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Economic assimilation of Mexican and Chinese immigrants in the United States: is there wage convergence?

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Abstract

This research determines the economic assimilation experience of Mexican immigrants and Chinese immigrants towards natives level over time after controlling for human capital and demographic characteristics. Using Census data from multiple years, this research follows cohorts of Mexican and Chinese immigrants who migrated to the U.S. prior to 1994 to investigate the impact of assimilation on the level of earnings for these immigrants. Multiple regression and simulation techniques are used to compare the earnings growth pattern for the two immigrant groups. Results show that over time there is wage convergence for Chinese immigrants toward the native level and they do show rapid economic assimilation in the United States. However, there is wage divergence and no economic assimilation of Mexican immigrants towards natives over time. The underlying explanation can be the changing demand of the U.S. labor market as it becomes more and more knowledge-based and information-driven.

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1. Introduction

It is widely recognized that immigrants face an increasingly knowledge-driven labor market that relies primarily on the application of ideas and technology rather than physical abilities (The World Bank Group, 2003). Since employment in the U.S. requires more knowledge and skills, immigrants with high levels of human capital are more likely to find careers with upward mobility and receive continuous support and training in today's evolving labor market.

Immigration into the U.S. is unique in that educational attainment varies greatly by country of origin. As a result, immigrant groups with knowledge and skills that are in demand in the U.S. labor market can be expected to assimilate more rapidly than groups without. Borjas (1992) argues that different immigrant waves have substantially different skills and thus different earnings capacities. He suggests that the abolishment of National Origins Quota system in the Immigration and Nationality Act in 1965 had the effect of decreasing the skill of immigrants with an increasing number of immigrants coming from developing countries. Immigrants from developing countries such as Mexico are likely to come from the lower tail of the skill distribution of their country of origin and therefore lack the specific skills and knowledge that the U.S. labor market requires (Borjas, 1992). In his 1996 study, Borjas finds that there is a decline in the relative wage of successive Mexican immigrant waves from the 1970 to the 1990 period (Borjas, 1996). Based on his notion of negative selection, Mexican immigrants are attracted to the U.S. because less-educated workers are likely to migrate from countries where schooling is better rewarded to countries where there is low inequality between skills and earnings (Borjas, 1996).

On the other hand, an increasing number of highly skilled Chinese immigrants have been attracted to the U.S. in recent years. According to the 2009 Current Population Reports, Asians have the highest percentage of bachelor's, master's, professional, and doctorate degrees (U.S. Census Bureau, 2012). The positive selection of Chinese immigrants and the negative selection of Mexican immigrants raise important research questions in terms of immigrants' well being in the United States. For example, does the positive selection of Chinese immigrants result in rapid economic progress relative to natives? Do Mexican immigrants experience the same assimilation and upward mobility process as Chinese immigrants in the U.S. today?

The purpose of this study is to determine economic assimilation of Mexican immigrants and Chinese immigrants over time relative to natives after controlling for human capital and demographic characteristics. Using Census data from multiple years, we use a cohort approach by following specific cohorts of Mexican immigrants and Chinese immigrants.

2. Human Capital Based Assimilation

Assimilation is a learning process about the host country's cultural, political and economic characteristics. In general, immigrants and their descendants become more similar to natives over time by improving their language skills and acquiring local human capital. They may also become more similar to natives in their legal status by obtaining long-term residency and work permits, or by marrying natives and becoming naturalized citizens (Schaeffer, 2006).

Since assimilation is an ongoing process, duration in the destination plays an important role in the economic adjustment of immigrants in the host country. By testing the immigrant assimilation hypothesis with longitudinal data, Beenstock, Chiswick and Paltiel (2010) claim that long-duration immigrants experience a steeper increase in earnings.

Besides length of stay in the host country, researchers have long emphasized the importance of education on an immigrant's income level (Barringer, Takeuchi, & Xenos, 1990). The effect of education on earnings is important in assimilation theory and also in human capital theory.

