Occupational Enclaves and the Wage Growth of Hispanic Immigrants

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ABSTRACT

Does the concentration of recent Hispanic immigrants into occupational enclaves—jobs with large numbers of limited English speakers—restrict their wage growth? A critical view of the ethnic enclave hypothesis argues that it does: immigrants working in occupational enclaves may have less need to learn English and/or less on-the-job exposure to it, which may isolate them socially and linguistically and limit their subsequent economic mobility. On the other hand, occupational enclaves can be seen as an important stepping stone for upwardly mobile immigrants who can find work while they improve their English on the way up the economic ladder. Using longitudinal data from the 1996, 2001, and 2004 panels of the Survey of Income and Program Participation (SIPP), we test for the effect of occupational level English proficiency on wage growth. The results indicate that although occupational English level is associated with lower wages for Hispanic immigrants in the cross section, it is not associated with lower levels of wage growth. These findings demonstrate that occupational enclaves do not "trap" immigrant workers—at least on average. Instead, occupational enclaves may provide a path by which immigrants gain familiarity with the U.S. labor market.

Introduction

This study tests whether immigrants employed in occupational enclaves have lower rates of wage growth than other immigrants. Using longitudinal data, the study seeks to answer the question of whether the sheltering effect of working with workers who don't speak English reduces wage growth by preventing immigrants from achieving language proficiency. In this paper, *occupational enclaves* are defined as those occupations that have a high concentration of non-English speaking immigrants. The literature on the economic assimilation of immigrants has convincingly shown that the wages and employment opportunities of immigrants grow with the acquisition of English skills (McManus 1985; McManus et al. 1983). When immigrants arrive in the U.S., their lack of English skills coupled with their unfamiliarity with the labor market sorts them into occupations which have few English language requirements. Scholars contend linguistic concentration prevents immigrants from acquiring language skills essential for wage mobility (Chiswick and Miller 1995; 1998). Chiswick and Miller (2007) find that immigrats with limited English skills are at a disadvantage when they are employed in occupations that require English proficiency. As such, employment in occupations with high concentration of non-English speakers is seen to prevent the social assimilation of immigrants and their overall wage growth over the long term.

Given the continual influx of immigrants to new labor markets throughout the U.S., the current study tests whether the sorting of immigrants into occupational enclaves hurts their wage growth. By focusing on occupational enclaves, the paper attempts to understand whether immigrants are "trapped" in occupational enclaves or simply use these occupations to gain language and work related skills which can then be applied in mainstream labor markets. Unlike previous studies which use cross-sectional data on immigrants' labor market behaviors, the

current study uses longitudinal data to test the benefit of employment in occupational enclaves. The study uses data from the 2005 and 2006 American Community Survey and the 1996, 2001, and 2004 Panel of Survey and Income and Program Participation (SIPP) for Hispanic immigrants between the ages of 18-64. Using these sources, the study provides a longitudinal approach to understand whether occupational enclaves trap immigrant workers and prevent linguistic and social assimilation.

English Proficiency and Wages and the Ethnic Enclave

When immigrants arrive in the U.S., their employment opportunities and mobility are blocked because of the lack of English proficiency and their inability to transfer training and education from sending country to their new places of employment. Their unfamiliarity with U.S. society may initially sort immigrants into jobs and residences marked by a high concentration of immigrants and co-ethnics. By being in close proximity to co-ethnics, immigrants are able to convert their ties with others into jobs and earnings (Aguilera and Massey 2003; Massey et al. 1987). Moreover, working alongside co-ethnic bosses and employees allows immigrants the opportunity to acquire on the job skills despite English language proficiency (Waldinger and Lichter 2003). Although working in jobs with a high concentration of co-ethnics may initially help immigrants adjust to a foreign labor market, it is unclear whether working in enclave occupations has negative long-term effects and traps workers preventing linguistic assimilation. In the sections that follow, we provide a brief overview on the relationship between language proficiency and wage mobility and use the ethnic enclave debate as a framework to understand the benefits and constraints of employment in occupational enclaves.

