiw, Romer, and Weil, 1992). The coefficient α is the convergence parameter. These convergence models have been estimated in the immigration context by Duleep and Regets (1997) and Borjas (2000). These studies show that the coefficient α is negative once the analysis controls for measures of the initial human capital stock—such as the educational attainment—of the immigrant group. The sign and magnitude of the convergence parameter α, however, is not the focus of this study. This study instead focuses on the sign and magnitude of the coefficient δ, which measures the link between economic assimilation and residential segregation. Note that because of the list of controls used in the regression model, the coefficient δ should be interpreted as the impact of residential segregation on the subsequent wage growth of immigrant groups who were statistically similar at the time of "entry," but who happened to reside in metropolitan areas where they were either less or more exposed to other immigrants who share the *same* national origin. It is possible that there might be cross-group effects (particularly if different national origin groups in a particular metropolitan area share a common language or culture). This study, however, does not explore the existence of these cross-group effects.

The regression model in equation (3) includes various vectors of fixed effects. First, the regression includes dummy variables indicating the cell's year of migration. This vector of dummy variables indicates if the immigrant group arrived between 1975 and 1979, 1970 and 1974, 1965 and 1969, 1960 and 1964, 1950 and 1959, and before 1950. These year-of-migration fixed effects control for the fact that the rate of wage growth experienced by an immigrant group will likely depend on the group's position in the assimilation-earnings profile—with the rate of economic assimilation probably declining as the group accumulates more labour market experience in the US. It is also possible that the impact of residential segregation on economic assimilation (i.e. the parameter δ) might differ for "new" and "older" immigrants. This possibility is explored below.

The regression model also includes a vector of metropolitan area fixed effects. These geographic fixed effects allow for the possibility that wages in some metropolitan areas are growing faster than in others, either because of cost-of-living differences or because labour demand is growing at a different rate in different localities. The metropolitan area fixed effects, therefore, net out any region-specific wage shifts that are likely to affect all immigrant groups residing in that locality.

Finally, the regression includes national origin fixed effects. As noted earlier, the analysis is restricted to the 90 largest national origin groups that make up the immigrant population. By including dummy variables indicating the national origin of the particular (i, j, k) cell, the regression, in effect, helps to isolate the impact of different levels of residential segregation on the *same* national origin group. In other words, the impact of residential segregation on economic mobility is being identified from within-group variation, taking advantage of the fact that members of the same national origin group choose to reside in different metropolitan areas. This methodology raises the obvious issue of endogeneity in the residential location of immigrants. After all, immigrants will likely move to metropolitan areas where they face better economic (and cultural) opportunities. I will discuss the bias introduced by the endogeneity of residential location below.

Table 3 presents the coefficient vector (α, δ) estimated from various specifications of the regression model in (3). The vector of standardising variables X in all of the regressions controls for the age and educational attainment distributions of workers in the (i, j, k) cell. The list of controls include the fraction of workers in the cell who are 25-

34 years old, 35-44 years old, and 45-54 years old; and the fraction of workers who have 8 or fewer years of schooling, 9 to 11 years, 12 years, 13 to 15 years, and at least 16 years. The first panel of the table reports the coefficients estimated using the exposure index measure of residential segregation. Note that the convergence coefficient (α) is negative and quite significant, indicating that immigrant wages—holding initial conditions constant—tend to converge. More interestingly, the estimated impact of ethnic residential segregation is consistently negative and significant, regardless of which vector of fixed effects is included in the regression. In the most complete specification reported in column 4—the specification that includes both national-origin and metropolitan-area fixed effects—the estimated δ is -.369 (with a standard error of .13).

To evaluate the numerical importance of residential segregation, it is instructive to consider a simple simulation of the model. In particular, consider the typical Mexican immigrant living in Los Angeles, where the exposure index takes on a value of .110 (indicating that 11 per cent of the population of the Los Angeles metropolitan area is of Mexican origin). His rate of wage growth would have increased by 4 percentage points if this worker had chosen to live in New York, where only .1 per cent of the population is of Mexican origin. Residential segregation, therefore, seems to have a sizeable adverse impact on economic opportunities. Moreover, it is important to note that by including metropolitan area fixed effects this simulation nets out any influence that living in high-wage or high-demand regions might have on wage growth, and that by including country-of-origin fixed effects the simulated impact is calculated by effectively comparing the wage growth experienced by Mexican immigrants who live in different parts of the country.