To study immigrants' wage convergence with natives, we use a cohort approach with repeated cross section data from multiple sample years. The human capital based assimilation theory suggests that new immigrants with high levels of human capital are more likely to receive further investments in human capital after entering the market. Thus, high human capital immigrants should show more pronounced and more rapid assimilation than low human capital immigrants who struggle in declining job markets. Since differences in each immigrant group's education level lead to differences in skill sets and earnings levels, we expect that Mexican immigrants take longer to assimilate in the United States than Chinese immigrants.

3. Data and Empirical Model

All data in this research paper comes from the IPUMS CPS (Current Population Survey) database from 1994 to 2011 (IPUMS-CPS, 2011). We follow these three groups:

1) Native born individuals who work more than 35 hours per week and were at least 25 and not over 45 years old during the 1994 survey year.
2) Mexican born individuals who immigrated to the U.S. prior to 1994, work more than 35 hours per week, and were at least 25 and not over 45 years old during the 1994 survey year.
3) Chinese born individuals who immigrated to the U.S. prior to 1994, work more than 35 hours per week, and were at least 25 and not over 45 years old during the 1994 survey year.

Table 1 shows the CPS data selected and the corresponding sample size for natives, Mexican immigrants and Chinese immigrants. The cohorts age with the passage of time from 25-45 years in 1994 to 42-62 years in 2011. Note that all tables are included at the end of the paper.

The five-step model described below examines whether wage convergence takes place between Mexican immigrants and natives as well as between Chinese immigrants and natives. The steps below are an illustration for Mexican immigrants and these steps are then repeated for Chinese immigrants:

Step 1: Run the earnings regression specified below for the native population for 1994 to predict the natural log of real wage (LnRealWage) as a function of human capital and demographic variables (all variables and their detailed definitions are shown in Table 2):

$$LnRealWage = \beta_0 + \beta_1(HighSchoolDiploma) + \beta_2(SomeCollege) + \beta_3(Bachelors) + \beta_4(Masters) + \beta_5(Professionals) + \beta_6(Doctors) + \beta_7(Age) + \beta_8(Uhrswork) + \beta_9(Male) + \beta_{10}(Married) + \beta_{11}(NChild) + \beta_{12}(NChilt5)$$

Step 2: Compute the mean values for each of the independent variables in the above equation for the Mexican respondents in our sample for 1994.

Step 3: Plug the Mexican immigrant mean values into the native earnings equation estimated in Step 1 to estimate what native earnings would have been in 1994 if the natives had the same human capital endowments as the Mexican cohort.

Step 4: Compare the actual 1994 earnings of Mexican immigrants to the estimated 1994 earnings of natives. If the actual Mexican earnings are equal to or greater than the estimated native earnings, we can conclude that "assimilation" has occurred.

Step 5: Repeat the above steps for each of the remaining nine selected survey years from 1996 to 2011.

The above five steps describe our procedure for determining the extent that Mexican immigrant real wages have assimilated toward natives with identical human capital endowments as Mexican immigrants between 1994 and 2011. This process is then repeated for Chinese immigrants to determine their wage convergence with natives.