English Acquisition and the Earnings of Immigrants

The lack of English proficiency has been shown to negatively effect the employment opportunities and wage earnings of immigrants (Kossoudji 1988; McManus 1985; McManus et al. 1983). English language acquisition is seen as vital to the long-term economic well-being of immigrants. According to the literature, there are several factors which determine English language proficiency for immigrants (See: Chiswick and Miller 2007). First, immigrants who arrive at a young age are more likely to learn English as are those who arrive with formal education from their home country. Second, English proficiency increases as immigrants spend more time in the U.S. Finally, the literature finds that English proficiency increases for immigrants when they reside outside the ethnic enclave. Thus, for scholars who study immigrant integration, the single most important factor which impedes economic mobility is linguistic concentration (Chiswick and Miller 1995; 1998). For example, Espenshade and Fu (1997) argue that immigrants who remain linguistically concentrated, marry a non-English speaker, and remain in jobs with high concentration of linguistic minorities will be unable to learn English. These studies suggest that immigrant concentration and their lack of communication with mainstream society becomes a major impediment to learning English. Although immigrants may initially sort into ethnic enclaves due to their inability to speak English, continual employment in such occupations and exposure to only immigrants who speak their mother tongue may prevent English acquisition and wage growth. This prompts us to ask whether the ethnic enclave has a negative impact on the wage growth of immigrants?

Are Ethnic Enclaves Bad?

There is a long body of literature that has examined whether ethnic enclaves are either beneficial or detrimental to the long-term economic well-being of immigrants (Sanders and Nee

1987; Zhou and Logan 1989). According to Piore (1979), the labor market is structured into a primary and secondary sector where immigrants are relegated primarily to the latter characterized by low-wages and job insecurity. After immigrants improve their human capital, whether through education or English proficiency, they can move from the secondary to primary sector where they have access to more employment security, access to training, and better wages. Wilson and Portes (1980) argue that the primary and secondary sector are not the only sectors which incorporate immigrants. Instead, they argue that the ethnic enclave provides a third form of labor market incorporation. For Cubans, they found that the ethnic enclave provides an opportunity to earn wages and receive the same return rate to past human capital when compared to immigrants employed in the primary labor market.

Since highlighting the significance of the ethnic enclave as a form of immigrant incorporation by Wilson and Portes (1980), many studies have critiqued whether the ethnic enclave provides wage mobility for immigrant groups. Sanders and Nee (1987) critique the work of Wilson and Portes because they see the ethnic enclave thesis as being only partially correct in regards to providing economic opportunities to immigrants. They caution against an over simplification of the ethnic enclave thesis and show that the main beneficiaries of this economic arrangement are the ethnic employers who hire the immigrant workers. Similarly, Zhou and Logan (1989) find that the enclave labor market is beneficial to the economic well-being of college educated workers and that there are positive returns to labor market experience and English language knowledge for workers in New York's Chinatown. However, they argue that the main beneficiaries are men because women do not receive positive benefits from working in the enclave economy. In contrast to the previous scholars, M.D.R Evans (2004) finds that in Australia linguistic enclaves actually assist immigrant workers in finding employment

opportunities. In particular, she argues that immigrant workers who do not speak the dominant language will find better employment opportunities if they are part of a linguistic enclave. However, if an immigrant belongs to a group without a strong linguistic enclave, they are much less likely to find the worst employment opportunities. Ethnic enclaves, as also shown by Bailey and Waldinger (1991), can provide two positive functions for immigrants. First, it allows immigrants to obtain employment through ethnic ties and informal contacts. Second, by working in the enclave labor market, immigrants learn important skills that they acquire by working alongside co-ethnic others.

Like the ethnic enclave debate, the current study addresses whether employment in occupational enclaves "traps" immigrants and prevents wage growth over the long term. There is a growing body of literature that examines whether working with co-ethnics penalizes the wages of immigrants (Catanzarite 2000; Catanzarite and Aguilera 2002). Although such studies have argued that immigrants employed alongside co-ethnics suffer wage penalties, it is possible that the effect is actually spurious due to the sorting of workers into certain occupations and firms due to limited English ability and limited experience with U.S. labor markets. Moreover, because this research uses cross-sectional data it cannot address the impact of changes over time such as whether the eventual acquisition of English and work related skills allows immigrants to achieve wage growth or move to better paid occupations. Chiswick et al. (2005) followed adult male immigrants in Australia for 3.5 years and found that those immigrants who acquired the most human capital—in terms of English acquisition and work experience—saw the greatest earnings growth. The following hypotheses tests the extent to which occupational enclaves affect the wage growth of immigrants in U.S. labor markets.

Hypotheses: Are occupational enclaves "bad"?