It is worth investigating if the results are sensitive to the way in which residential segregation is measured. It turns out, however, that I obtain the same general pattern of results when I use the relative clustering index given in equation (2) as the measure of residential segregation. These results are presented in the second panel of the table. It is evident that residential segregation has a consistently negative and significant impact on economic assimilation. In the specification reported in column 4, the estimated δ is -.001 (with a standard error of .0005).

Table 3. Impact of residential segregation on economic assimilation

	Regression			
	(1)	**(2)**	**(3)**	**(4)**
1. All workers				
Initial log wage (1980)	-.721	-.808	-.784	-.886
	(.023)	(.017)	(.024)	(.015)
Exposure index	-.913	-.726	-.462	-.369
	(.187)	(.220)	(.159)	(.130)
2. All workers				
Initial log wage	-.692	-.794	-.784	-.886
	(.026)	(.020)	(.024)	(.015)
Relative clustering index	-.0012	-.0021	-.0013	-.0010
	(.0011)	(.0006)	(.0006)	(.0005)
3. Stayer sample				
Initial log wage	-.717	-.802	-.778	-.881
	(.025)	(.018)	(.026)	(.016)
Exposure index	-.908	-.734	-.489	-.416
	(.192)	(.220)	(.163)	(.139)
4. Stayer sample				
Initial log wage	-.686	-.787	-.778	-.879
	(.028)	(.022)	(.026)	(.016)
Relative clustering index	-.0012	-.0020	-.0014	-.0009
	(.0010)	(.0006)	(.0006)	(.0005)
Includes metropolitan area fixed effects	No	No	Yes	Yes
Includes country-of-origin fixed effects	No	Yes	No	Yes

Notes: Standard errors are reported in parentheses and are corrected for the clustering of immigrant cohorts within metropolitan areas. The regressions are weighted by the 1980 sample size of the cell. The regressions in panels 1 and 2 have 9,160 observations; the regressions in panels 3 and 4 have 8,654 observations.

The regression coefficients tend to indicate that the impact of ethnic segregation on assimilation is smaller when I use the relative clustering index as a measure of segregation. Consider, in particular, the same simulation conducted earlier. The typical Mexican immigrant living in Los Angeles faces a relative clustering index of 7.4 (so there

are about 7.4 times as many Mexicans in Los Angeles as one would have expected if the Mexican population had distributed itself "randomly" across the US). If this Mexican immigrant had lived in New York, where the relative clustering index takes on a value of only .1, his wage growth would have increased by about one percentage point. The relative clustering index thus implies a smaller numerical impact of residential segregation on economic assimilation, although the qualitative impact is similar.

There are a number of problems with the type of data that I use in the empirical analysis. One key problem is that the Census data does now allow for the correct tracking of workers in the (i, j, k) cell across Censuses. In particular, the tracking of specific cohorts across Censuses, an approach that is frequently practised and seemingly sensible at the national level, is less sensible and much less convincing when the cohort is tracked within a particular metropolitan area. For instance, the Mexican immigrants who arrived in the late 1970s and lived initially in Los Angeles in 1980 may have moved to Chicago by 1990. Hence the dependent variable in equation (3), which gives the rate of wage growth experienced by Mexican immigrants who arrived in the late 1970s and who lived in Los Angeles in both 1980 and 1990, does not measure the true rate of economic assimilation experienced by the relevant cell. Because the measurement error created by the internal migration of immigrants is in the dependent variable, there may be no bias in the resulting coefficients as long as the errors are classical (uncorrelated with both the rate of wage growth and with the other variables of the model). It is probable, however, that internal migration flows of immigrants, to the extent that they exist, are partly determined by wage differentials across labour markets in the US and hence the estimated δs may be biased.

There are two possible ways of evaluating the importance of this bias in generating the results presented in the first two rows of Table 3. The first is simply to examine if the internal migration of immigrants is strongly correlated with geographic differences in economic opportunities across cities in the US. Although a full examination of this question is beyond the scope of this paper, Bartel (1989) and Bartel and Koch (1991) report that immigrant internal migration is relatively insensitive to regional wage differentials in the US. The available evidence, therefore, suggests that equation (3) may have "roughly" classical measurement error in the dependent variable.