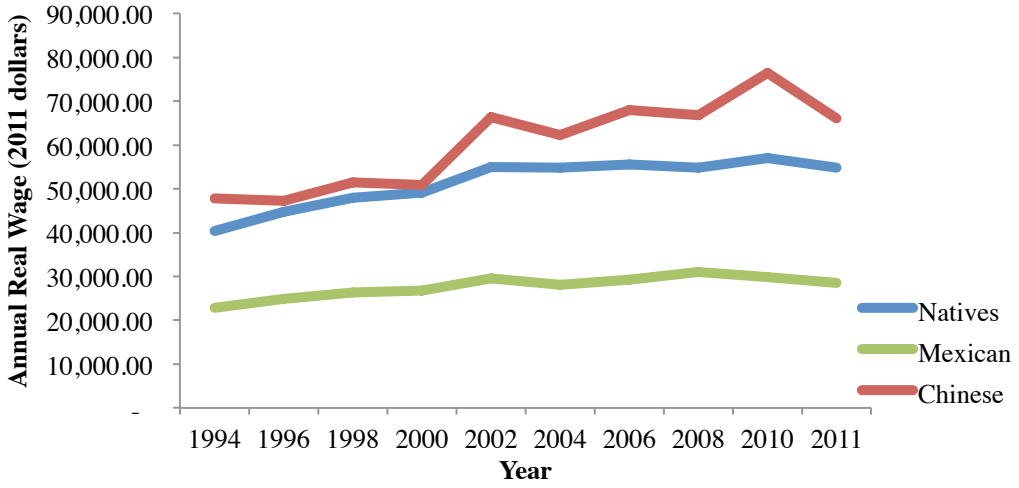
The five-step model outlined above is used in the next section to compare actual immigrant earnings to estimated native earnings between 1994 and 2011. The changes between actual and estimated earnings over time suggest whether there is wage convergence. If the actual immigrant earnings remain less than the estimated native earnings, then immigrants have not yet reached income parity with comparable natives, and economic assimilation has not yet occurred. On the other hand, if the actual immigrant earnings become equal to or greater than the estimated native earnings, then immigrants have reached income parity with comparable natives, and economic assimilation has occurred.

4. Results

4.1 Descriptive statistics

Table 2 provides variable definitions and Table 3 shows descriptive statistics results for natives, Mexican immigrants, and Chinese immigrants for 1994 and 2011. Table 3 shows that Chinese immigrants have higher earnings, more advanced degrees, and fewer children at home. Unadjusted earnings in constant 2011 dollars for the three cohorts from 1994 through 2011 are presented in Figure 1. Chinese immigrant earnings are initially above the native level, and this difference widens over time. However, Mexican immigrant earnings are below the native level with the wage gap widening throughout the period, with a differential of about $17,500 in 1994 and $26,400 in 2011.

Figure 1: Comparison of Real Earnings among Natives, Mexican Immigrants and Chinese Immigrants



4.2 Simulation of wage convergence

We follow the five-step procedure outlined above to analyze the earnings assimilation of Chinese and Mexican immigrants in reference to natives with comparable human capital endowments. First, we estimate earnings functions for natives for each of the 10 selected survey years. Table 4 shows the regression results for two of these years, 1994 and 2011.

Next, we use the native earnings functions to estimate what native earnings would be if they had identical human capital characteristics as the immigrant group. This involves inserting the immigrant group mean values into the native earnings function and estimating native earnings. Table 5 demonstrates in detail the simulation procedure for Mexican immigrants in 1994. Column 2 of Table 5 shows the coefficients of the 1994 native earnings function. Column 3 shows the Mexican mean values in 1994. Native coefficients in column 2 are multiplied by the Mexican mean values in column 3 to get the product in column 4. The sum of these products in column 4 is the estimated LnRealWage for natives with Mexican human capital endowments. LnRealWage is then converted into Real Wage in dollar terms. The final result in Table 5 ($22,122) is our estimate of what natives would earn if they had Mexican immigrants human capital endowments. This process is then repeated for all of the remaining years from 1994 and 2011. The same procedure is followed to estimate what natives earnings would be if they had Chinese characteristics.

Tables 6 and 7 present the results of these estimations for all years along with the actual mean wages of Mexican and Chinese immigrants respectively. For example, Table 6 shows that in 1994, the actual LnRealWage for Mexican immigrants in the cohort is 9.81 (Table 3), which is less than the estimated result 10.00 (Table 5). This means that in 1994, economic assimilation has not yet occurred for Mexican immigrants since they have not reached income parity.