For recent immigrants, the lack of English fluency is a major constraint in the labor market. Occupational enclaves—occupations where there are a significant number of Spanish speakers—provide employment for workers with insufficient English ability. The key question is whether the sheltering effect of working with other workers who don't speak English well reduces wage growth by slowing the process of linguistic and social assimilation.

Equations 1 and 2 present this sorting argument more formally. In Equation 1, we depict log wages for immigrant i in occupation j at time t as a function of the level of occupational English proficiency:

(1) $\ln w_{ijt} = \beta_1 \text{occ-english}_j + \beta_4 English_i + \beta_3 X_i + \alpha_i + \varepsilon_{it}$

Where $occ-english_j$ is the proportion of workers with limited English in occupation j, $English_i$ is the worker's English language proficiency, X is a set of other observed individual level control variables, ε_{it} is an error term, and α_i represents fixed unobserved factors that affect wages. α_i represents traits such as ambition and skills that are not adequately measured by educational credentials, but observed by employers and rewarded in the labor market. In Equation 1, we expect $\beta_1 < 0$ and $\beta_2 > 0$.

In Equation 2, we present a simple model of occupational sorting based on English language proficiency and unobserved productivity.

(2) $\text{occ-english}_i = \eta_1 English_i + \eta_2 \alpha_i + \nu_{it}$

The benefit of an enclave occupation with lower English language requirements is that it provides employment for immigrants who are not fluent in English, hence we would expect a negative value for η_1. If occupations with lower English requirements tend to be lower skilled occupations in general, or if more skilled (or ambitious) immigrants learn English more rapidly, then we might expect to find a negative relationship between occupational English and the unobserved individual-level skills that affect wages, i.e., $\eta_2 < 0$.

Referring back to Equation 1, we can develop an intuition about how skill-based occupation sorting in Equation 2 will affect our coefficients in Equation 2. A negative correlation between the unobserved factor α_i and occupational English (as hypothesized in Equation 2) will tend to result in a downward bias on the coefficient on occupational English in Equation 1. If immigrant workers sort into low-English occupations based on their own English proficiency and other skill related factors, then regression estimates of β_1 will overstate the negative effect of working in an enclave occupation.

While cross sectional data may overstate the effect of occupational English, an alternative approach to test of the effect of enclave occupations on wages involves modeling wage growth rather than wage levels. If occupational enclaves restrict economic assimilation by delaying English language acquisition or other skills necessary for upward mobility, then this should result in a negative effect of enclave occupations on subsequent wage growth. This is depicted in Equation 3:

(3) $\Delta \ln w_{ijt} = \phi_1 \text{occ-english}_{j1} + \phi_2 \Delta X_i + \varepsilon_{it}$

Where the dependent variable is the change in wages over time, $occ-english_{i1}$ is the level of occupational English in the first wave of data, and ΔX_i represents changes in relevant control variables. If working in a enclave occupation constrains wage growth, then we would expect that $\phi_1 < 0$. In other words, the test is quite simple: do immigrants who work in occupational enclaves have lower rates of wage growth than other immigrants?

Data

We use data from the 2005 and 2006 American Community Survey (ACS) and the 1996, 2001, and 2004 panels of the Survey of Income and Program Participation (SIPP). The 2005 and 2006 ACS are 1% samples of the U.S. population and provide a broad overview of immigrant employment by detailed occupation. In contrast, the data from the SIPP provide longitudinal data to examine the role of occupational enclaves on wage growth.

Results

American Community Survey data

Table 1 shows the relationship between time since immigration and self-reported English language ability. Among Hispanic immigrants who arrived in the last 5 years, about thirty-five percent do not speak English and another thirty-four percent do not speak well. English language proficiency increases steadily as time in the U.S. increases.

Table 2 depicts our measure of occupational enclaves as the proportion of workers in the occupation who report either not speaking English well or not at all (subsequently referred to as "occupational English"). This variable is highly correlated with the proportion of Spanish speakers and Hispanic immigrants in the occupation (above .9 for both) hence there is little empirical difference between either of these variables as our measure of occupational enclaves. Table 2 shows the level of occupational English by the respondent's time since immigration. While recent Hispanic immigrants work in occupations with 18.9% limited English speakers, this number falls to 12.7% for immigrants who have been in the U.S. for more than 20 years.