The measurement error problem can also be addressed more directly by attempting to "net out" some of the bias. In particular, the 1990 Census data provides information on whether a particular worker migrated across metropolitan areas between 1985 and 1990. One can then calculate the 1990 mean log wage for the (*i*, *j*, *k*) cell in the sample of "stayers," the immigrants who remained in the same metropolitan area between 1985 and 1990. The rate of wage growth experienced by the particular immigrant group between 1980 and 1990 can then be calculated by differencing the 1990 mean log wage of stayers in the (*i*, *j*, *k*) cell and the 1980 mean log wage of workers in that cell. Obviously, this approach does not completely solve the problem because some of the so-called stayers could have migrated across metropolitan areas in the 1980-1984 period, so that there is still some error in the dependent variable. Unfortunately, the 1990 Census provides no information on internal migration flows during the first half of the 1980s.

The regression coefficients reported in the last two panels of Table 3, which use the rate of wage growth calculated by using the 1990 sample of stayers, show that there is little change in the *quantitative* nature of the results. Consider, for example, the coefficient estimated in column 4, the most complete specification, and using the exposure index of residential segregation. In the top panel, which ignores the problem created by the measurement error, the estimated coefficient is –.369, while in the third panel, which uses the sample of stayers to partially correct for the problem, the estimated coefficient is –.416. In sum, the fact that specific cohorts of immigrants cannot be correctly tracked within a metropolitan area seems to generate little bias in the results. As a result, this difficult measurement problem is ignored in the remainder of the paper.

To evaluate the sensitivity of the results across demographic groups, I expanded the regression specification to allow for the impact of residential segregation on economic assimilation to vary across education groups. In particular, I interacted the measure of residential segregation with a variable indicating the mean educational attainment of the (*i*, *j*, *k*) cell as of 1980. In particular, define a dummy variable E_{ijk} to be equal to 1 if the mean educational attainment of the workers in the cell is at least 12 years, and 0 otherwise. The expanded regression model is then given by:

$$\Delta \log w_{ijk} = \alpha \log w_{ijk}(0) + \beta X_{ijk} + \delta_0 S_{ij} + \delta_1 (S_{ij} \times E_{ijk}) + \\ + v_i + \omega_j + \lambda_k + \varepsilon_{ijk}, \quad (4)$$

where the vector X now includes not only the age and educational distribution of the workers, but the dummy variable E_{ijk} as well. The coefficient δ_0 measures the impact of residential segregation on the economic assimilation of less-educated workers, while the coefficient δ_1 measures the impact of residential segregation on highly educated workers relative to the impact on less educated workers. Most observers of the immigrant experience would probably suspect that the coefficient δ_1 is positive, because the adverse impact of residential segregation should be most pronounced among less educated workers. It is the less educated workers, after all, who may be most constrained by the embrace of the enclave, and who may be least adept at finding the economic and job opportunities that lie outside the ethnic enclave.

Table 4 reports the estimated coefficients δ_0 and δ_1. The evidence suggests that the adverse impact of residential segregation is much stronger for the least-educated workers—and, in fact, in some of the specifications the adverse impact of residential segregation is found only for the least educated workers. For example, in the specification reported in column 4 (which controls for both national-origin and metropolitan-area fixed effects), the coefficient indicating the link between wage growth and residential segregation for less-educated workers is -.496 (with a standard error of .13), while the coefficient measuring the link for highly educated workers is effectively zero. It seems clear, therefore, that the burden of residential segregation falls mostly on less educated workers.

It is also of interest to examine if the link between residential segregation and economic assimilation depends on the stage of the assimilation process where the immigrant group is. In particular, is the harmful impact of residential segregation largest for newly arrived immigrants and weakest for immigrants who have resided in the US for many years?