Trends in Tables 6 and 7 are shown in Figures 2 and 3 after log values are converted into dollar terms. In Figure 2, actual Mexican earnings are below the estimated native earnings level throughout the survey period. Figure 2 shows that Mexican immigrants' earnings, even after controlling for human capital and other demographic variables, never reach or become close to

the native level. On the contrary, the wage difference between Mexican immigrants and natives widens over time, with a difference of $3,847 in 1994 and $6,301 in 2011. Therefore, economic assimilation has never occurred for the cohort of Mexican immigrants as there is no income parity with the estimated native earnings level; rather, the results suggest wage divergence between Mexican immigrants and natives. In Figure 3, actual Chinese earnings are below the estimated native earnings from 1994 to 2004 but are above the native level from 2006 to 2011. This result implies that although Chinese immigrant earnings are initially below the native level in 1994, Chinese immigrants reach income parity with natives in 2005 and then exceed the natives after that. Therefore, economic assimilation takes place for Chinese immigrants over time.

Figure 2: Actual Mexican Real Wage vs. Estimated Native Real Wage

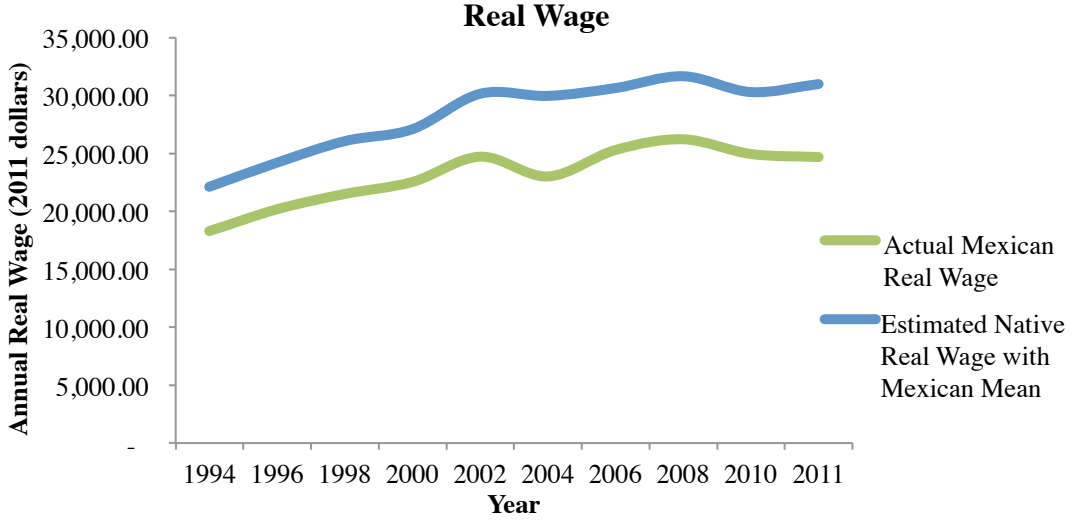


Figure 3: Actual Chinese Real Wage vs. Estimated Native Real Wage

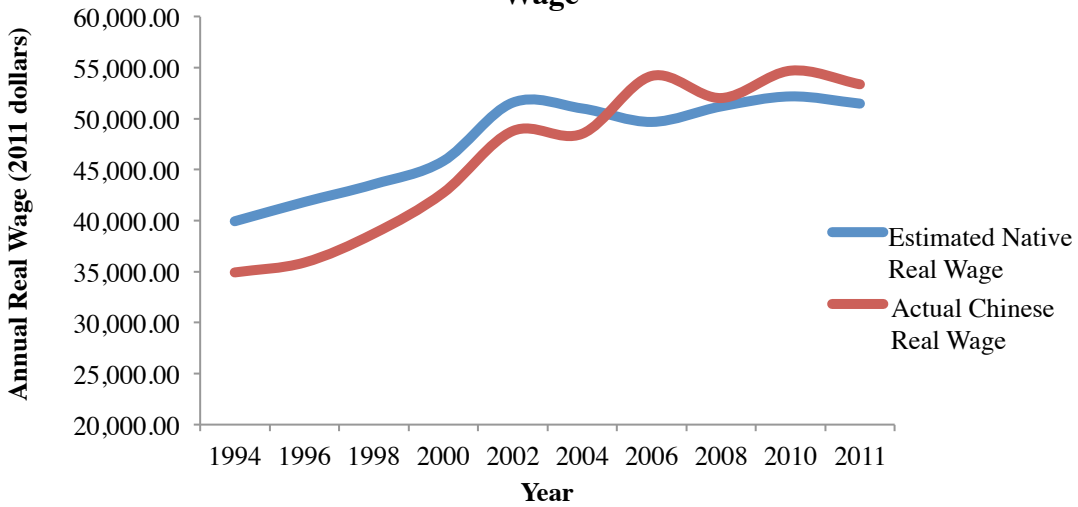
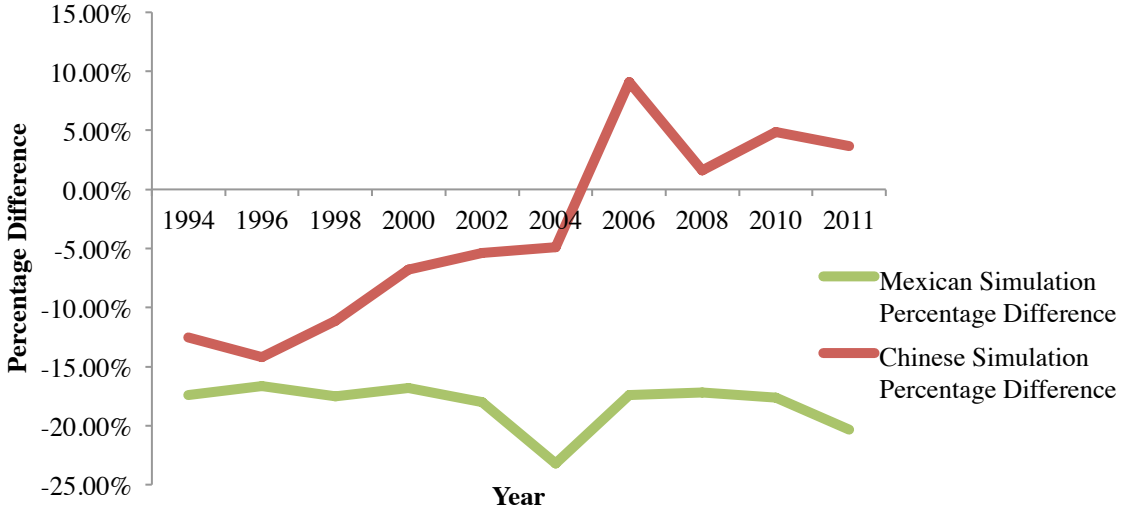


Figure 4 shows the percentage difference between immigrant actual earnings (in constant 2011 dollars) and estimated earnings for comparable natives from 1994 to 2011. The cohort of Chinese immigrants has an earnings disadvantage relative to natives of 12.6% in 1994; however, this disadvantage gradually disappears over time and eventually becomes an earnings advantage after 2004. In 2011, Chinese immigrant earnings exceed native earnings by 3.7%. The results meet our expectation that there is wage convergence between the cohort of 1994 Chinese immigrants and natives over time, and economic assimilation eventually takes place.