Table 3 lists the top paying occupations with at least 10% limited English speakers. While Chiswick and Miller (2007) show that, in general, there is a strong negative correlation between occupational English requirements and wages, there are a number of occupations that pay relatively high wages despite having a high proportion of limited English speakers or low levels of English requirements. Inspection of Table 3 reveals that there is a large number of construction related occupations on this list as well as other occupations that require manual skills or involve difficult or dangerous working conditions. In the case of occupations such as brickmasons, carpenters, or roofers, the existence of a sizable number of Spanish speaking fellow workers may have a sheltering effect, allowing the worker to adapt and learn on the job. At the same time, the skills involved in doing each of these jobs keeps wages up for those workers who are able to do the work.

Table 4 presents OLS models of the effect of occupational English on log wages for Hispanic immigrants in the ACS. In model 1 we estimate a bivariate regression between occupational English and wages and find that a 10 percentage point increase in the proportion of limited English speakers in the respondents occupation would decrease wages by about 9% (-.921*.1). In Model 2 we add controls for time since immigration and self-reported English ability, and find that the magnitude of the coefficient on occupational English drops by about 30% to -0.557.

In Model 3, we add a variable for construction related occupations and interact this with the occupational English variable. The coefficient on the interaction term (.185) is positive, which indicates that the negative effect of occupational English is substantially smaller in construction occupations, which makes sense given our earlier discussion of Table 3.

Finally, Model 4 adds interaction terms with years since immigration. The results of this model are important in light of our earlier discussion about occupational sorting based on English language ability. The excluded category for years in the U.S. is 0-5, so the coefficient on occupational English in this model (-.281) is the estimated effect for this group. In contrast, the effect for immigrants with more experience in the U.S. is more negative. For example, the estimated effect of occupational English in Model 4 for immigrants who have been in the U.S. for more than 20 years is -0.755 (-0.281 plus the interaction term, -0.474). The results in Model 4 demonstrate that the negative impact of working in an occupation with lower English requirements is less pronounced for recent immigrants.

The results in Model 4 are consistent with a sorting model. We hypothesize that there are two types of sorting going on. First, immigrants with lower levels of English proficiency sort into occupations with lower English requirements. Jobs that don't require English proficiency tend to pay less, on average, because they either involve fewer skills or less complex tasks than jobs that involve fluent interaction and communication in English or because of the crowding of non-fluent immigrants into these jobs. (Keep in mind, however, that the occupations listed in Table 3 demonstrate a number of jobs with sizable percentages of limited English speakers that still pay above average wages).

In addition to sorting based on language ability, a second type of sorting occurs over time. As discussed above with respect to Equations 1 and 2, immigrants with higher levels of unobserved skills and motivation may start out in occupational enclaves, but may steadily move out as their English skills increase. In contrast, immigrants with lower levels of unobserved skills may continue to work in these occupations. As a result of the upward occupational mobility of successful immigrants, the average level of unobserved skills and ambition falls over time in enclave occupations. Based on this interpretation, close to half of the observed relationship between occupational English and wages observed in Model 2 may be spurious, due to the greater "effect" of occupational English on long-term immigrants in Model 4.

SIPP data

Because the results in Model 4 of Table 4 are consistent with either a sorting model or a negative effect of working in occupational enclaves, we now turn to longitudinal data to attempt to identify the true impact of enclave occupations. As argued in the theory section, longitudinal data allows us to look at wage growth in addition to wage levels, providing a truer test of the impact of working in occupations with large numbers of immigrants.

As discussed above, we use data from three different SIPP panels. The 2004 data is preferred because there is data on English language proficiency, which is absent from the 1996 and 2001 panels. However, at the time of writing, only 4 of the 9 waves of data are available for analysis.[1] The 1996 SIPP panel has 12 waves of data running from 1996-2000, and the 2001 SIPP panel has 9 waves of data from 2001-2004.

Table 5 provides a basic descriptive overview of wages and wage growth for Hispanic workers in the 2004 SIPP data. The rows of the table correspond to quartiles of the proportion of limited English speakers in the respondent's occupation, as constructed from the 2005-2006 ACS data. The second column shows the average proportion limited English, ranging from a low of .015 for the first quartile to a high of .320 for the fourth quartile. The third column shows the average wage of the workers in each

[1] We will add additional 2004 SIPP waves as they become available.

quartile. The results here are consistent with what we learned with the ACS data in Tables 1-4. Workers in occupations in the first category earned an average of $17.13, versus $10.61 in the bottom quartile of occupational English proficiency.