Table 4. Differential impact of residential segregation across education groups

	Regression			
	(1)	**(2)**	**(3)**	**(4)**
1. Using exposure index:				
Exposure index	-1.019 (.208)	-.815 (.249)	-.543 (.166)	-.496 (.130)
Index × high education dummy	.486 (.206)	.452 (.185)	.403 (.123)	.542 (.080)
2. Using relative clustering index:				
Relative clustering index	-.0009 (.0011)	-.0022 (.0007)	-.0012 (.0006)	-.0014 (.0006)
Index × high education dummy	-.0021 (.0017)	.0007 (.0011)	.0001 (.0011)	.0018 (.0009)
Includes metropolitan area fixed effects	No	No	Yes	Yes
Includes country-of-origin fixed effects	No	Yes	No	Yes

Notes: Standard errors are reported in parentheses and are corrected for the clustering of immigrant cohorts within metropolitan areas. The regressions are weighted by the 1980 sample size of the cell. The regressions have 9,160 observations.

I examine this issue by interacting the measure of residential segregation with the vector of variables that indicate how many years the immigrant group has resided in the US. Table 5 reports the results from this specification of the model. For the most part, the data suggest that residential segregation has the largest adverse impact on the sample of newly arrived immigrants—although the nature of the results sometimes depends on the exact specification of the regression model. Nevertheless, in the preferred specification reported in column 4 (i.e. the specification that includes fixed effects for both national origin and metropolitan area), the coefficient of the exposure index for the most recent immigrants is -.843 (with a standard error of .18), and the coefficients for the interactions between the exposure index and long-time residence in the US are consistently positive and significant. Therefore, the evidence indicates that the impact of resi-

dential segregation on economic assimilation is most harmful for newly arrived immigrants.

Table 5. Differential impact of residential segregation at different points of the assimilation process

	Regression			
	(1)	**(2)**	**(3)**	**(4)**
1. Using the exposure index:				
Exposure index	-1.100 (.265)	-.936 (.277)	-.863 (.207)	-.843 (.180)
Index × live in US 5-10 years	.230 (.131)	.125 (.148)	.402 (.112)	.279 (.104)
Index × live in US 10-20 years	.322 (.167)	.300 (.124)	.537 (.124)	.615 (.147)
Index × live in US 20+ years	-.186 (.171)	.233 (.163)	.259 (.170)	.752 (.287)
2. Using the relative clustering index:				
Relative clustering index	-.0009 (.0009)	-.0023 (.0008)	-.0022 (.0009)	-.0019 (.0008)
Index × live in US 5-10 years	.0005 (.0005)	.0006 (.0004)	.0013 (.0004)	.0010 (.0004)
Index × live in US 10-20 years	-.0006 (.0005)	.0004 (.0004)	.0012 (.0006)	.0013 (.0006)
Index × live in US 20+ years	-.0020 (.0008)	-.0005 (.0004)	-.0004 (.0004)	.0003 (.0006)
Includes metropolitan area fixed effects	No	No	Yes	Yes
Includes country-of-origin fixed effects	No	Yes	No	Yes

Notes: Standard errors are reported in parentheses and are corrected for the clustering of immigrant cohorts within metropolitan areas. The regressions are weighted by the 1980 sample size of the cell. The regressions have 9,160 observations.

Finally, as noted above, the results summarised in this section might be biased because the residential choices of immigrants are likely to be endogenous. In an important sense, the empirical analysis presented in this paper is similar to that presented in studies that examine the impact of neighbourhood effects on economic outcomes (see Jencks and Meyer, 1990, for a survey). This paper simply isolates a particular type of neighbourhood effect, the presence of immigrants

who share the worker's national origin background. There is a heated debate as to whether the results in the neighbourhoods effects literature—which tend to show that neighbourhood characteristics matter—are spurious. In other words, the measured impacts may simply reflect the fact that the same unobserved factors that lead to particular location choices also lead to particular socioeconomic outcomes. For example, Evans, Oates, and Schwab (1992) show that endogenising the "peer group" effects greatly weakens the relationship between outcomes and neighbourhood characteristics. The problem has been difficult to resolve because there are few valid instruments that can help identify the relevant parameters.

It is unlikely that immigrants randomly choose which metropolitan areas to reside in when they enter the US. Most likely, their location decision will depend both on the presence of ethnic enclaves, which can transmit a great deal of information about job opportunities as well as provide job contacts, as well as on the economic opportunities available in different areas. To the extent that immigrants choose to live in high-wage areas, however, the endogeneity of residential choice would then suggest that the impact of residential segregation on economic assimilation is probably *more negative* than the estimates presented in this section. Suppose that high wage areas—and, in particular, areas that have fast-growing wages—are the areas that attract immigrants. Ethnic enclaves would then form in these areas, creating a spurious positive correlation between any measure of ethnic residential segregation and subsequent wage growth. This positive correlation would attenuate, rather than magnify, the adverse impacts of residential segregation documented in this paper.