Figure 4: Percentage Difference of Actual Immigrants Real Wage and Estimated Comparable Natives Real Wage for Mexican and Chinese Immigrant Cohorts



Meanwhile, Figure 4 shows that the cohort of Mexican immigrants has an earnings disadvantage relative to natives of 17.4%, and this disadvantage worsens over time reaching 20.3% in 2011. In Figure 4, the cohort of Mexican immigrants has never been able to transform the earnings disadvantage into an advantage like the Chinese since income parity never takes place. In fact, the worsening wage gap suggests that there is wage divergence for Mexican immigrants over time.

The results in Figure 4 give us insights into the economic assimilation experience of different immigrant groups in the U.S. On one hand, the growth in earnings relative to natives for the cohort of Chinese immigrants can be explained by the fact that Chinese immigrants have higher educational attainment. Chinese immigrants are able to find their niche with the knowledge-based skills that they bring with them (positive selection) and further develop through an effective assimilation process. On the other hand, the decrease in earnings relative to natives for the cohort of Mexican immigrants can be due to the relatively low level of skills that they bring with them (negative selection) and their difficulty in acquiring additional skills through assimilation. As the U.S. labor market becomes more and more knowledge and information-driven, immigrant groups that adapt by improving their transferrable skills are likely to assimilate faster, while those that depend more on manual labor are less likely to assimilate as fast as the others.