While average wages indicate the strong relationship between occupational English and earnings, it is not clear that the effect is causal. As discussed above, a negative correlation between wages and occupational English may reflect sorting rather than a causal effect of occupational characteristics on wages. Workers' limited English proficiency may lead some of them to sort into enclave occupations as a temporary way to transition into the mainstream labor market.

The fourth column of Table 5 shows wage growth between 2004-2005 for Hispanic workers based on the occupational English of their job in the first wave. If working in an enclave occupation hurts wage growth, then we should see lower levels of wages for workers in the fourth quartile, where the proportion of workers speaking poor English is 32%, compared to the other categories. Table 5 shows that this is not the case; the level of wage growth is very similar in the 2004 SIPP data.

To provide a more formal test of whether or not enclave occupations hurt wage growth, we turn to growth curve models using SIPP data in Table 6. In all of the models in Table 6, the variable for occupational English measures the proportion of limited English speakers in the respondent's occupation in the first wave of data. As a result, we test for the effect of working in an enclave occupation on subsequent wage growth.

The results for each model in Table 6 are presented in two panels. The "Levels" panel presents coefficients for wage levels, while the "Slopes" panel presents coefficient for the individual slope of wage growth over time. The slope coefficients measure the effect of time and the interaction effects of selected independent variables with time. For example, Model 1 presents results for the 2004 SIPP panel. The slope coefficient for occupational English (.0362, s.e. .066) indicates the impact of this variable on wage growth. While occupational English is negatively correlated with the level of wages, the effect on wage growth is not statistically significant at the .05 level. This is consistent with the sorting explanation of

occupational enclaves; immigrant workers work in enclave occupations because they offer employment opportunities while they are learning English, and there is no negative effect on wage growth over time.

Models 2-4 of Table 6 test this hypothesis with the combined 1996 and 2001 SIPP panels. In Models 3 and 4 we find that the effect of occupational English on wage growth is positive but not statistically significant at the .05 level. In Model 4, the effect of occupational English on wage levels is smaller for recent immigrants (i.e., the interaction term between recent immigrant and occupational English is .171), consistent with an interpretation of the results from the ACS data in Table 4 based on sorting.

Discussion and Conclusion

This study tested whether Hispanic immigrants who concentrate in occupational enclaves experience a reduction in wages over time in the process slowing linguistic and social assimilation. The literature on ethnic enclaves asserts that concentration in these occupations has both negative and positive consequences on economic well-being. Ethnic enclaves are seen as providing the opportunity to adjust to new labor market conditions and acquire human capital that can be applied to mainstream labor markets. However, critics of the ethnic enclave thesis argue that employment in such labor markets may outweigh the benefits because it not only prevents social and linguistic assimilation but also penalizes workers concentrated in occupations dominated by co-ethnics (Catanzarite and Aguilera 2002; Chiswick and Miller 2002).

We found that laboring in occupational enclaves lowers the wage growth for Hispanic immigrants in the cross section but was not associated with lower levels of wage growth. We also found that certain occupational enclaves, particularly in construction, offer relatively high wages. These occupations are not typical of low-wage jobs in that immigrants are renumerated for the set of skills that are learned on the job. The acquisition of these skills though depend on

receiving training from other non-English speakers. Our OLS models on the effect of occupational English also show that while the rise of the proportion of English speakers decreases wages, these results are not as pronounced in key construction occupations and they also do not hold for the labor market experiences of recent immigrants.

Our findings lead us to hypothesize two types of sorting happening in occupational enclaves throughout the U.S. First, we suspect Hispanic immigrants with limited English proficiency may initially sort into jobs with a high concentration of co-ethnic non-English speakers. By being employed in these occupations, they acquire English and work related skills while also learning how U.S. labor markets operate. Second, once immigrants acquire human capital in the U.S. labor market, they may use such experiences to sort into mainstream labor markets. This dual sorting suggests that ambitious and motivated immigrants are not necessarily trapped in one occupation but are perhaps constantly moving in search of better opportunities.

The longitudinal findings also revealed that working in an occupational enclave does not hurt long term wage growth. Chiswick and Miller (2002) argue that employment in ethnic enclaves matter because it leads to poor English language acquisition and hence lower earnings. However, we found that the wage growth is fairly uniform for workers whether they are employed in occupations with high (32%) or low (1%) concentrations of poor English speakers. Moreover, the growth curve models indicate that although occupational English is negatively correlated with the level of wages, the effect of wage growth is not statistically significant.