The endogeneity issue can be addressed more directly by focusing on the sample of immigrants who entered the country as refugees. Refugees typically have much less choice in deciding where to live in the US (at least at the time of their initial entry). The State Department assigns individual refugees to "sponsoring" private voluntary agencies that provide a variety of social services, including initial resettlement in the US (US Department of State, 2000). These private agencies include Catholic Social Services, the Hebrew Immigrant Aid Society, the International Rescue Committee, and Lutheran Immigration and Refugee Services. The geographic location of the refugees' resettlement is determined by the sponsoring agencies, and depends partly on the match between a refugee's socioeconomic background and the availability of jobs and services in particular localities—as

perceived by the sponsoring agency. Unfortunately, the US Census does not contain any information on the type of visa used by a particular person to enter the US. To approximate the refugee population, therefore, I classify all immigrants who originate in the main refugee-sending countries as refugees (all other immigrants are classified as non-refugees).[13]

Table 6. Differential impact of residential segregation, by refugee status

	Regression			
	(1)	**(2)**	**(3)**	**(4)**
1. Refugees:				
Using exposure index	-.913 (.074)	-.786 (.082)	-1.004 (.987)	-.513 (1.022)
Using relative clustering index	-.0045 (.0004)	-.0038 (.0003)	-.0050 (.0044)	-.0036 (.0044)
2. Non-refugees:				
Using exposure index	-1.171 (.374)	-.722 (.449)	-1.172 (.308)	-.788 (.233)
Using relative clustering index	.0001 (.0006)	-.0012 (.0006)	-.0022 (.0012)	-.0011 (.0007)
Includes metropolitan area fixed effects	No	No	Yes	Yes
Includes country-of-origin fixed effects	No	Yes	No	Yes

Notes: Standard errors are reported in parentheses and are corrected for the clustering of immigrant cohorts within metropolitan areas. The regressions are weighted by the 1980 sample size of the cell. The regressions in the refugee sample have 1,223 observations; the regressions in the non-refugee sample have 7,937 observations.

Table 6 reports the estimate of the coefficient δ when equation (3) is estimated separately in the samples of refugees and non-refugees. It is clear that residential segregation has a negative impact on assimilation in the refugee sample, although the regression coefficient be-

[13] Thirteen countries account for 90 per cent of the refugees awarded permanent residence status during the 1970s and 1980s: Afghanistan, Bulgaria, Cambodia, Cuba, Czechoslovakia, Ethiopia, Hungary, Laos, Poland, Romania, Thailand, the former USSR and Vietnam. See Edin and Fredriksson (2000) for a related analysis in the Swedish context.

comes insignificant in column 4 (which includes both the country-of-origin and metropolitan-area fixed effects). The standard errors estimated for refugees are large partly because of the small sample size of the refugee sample and because refugees tend to concentrate in relatively fewer metropolitan areas.[14]

4.1. Residential segregation and shifts in immigrant supply

Throughout the empirical study I have isolated the impact of ethnic clustering—measured as of 1980—on the wage growth experienced by immigrant men in the 1980-1990 period, and have attributed the large negative coefficients to the adverse influence of ethnic residential segregation. It is possible, however, that the measure of residential segregation may be capturing the impact of *additional* immigration into the metropolitan area on the demand for the pre-existing stock of immigrant workers.

