Labor Market Integration in Central America

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Abstract: This paper evaluates labor market integration in Central America using pooled household surveys from 17 Latin American countries. Using three measures of labor market integration, the results show evidence of long-run wage convergence. Two other measures, the short-run response to shocks and the short-run convergence to an equilibrium differential, suggest that Central America is no more integrated than the rest of Latin America (which, in turn, is much less than the United States and Mexico). Estimates of labor market integration measures are used to simulate the effects of falling wages in neighboring countries.

I. Introduction

The strong positive relationship between trade and growth (Frankel and Romer 1999, Norguer and Sisquart 2005) inspires governments to foster economic integration. Labor-market integration in particular is important because it reflects the welfare effects of increased trade, foreign investment, and migration on workers directly. In addition, measures of labor market integration are useful for understanding the transmission of various economic shocks (e.g. contagion) that comes with globalization.

Most economists would probably agree that there is a positive link between trade and growth. Rising GDP per capita is usually associated with increased wages. Neoclassical trade theory, such as the Heckscher-Ohlin theorem, suggests that international trade increases consumer welfare by lowering prices of consumer goods. The international convergence of goods prices then translates into wage movements, increasing the earnings of the abundant factor in each country and lowering the earnings of the scarce factor. In other words, the Heckscher-Ohlin theorem predicts wage convergence between low-wage and high-wage countries. Looking at East and Southeast Asia, Bloom and Noor (1995) observe that labor market integration increased throughout the 1980s until 1991. A spike in trade was responsible for integration across these countries, and the duo note that increased labor mobility and/or capital inflows had a less significant effect.

Empirical evidence of wage convergence across countries is relatively rare. Ben-David (1993) considers income differentials among the six original members of the European Economic Community (EEC). In comparing the income differentials pre- and post-trade liberalization, he finds evidence of convergence among these EEC members. Michaels (2008) compliments this analysis by examining the effects of the U.S. highway system on trade costs between states. Ultimately, he also finds that the greater travel between states facilitated wage convergence.

Most of the literature (and casual observation) suggests that wages do not converge across countries. For example, the "place premium" literature that describes the impact of geographic location on the wages of workers with identical skill sets and profiles, finds that differentials across countries are stable and can be large. Maskus and Nishioka (2009), Clemens et al. (2009), Kiyota (2012), and Gandolfi et al. (2015) all find that the place premium persists even after trade, foreign investment, and migration – factors that are predicted to contribute to wage convergence – increase.

The persistence of significant differences in wages between trading countries raises the question of whether or not labor markets in these countries are integrated. After all, the most common metric for market integration is price convergence. Markets that are integrated but have product price differences should soon find that these price differences fall as agents take advantage of arbitrage opportunities. Labor markets are similar. Wage differences across markets motivates migration, investment, and trade that could, and perhaps should, reduce these differentials. Thus, persisting differences in labor costs could be indicative of incomplete economic integration and efficiency gains that have yet to materialize.

Since wages are slow to converge across countries, however, several papers have proposed other measures of integration. For example, Robertson (2000) suggests that the response of wages in one country to changes in wages in another country and the rate of convergence back to an equilibrium wage differential between the two countries also indicate the degree of labor market integration. If wages are different due to national productivity differences, the arbitrage that would normally contribute to wage convergence would bring wages back to a differential and also move wages in response to changes in the other country.

Apart from the Bloom and Noor (1995) paper, research considering labor market integration at the regional level is sparse. Lederman and Robertson (2018) study economic integration across Latin America from 1990-2013 and find that Latin American labor markets are collectively more integrated that those in East Asia. They note, however, that the degree of integration is not uniform and varies significantly across countries. This heterogeneity suggests that potential efficiency gains remain among Latin American countries.

Building upon this study, this paper seeks to gauge labor market integration in Central America relative to Latin America as a whole. To do so, this paper will consider rates of wage convergence over time to see the impact of the proliferation of trade agreements within Central America in recent years. Using the estimates of labor market integration, the paper offers heuristic predictions for the effects of falling wages in neighboring countries.

The remainder of this paper will follow a familiar format. The next section surveys the literature for measures of market integration and presents the theoretic foundation for my analysis, encompassing migration, trade, and investment within a simple supply and demand framework. The third section presents my findings, and the fourth assesses the significance and implications of the results.

II. Measuring Factor-Market Integration

Three means of assessing the extent of market integration emerge from a review of academic literature on the subject. After explaining these concepts and assessing their viability to explain labor market integration, I will explain the theoretic framework for my analysis in greater detail.

A. Three Indicators of Market Integration

One strand of literature (e.g., Barrett 2001) equates market integration with the movements of products from one market to another. The theory suggests that markets are more integrated when products are easier to move between them. This is rooted in the idea that greater freedom of movement leads to a reduction in price differences. As Lederman and Robertson (2018) point out, however, this naturally suggests that price convergence, not mobility, is the proper metric for market integration. Moreover, neoclassical trade theory contests the notion that mobility is a prerequisite for price convergence. Labor mobility can also be restricted by law or practice. Thus, physical mobility is not a particularly appropriate metric to explain labor market integration.