Our findings suggest that the labor market plays an important role in the socio-economic mobility and assimilation of Hispanic immigrants. Working in occupational enclaves can be used strategically by newcomers to adjust to new working conditions and acquire new skills which can then be transferred to other occupations that offer opportunity to earn better wages.

The findings also suggest that occupational enclaves do not operate uniformally. For example, as previously stated, there were certain occupations that despite having a large presence of poor English speakers nonetheless offered room for wage mobility.

Rumbaut et al. (2006) argue Latin American groups, residing in the enclave space of southern California, can expect to lose their ability to speak Spanish very well sometime between the second and third generation (Spanish is expected to die out by the second for Mexicans). Their study suggests that the children of immigrants are experiencing rapid linguistic assimilation. For the first generation, the occupational enclave can be used as a platform by which to learn English and develop skills to move to other occupations in the U.S. labor market. In an era of increased anti-immigrant sentiment, we can expect occupational enclaves to matter more for the adjustment and economic well-being of immigrants. However, more research, both qualitative and quantitative, is needed to assess the long term consequences of laboring in occupational enclaves on the life chances of Hispanic immigrants.

Tables

Table 1: English ability of Hispanic immigrants, by years in the U.S.

	Years in the U.S.					
English Ability	0-5	6-10	11-15	16-20	21+	Total
Speaks only English	3.03	2.64	2.71	3.44	7.06	4.39
Speaks very well	11.99	19.13	27.29	31.48	43.32	29.39
Speaks well	16.2	24.23	27.27	28.06	24.75	24.01
Not well	33.84	35.29	29.41	26.37	18.33	26.87
Does not speak English	34.93	18.72	13.33	10.64	6.55	15.34
Total	100	100	100	100	100	100
(N)	26,203	25,459	20,516	23,140	51,150	146,468

Table 2: Proportion of poor English speakers in respondent's occupation.
Hispanic immigrants by years in the U.S.

Years in the U.S.	Proportion in occupation who do not speak English well	Number of cases
0-5	0.189	26,203
6-10	0.173	25,459
11-15	0.166	20,516
16-20	0.159	23,140
21+	0.127	51,150
Total	0.157	146,468

Table 3: Top paying occupations with at least 10% limited English speakers

Occupation	Occ. code[1]	Average wage[2]	Proportion limited English[3]	Importance of English[4]	Number of cases
Reinforcing iron and	650	19.25	0.108	2.9	158
Brickmasons, blockma	622	15.55	0.188	3.0	3602
Carpenters (47-2031)	623	14.12	0.104	2.9	27319
Molders, shapers, an	892	13.35	0.106	2.4	725
Cement masons, concr	625	13.35	0.213	3.0	1519
Aircraft structure,	771	13.35	0.113	3.1	177
Drywall installers,	633	12.83	0.261	2.7	3282
Painting workers (51	881	12.83	0.111	2.3	3011
Insulation workers (	640	12.64	0.126	3.4	728
Metalworkers and pla	822	12.50	0.108	2.5	8635
First-line superviso	600	12.50	0.101	2.7	1216
Grinding, lapping, p	800	12.42	0.105	2.6	1035
Plasterers and stucc	646	12.15	0.332	2.5	753
Carpet, floor, and t	624	12.00	0.160	2.3	3777
Upholsterers (51-609	845	11.74	0.103	3.1	905
Food and tobacco roa	783	11.68	0.120	2.0	191
Construction laborer	626	11.66	0.181	3.0	26716
Production workers,	896	11.66	0.105	2.8	22104
Chefs and head cooks	400	11.66	0.120	3.5	4619
Roofers (47-2181)	651	11.66	0.235	2.6	3479

Notes:
[1] 3-digit code, 2000 census occupations
[2]Source: Current Population Survey data, all workers in occupation.
[3]Proportion of workers in occupation who report speaking English poorly or not at all.
[4]Importance of English for occupation, 1=not important, 5=very important (source ONET occupation data)

Table 4: The Effect of Occupational Language on Log Wages
2005 and 2006 American Community Survey, Hispanic immigrant workers.