Consider the following conceptual experiment to illustrate this alternative explanation of the evidence. It is well known that immigrants entered the US in the post-1970 period through a limited set of gateway cities, such as New York and Los Angeles, and that there has been little change in the set of gateway cities in the past few decades. As a result, metropolitan areas that had a large immigrant stock at the end of the 1970s could reasonably be expected to have been the recipients of large immigrant flows in the 1980s. The entry of large numbers of immigrants in the 1980s would shift out the supply curve in the metropolitan area, and reduce the earnings of the pre-existing immigrants (assuming that the two immigrant waves are highly substitutable in production). The 1980 measure of residential segregation, therefore, could be proxying for the supply shift that occurred in the 1980s, and its negative impact may have nothing to do with residen-

[14] In 1980, 59.9 per cent of refugees are clustered in the five metropolitan areas with the largest refugee populations. In contrast, 48.8 per cent of non-refugees are clustered in the five metropolitan areas with the largest non-refugee populations. It is also worth noting that the results reported for the refugee sample are very sensitive to the inclusion of a particular group of refugees, Cuban immigrants, who overwhelmingly end up residing in the Miami metropolitan area (52 per cent of Cuban immigrants live in Miami). If one were to exclude this group from the regressions reported in column 4 of Table 6, the coefficient of the exposure index would be -.171 (with a standard error of .052), and the coefficient of the relative clustering index would be -.024 (.006). In other words, the impact of residential segregation on assimilation would be strongly negative in the refugee sample once the somewhat anomalous location decisions of Cuban refugees were taken into account.

tial segregation, but may simply be related to the (negative) labour demand elasticity for immigrant workers.

This hypothesis is plausible because many studies have documented that the supply shifts induced by immigration have the largest negative impact on the wage of the pre-existing immigrant stock (see Borjas, 1987; Altonji and Card, 1991; and LaLonde and Topel, 1991). The empirical evidence, therefore, suggests that the analysis must net out the impact of shifts along the labour demand curve before the evidence presented in the previous section can be interpreted as having isolated the impact of residential segregation on economic assimilation.

A simple solution to this problem would be to include into the regression model a measure of the contemporaneous immigrant supply shift that occurred in the metropolitan area for the particular group of workers. I define this supply shift as:

$$\text{Supply shift} = \frac{M_{ij}}{N_{ij}}, \tag{5}$$

where M_{ij} gives the number of immigrants born in country i who moved to metropolitan area j between 1980 and 1990, and N_{ij} gives the number of immigrants born in country i who resided in metropolitan area j in 1980.[15] The supply shift variable, therefore, gives the percentage change in the supply of type-i immigrants in the metropolitan area during the 1980s.

I reestimated the regression models after adding the supply shift variable as a regressor. Table 7 summarises the key results. The evidence clearly shows that there are two distinct ways in which immigration of workers in a particular national origin group to a metropolitan area affects the wages of immigrants in that national origin group. First, the coefficient of the supply shift variable is strongly negative, consistent with previous evidence. In the specification reported in column 4, and using the exposure index measure of residential segregation, a doubling in the supply of a particular national origin group during the 1980s (not an uncommonly large supply shift for many of the immigrant groups in the sample) is associated with a 1 percentage point reduction in the wage growth experienced by the pre-existing

[15] The variable M_{ij} is calculated using the 1990 Census.

stock of immigrants in that group. Put differently, the labour demand curve for narrowly defined immigrant groups is downward sloping, but the numerical impact of a sizeable supply shift does not seem to be very large.

Table 7. Residential segregation and shifts in supply

	Regression			
	(1)	**(2)**	**(3)**	**(4)**
1. Using exposure index				
Exposure index	-.960	-.738	-.607	-.409
	(.192)	(.220)	(.159)	(.131)
Supply shift	-.031	-.010	-.032	-.009
	(.006)	(.004)	(.006)	(.003)
2. Using relative clustering index:				
Relative clustering index	-.0014	-.0021	-.0016	-.0011
	(.0011)	(.0006)	(.0006)	(.0005)
Supply shift	-.028	-.007	-.030	-.008
	(.005)	(.004)	(.006)	(.003)
Includes metropolitan area fixed effects	No	No	Yes	Yes
Includes country-of-origin fixed effects	No	Yes	No	Yes

Notes: Standard errors are reported in parentheses and are corrected for the clustering of immigrant cohorts within metropolitan areas. The regressions are weighted by the 1980 sample size of the cell. The regressions have 8,645 observations.

The second effect evident in the table is the net impact of residential segregation. Even after controlling for the supply shift, immigrants who lived in metropolitan areas where there was a large ethnic enclave *at the beginning of the period* experience less economic assimilation during the subsequent decade. Moreover, the comparison of Tables 3 and 7 shows that the inclusion of the supply shift variable barely affects the numerical impact of residential segregation on economic assimilation.