5. Conclusions

This research explores the economic assimilation experience of Mexican immigrants and Chinese immigrants and examines whether there is wage convergence of each immigrant group towards the comparable native income level over time. By using repeated cross-section data in age-period cohort analysis, this research follows cohorts of Mexican and Chinese immigrants who migrated before 1994. The most important finding of this study is that over time there is wage convergence and economic assimilation for the cohort of Chinese immigrants towards natives; however, there is no wage convergence and no economic assimilation for the cohort of Mexican immigrants towards natives. In general, we expect that immigrants coming from countries of origin with negative immigrant selection to experience longer term disadvantages compared to immigrants coming from countries with positive selection. The underlying explanation can be the changing demand of the U.S. labor market as it becomes more and more knowledge-based and information-driven.

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Table 1: Summary of Sample Sizes for Each Selected Survey Year

Survey Year	Age	Number of Observations		
		Natives	Mexican Immigrants	Chinese Immigrants
1994	25-45	30,915	1,301	197
1996	27-47	26,481	1,356	165
1998	29-49	26,470	1,367	195
2000	31-51	26,859	1,459	159
2002	33-53	44,248	1,636	262
2004	35-55	40,748	1,546	258
2006	37-57	38,096	1,497	275
2008	39-59	36,225	1,415	270
2010	41-61	32,428	1,252	214
2011	42-62	30,193	1,229	227

Table 2: Variables, Descriptions and Expected Signs

Variable	Description	Expected Sign
Dependent		
LnRealWage	Natural log of real wage and salary income	
Independent		
Education attainment		
HighSchoolDiploma	0 = High school (no diploma) or under 1 = High school diploma or equivalent	Positive
SomeCollege	0 = no college 1 = some college (including associate's degree)	Positive
Bachelors	0 = No Bachelor's degree 1 = Bachelor's degree	Positive
Masters	0 = No Master's degree 1 = Master's degree	Positive
Professionals	0 = No Professional School degree 1 = Professional School degree	Positive
Doctors	0 = No Doctorate degree 1 = Doctorate degree	Positive
Age	A person's age at last birthday	Positive
Uhrswork	Usual hours worked per week (last year)	Positive
Sex		
Male	0 = Female 1 = Male	Positive
Marital Status		
Married	0 = Not married 1 = Married	Unknown
NChild	Number of own children in household	Unknown
NChlt5	Number of own children under age 5 in household	Unknown

Table 3: Descriptive Results for Natives, Mexican Immigrants and Chinese Immigrants of Survey Year 1994 and 2011

	1994			2011		
	Native Mean	**Mexican Immigrant Mean**	**Chinese Immigrant Mean**	**Native Mean**	**Mexican Immigrant Mean**	**Chinese Immigrant Mean**
Dependent Variable:						
RealWage (2011 Dollars)	40,364	22,840	47,874	54,911	28,507	66,125
LnRealWage	10.41	9.81	10.46	10.69	10.11	10.89
Independent Variable:						
HighSchoolDiploma	0.34	0.19	0.21	0.30	0.24	0.23
SomeCollege	0.31	0.11	0.10	0.30	0.12	0.11
Bachelors	0.20	0.04	0.26	0.22	0.05	0.20
Masters	0.06	0.01	0.19	0.10	0.01	0.22
Professionals	0.02	0.00	0.03	0.02	0.00	0.04
Doctors	0.01	0.00	0.11	0.02	0.00	0.13
Age	35.07	33.56	35.82	50.94	49.36	51.38
Usual hours worked per week (last yr)	44.24	42.45	42.9	43.93	41.92	43.31
Male	0.58	0.72	0.56	0.56	0.65	0.53
Married	0.67	0.76	0.81	0.72	0.81	0.83
Number of own children in household	1.16	1.79	1.06	0.96	1.72	1.19
Number of own children under age 5 in hh	0.29	0.52	0.36	0.04	0.09	0.04