Coefficient	(1) Lnwage	(2) Lnwage	(3) lnwage	(4) lnwage
Years in US[1]: 6-10		0.0525***	0.0822***	0.0979***
		(0.0048)	(0.0046)	(0.0067)
11-15		0.0976***	0.152***	0.173***
		(0.0052)	(0.0050)	(0.0072)
16-20		0.154***	0.214***	0.236***
		(0.0052)	(0.0050)	(0.0070)
21+		0.288***	0.349***	0.423***
		(0.0045)	(0.0044)	(0.0061)
Occupation limited English[2]	-0.921***	-0.557***	-0.460***	-0.281***
	(0.0092)	(0.0097)	(0.010)	(0.019)
English Ability: speaks very well		0.0116	0.00810	0.0114
		(0.0077)	(0.0074)	(0.0073)
Speaks well		-0.105***	-0.0634***	-0.0525***
		(0.0079)	(0.0075)	(0.0075)
Not well		-0.211***	-0.135***	-0.125***
		(0.0078)	(0.0075)	(0.0076)
Does not speak English		-0.274***	-0.172***	-0.169***
		(0.0084)	(0.0081)	(0.0081)
Female			-0.195***	-0.195***
			(0.0031)	(0.0031)
Construction occ.			0.0892***	0.0979***
			(0.0074)	(0.0074)
Interaction terms, Occ English by: construction			0.185***	0.136***
			(0.027)	(0.027)
Years in US[1]: 6-10				-0.0755***
				(0.027)
11-15				-0.0993***
				(0.029)
16-20				-0.102***
				(0.028)
21+				-0.474***
				(0.025)
Dummy variables for education	No	No	Yes	Yes
Constant	2.549***	2.479***	2.309***	2.277***
	(0.0022)	(0.0080)	(0.012)	(0.012)
Observations	146468	146468	146468	146468
R-squared	0.06	0.14	0.22	0.23

Notes:
Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
[1]Excluded category: 0-5 years
[2]Proportion in occupation who speak English not very well or not at all.

Table 5: Wages and wage growth by quartile of % in occupation with poor English, 2004 SIPP

Occupational English quartile	Proportion poor English	Average wage	1-year Wage growth	(N)
Top 25%	0.014	17.13	0.003	827
2	0.037	14.21	0.008	828
3	0.108	12.09	0.004	826
Bottom 25%	0.320	10.61	0.007	826
Total	0.122	13.45	0.006	3307

Table 6: Growth curve models of log wages, Hispanic workers 1996, 2001, and 2004 SIPP

	2004 SIPP	1996 &2001 SIPP		
Coefficient	(1)	(2)	(3)	(4)
Slopes				
Time (years)	0.0193**	0.0310***	0.0314***	0.0317***
	(0.0087)	(0.0016)	(0.0030)	(0.0030)
Occupational English[3]	0.0362		0.0129	0.00609
	(0.066)		(0.010)	(0.011)
Recent immigrant x Occupation English				0.0163
				(0.022)
Recent Immigrant			-0.00204	-0.00168
			(0.0034)	(0.0035)
Female			-0.00262	-0.00205
			(0.0033)	(0.0033)
Levels				
Immigrant	0.0404*	-0.0270***	-0.0260***	-0.000324
	(0.023)	(0.0087)	(0.0089)	(0.0099)
Recent immigrant[2]				-0.139***
				(0.023)
Occupation English	-0.687***	-0.536***	-0.542***	-0.558***
	(0.089)	(0.029)	(0.029)	(0.032)
Occupation English x Recent immigrant				0.171*
				(0.089)
Education[1]: High School		0.0855***	0.0854***	0.0874***
		(0.0097)	(0.0097)	(0.010)
Some college		0.196***	0.196***	0.197***
		(0.011)	(0.011)	(0.011)
College		0.442***	0.442***	0.451***
		(0.015)	(0.015)	(0.015)
Post-college		0.679***	0.679***	0.681***
		(0.023)	(0.023)	(0.023)
Female	-0.168***	-0.173***	-0.172***	-0.180***
	(0.018)	(0.0084)	(0.0086)	(0.0088)
Constant	2.091***	2.482***	2.482***	2.485***
	(0.044)	(0.010)	(0.011)	(0.011)
Observations	7797	57525	57525	54949
Number of groups	2430	8913	8913	8435

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
[1] Excluded category: less than high school
[2]Immigrated in the last 5 years
[3]Proportion in occupation who speak English not very well or not at all.

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