4.2. Residential segregation and human capital investments

Up to this point, the paper has explored how residential segregation affects a particular labour market outcome—the rate of wage growth by immigrant groups in the US, holding initial conditions constant.

The adverse impact of residential segregation on this particular measure of economic assimilation suggests that the clustering of particular ethnic groups into a limited number of geographic areas is likely to alter the incentives for human capital accumulation. In this section, I examine more directly the extent to which residential segregation affects these "fundamentals" by considering the link between residential segregation and two measures of human capital: educational attainment and English language proficiency.

It seems that many immigrants return to formal schooling after entering the US. Betts and Lofstrom (2000, p. 58) report that in 1990 between 10 and 15 per cent of immigrants in their 30s were enrolled in formal schooling, as compared to 5 to 9 per cent of comparably aged natives. Consider the regression model:

$$\Delta H_{ijk} = \alpha H_{ijk}(0) + \beta X_{ijk} + \delta S_{ij} + v_i + \omega_j + \lambda_k + \varepsilon_{ijk}, \qquad (6)$$

where $H_{ijk}(0)$ gives the educational attainment of the (i, j, k) cell as of 1980, and ΔH_{ijk} gives the change in educational attainment experienced by that cell in the 1980-1990 period. The standardising vector X now contains only the variables that adjust for the age distribution of workers in the cell. The first panel of Table 8 reports the relevant regression coefficients from the regression model specified in equation (6). It is evident that the educational attainment of immigrants is greatly affected by both measures of residential segregation. In the specification reported in column 4 (which includes both national-origin and metropolitan-area fixed effects), the coefficient of the exposure index is –2.28 (with a standard error of .78). To illustrate the numerical impact implied by this coefficient, consider the simulation conducted earlier. The typical Mexican immigrant living in Los Angeles (where the exposure index is 11) would have obtained .25 more years of schooling during the 1980s if he had lived in New York (where the exposure index is only .1). Residential segregation, therefore, has an important effect on the incentives for immigrant groups to further their education—and thereby improve the economic opportunities they face in the US labour market.

The link between a second form of human capital investment—namely, becoming proficient in the English language—and ethnic enclaves has received a great deal of attention in the literature. Lazear (1999), for example, shows that the exposure index of residential segregation used in this paper has a negative impact on English language

proficiency in the *cross-section*. For example, Mexican immigrants who lived in Los Angeles in 1990 were less likely to be fluent in English than Mexicans who lived in New York.

Table 8. Residential segregation and human capital investments

	Regression			
	(1)	**(2)**	**(3)**	**(4)**
1. Educational Attainment				
Using exposure index	-3.216	-1.534	-.6486	-2.280
	(1.924)	(.897)	(1.425)	(.780)
Using relative clustering index	-.0039	-.0105	-.0080	-.0130
	(.0022)	(.0025)	(.0025)	(.0033)
2. English language proficiency				
Using exposure index	-.400	-.315	-.569	-.292
	(.138)	(.076)	(.103)	(.065)
Using relative clustering index	-.0007	-.0008	-.0012	-.0012
	(.0002)	(.0002)	(.0003)	(.0003)
Includes metropolitan area fixed effects	No	No	Yes	Yes
Includes country-of-origin fixed effects	No	Yes	No	Yes

Notes: Standard errors are reported in parentheses and are corrected for the clustering of immigrant cohorts within metropolitan areas. The regressions are weighted by the 1980 sample size of the cell. The regressions on educational attainment have 10,358 observations; the regressions on English language proficiency have 11,071 observations.

The empirical framework used in this paper allows a useful extension of Lazear's work. In particular, the regression model in equation (6) can be used to determine if the incentives to becoming English proficient in the future are affected by the fact that the immigrant now lives in an ethnic enclave. There is evidence that the economic returns to English language proficiency are lower in ethnic enclaves. McManus (1990), for example, finds that the wage gap between Hispanics who are English proficient and Hispanics who are not is 26 per cent for workers who live in a county that is only 10 per cent Hispanic, but falls to 11 per cent for workers who live in a county that is

75 per cent Hispanic. It would not be surprising, therefore, if immigrants who live in ethnic enclaves have less incentive to become proficient in English—and hence this type of human capital investment should depend negatively on ethnic residential segregation.