Table 4: Regression Results for Natives (t-Statistic in Parentheses)

Natives	1994	2011
(Constant)	8.329***	9.154***
	(216.398)	(175.635)
HighSchool Diploma	.441***	.300***
	(24.191)	(13.254)
SomeCollege	.615***	.472***
	(33.398)	(20.873)
Bachelors	.961***	.816***
	(49.758)	(35.375)
Masters	1.089***	.998***
	(44.690)	(39.901)
Professionals	1.314***	1.385***
	(32.787)	(36.781)
Doctors	1.125***	1.191***
	(22.356)	(31.360)
Age	.021***	.001
	(26.495)	(1.015)
Usual hours worked per week (last yr)	.010***	.015***
	(18.496)	(27.372)
Male	.320***	.288***
	(35.735)	(32.982)
Married	.149***	.124***
	(14.289)	(12.492)
Number of own children in household	-.024***	.033***
	(-5.344)	(7.570)
Number of own children under age 5 in hh	.043***	-.023
	(4.834)	(-1.235)
Adjusted R Square	.223	.306
Sample size	29116	28381

Note:
***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.
t-Statistics are reported in parentheses.

Table 5: Simulation of Survey Year 1994

	Native Model with Mexican Mean		
	Native Coefficients	**Mexican Mean**	**Product**
(Constant)	8.329		8.329
HighSchoolDiploma	.441	.1914	0.084
SomeCollege	.615	.1115	0.069
Bachelors	.961	.0438	0.042
Masters	1.089	.0061	0.007
Professionals	1.314	.0046	0.006
Doctors	1.125	.0015	0.002
Age	.021	33.56	0.718
Usual hours worked per week (last yr)	.010	42.45	0.427
Male	.320	.7187	0.230
Married	.149	.7617	0.113
Number of own children in household	-.024	1.79	-.043
Number of own children under age 5 in hh	.043	.52	0.022
LnRealWage			**10.00**
Real Wage			**$22,122.50**

Table 6: Actual Mexican Real Wage vs. Estimated Native Real Wage

Survey Year	Actual Mexican Real Wage	Estimated Native Real Wage with Mexican Mean	Actual minus Estimated	Percentage Difference
1994	18,275.57	22,122.50	-3,846.93	-17.39%
1996	20,185.40	24,211.21	-4,025.81	-16.63%
1998	21,504.63	26,067.27	-4,562.64	-17.50%
2000	22,542.47	27,097.44	-4,554.98	-16.81%
2002	24,723.60	30,155.41	-5,431.80	-18.01%
2004	23,015.01	29,968.75	-6,953.74	-23.20%
2006	25,303.15	30,645.73	-5,342.57	-17.43%
2008	26,222.10	31,667.02	-5,444.92	-17.19%
2010	24,952.77	30,300.21	-5,347.44	-17.65%
2011	24,691.22	30,992.06	-6,300.83	-20.33%

Table 7: Actual Chinese Real Wage vs. Estimated Native Real Wage

Survey Year	Actual Chinese Real Wage	Estimated Native Real Wage with Chinese Mean	Actual minus Estimated	Percentage Difference
1994	34,924.86	39,942.27	-5,017.41	-12.56%
1996	35,891.70	41,830.78	-5,939.08	-14.20%
1998	38,731.62	43,570.65	-4,839.03	-11.11%
2000	42,735.86	45,848.41	-3,112.55	-6.79%
2002	48,790.86	51,577.34	-2,786.48	-5.40%
2004	48,522.29	51,005.46	-2,483.18	-4.87%
2006	54,193.70	49,683.88	4,509.82	9.08%
2008	52,028.47	51,204.82	823.66	1.61%
2010	54,712.05	52,187.65	2,524.40	4.84%
2011	53,373.78	51,480.48	1,893.30	3.68%