The second panel of Table 8 reports the relevant coefficients estimated when the human capital variable in equation (6) is defined as the fraction of immigrants who either speak English well or very well in the particular (i, j, k) cell. Residential segregation has a statistically significant negative impact on the rate with which a particular immigrant group acquires English proficiency. The numerical magnitude of the coefficient suggests that the impact of residential segregation on becoming English language proficient is important: the probability that the typical Mexican immigrant living in Los Angeles becomes English proficient during the 1980-1990 decade would have increased by 2.8 percentage points if that Mexican immigrant had lived in the New York metropolitan area instead.

5. Summary

This paper examined the link between residential segregation and economic assimilation in the immigrant population. Economic theory suggests that residential segregation may either benefit or harm immigrants. The benefits arise because the ethnic economy: provides economic and social opportunities that allow immigrant entrepreneurs to flourish, and to hire their compatriots. This would, in turn, permit many immigrant workers to escape the labour market discrimination they might otherwise have encountered in the mainstream economy. On the other hand, the enclave can become, in effect, a type of monopsonistic market, restricting the types and number of jobs available to the typical immigrant worker. Therefore, the nature of the association between ethnic enclaves and economic assimilation is, in the end, an empirical question.

The paper used the 1980 and 1990 Public Use Samples of the decennial US Census to track specific immigrant cohorts over time. The cohorts were defined by national origin, year of migration, and metropolitan area of residence. The evidence indicates that the rate of wage growth experienced by a particular immigrant group depended negatively on indices of residential segregation measuring the relative presence of the national origin group in the metropolitan area. In other words, holding initial conditions constant, immigrants who belonged to a particular ethnic group and who resided in a metropolitan

area with a large ethnic enclave experienced slower wage growth than immigrants who belonged to the same ethnic group but had little contact with their compatriots. The numerical magnitude of this correlation is significant. Consider, for instance, the typical Mexican immigrant living in Los Angeles, where 11 per cent of the population is of Mexican origin. If this immigrant had resided in New York instead, where only .1 per cent of the population is of Mexican origin, the immigrant's wage would have risen by an additional 1 to 4 percentage points over the subsequent decade.

Although the paper documents the existence of a particularly adverse effect of residential segregation, it is worth noting that this harmful economic impact may not be an important factor in the cost-benefit calculations that immigrants make when they choose their residential location. In particular, the wage losses documented in this paper could easily be outweighed by the value that immigrants attach to residing in areas where they can associate with persons who share a common language and culture.[16] In other words, it may be that immigrants are fully aware of the economic disadvantages that ethnic enclaves impart on their residents. Nevertheless, many immigrants are willing to pay the price.

[16] Gonzalez (1998) presents an interesting discussion of how Mexican immigrants value the trade-off between the diminished economic opportunities offered by the enclave and the increased cultural amenities.

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Appendix. Countries used in the analysis

Africa:	**Americas:**	**Asia:**	**Europe:**
Cape Verde	Argentina	Afghanistan	Austria
Egypt	Barbados	Bangladesh	Azores Islands
Ethiopia	Belize	Cambodia	Belgium
Ghana	Bolivia	China	Czech
Kenya	Brazil	Hong Kong	Denmark
Liberia	Canada	India	Finland
Morocco	Chile	Indonesia	France
Nigeria	Colombia	Iran	Germany
Sierra Leone	Costa Rica	Iraq	Greece
South Africa	Cuba	Israel	Hungary
	Dom. Repub.	Japan	Ireland
	Ecuador	Jordan	Italy
Other:	El Salvador	Korea	Netherlands
Australia	Grenada	Laos	Norway
Fiji	Guatemala	Lebanon	Poland
New Zealand	Guyana	Malaysia	Portugal
Tonga	Haiti	Myanmar	Romania
Western Samoa	Honduras	Pakistan	Spain
	Jamaica	Philippines	Sweden
	Mexico	Saudi Arabia	Switzerland
	Nicaragua	Sri Lanka	UK
	Panama	Syria	USSR
	Peru	Taiwan	Yugoslavia
	Trinidad	Thailand	
	Uruguay	Turkey	
	Venezuela	Vietnam	