Price convergence offers a more informative measure of market convergence. An array of academic studies, particularly those related to agriculture markets, employ price convergence as a measure of market integration (see Dawson and Dey 2002, Mohanty, Peterson, and Smith 1996, Ghosh 2003, and Mohanty and Langeley 2003). Some studies (McCallum 1995 and Engel and Rogers 1994) use output prices to gauge market integration and show that price differences suggest that borders bisect markets; yet, this approach has led researchers to publish contradictory results as well (e.g., Berkowitz and DeJong 2003 and Knetter and Slaughter 2001).

Several other papers apply the metric of price convergence to labor markets. For example, Rothenberg (1988) ties labor market integration to wage rate dispersion. Rosenbloom (1989, 1994) measures labor market integration by comparing differences in wage levels. Similarly, Allen (1990) assess the degree of integration of labor markets between regions with migration through a real wage convergence lens. Using covariation and convergence of wages, Robertson (2000) finds that integration of U.S. and Mexican labor markets occurred prior to the signing of the North American Free Trade Agreement (NAFTA).

The question over proper operationalization of measuring price convergence has also motivated many studies, and a debate regarding the effects of purchasing power parity and market integration has manifested as a result (e.g., Broda and Weinstein 2006, Engel and Rogers 1994, and Robertson, Kumar, and Dutkowsky 2009). A common conclusion, however, is that, while barriers to trade prevent price convergence, prices can be cointegrated across markets with barriers present. Papers that apply cointegration to markets include Paul, Miljkovic, and Ipe (2001), Mohanty, Peterson, and Smith (1996), Ghosh (2003), and Mohanty and Langeley (2003).

B. Theoretical Framework

The labor market integration literature offers three measures of labor market integration. The first is the difference in absolute wage levels. The second is the co-movement of wages over time. The third is the rate of convergence back to an equilibrium differential. All of these measures focus on the wage differential between two countries for similar workers. Although it is well-known that the trade-theoretic prediction of Factor Price Equalization rarely holds, we present measures of the size of differentials between countries to illustrate and motivate the additional two measures. We posit that the difference in absolute wage levels differential is a function of labor-market integration following Robertson (2000).

Consider an economy composed of two countries ("A" and "B"). We assume that labor in the two countries are price substitutes, such that an increase in the wages of "A" workers increases the demand for "B" workers. We also assume that capital flows between the two regions are not instantaneous, such that the lagged country B wage affects the demand for labor in country A. A general form that captures the previous assumptions is:

(1) $$L_{jt}^{dA} = \delta_0 + \delta_1 w_{jt-1}^{B} - \delta_2 [w_{jt}^{A} - \gamma w_{jt-1}^{A}] + \delta_{3j}$$

Where L^{dA} is labor demand in country A, w^A is the natural log of the country A wage, and w^B is the natural log of the country B wage. The subscript j represents an education-experience group and subscript t represents the time period. The parameter γ captures the responsiveness of demand to lagged wages, and δ_{3j} is a group-specific effect on labor demand.

If wages rise in country B, country A workers may choose to emigrate to country B. We assume that workers may migrate instantaneously from one region to another, because labor is more mobile than factors that shift demand, such as capital. Therefore, the supply of country A labor is responsive to wage levels in both regions. A general form that captures these assumptions is:

$$L_{jt}^{sA} = \sigma_0 - \sigma_1 w_{jt}^{B} + \sigma_2[w_{jt}^{A} - \varphi w_{jt-1}^{A}] + \sigma_{3j} \tag{2}$$

The variable L^s represents labor supply. The subscript j represents an education-experience group and subscript t represents the time period. The parameter φ captures the responsiveness of supply to lagged wages, and σ_{3j} is a group-specific effect on labor supply.

The coefficients δ_1 and σ_1 represent the cost of migration to demanders and suppliers of labor, respectively. These costs are exogenous, but they are high enough to prevent perfect wage equalization from occurring.[1] In the presence of exogenous costs, an equilibrium differential separates regional wages. Wage shocks may temporarily move wages away from such an equilibrium, but they will eventually return to it. We represent equilibrium as:

$$\delta_0 + \delta_1 w_{jt-1}^{B} - \delta_2\left[w_{jt}^{A} - \gamma w_{jt-1}^{A}\right] + \delta_{3j} = \sigma_0 - \sigma_1 w_{jt-1}^{B} + \sigma_2[w_{jt}^{A} - \varphi w_{jt-1}^{A}] + \sigma_{3j} \tag{3}$$

That is, such that demand equals supply. By solving (3) for the current country A wage, we obtain an expression in terms of the lagged country A wage, the current and lagged country B wage:

$$w_{jt}^{A} = \frac{\delta_0-\sigma_0}{\delta_2+\sigma_2} + \frac{\delta_{3j}-\sigma_{3j}}{\delta_2+\sigma_2} + \frac{\gamma\delta_2+\varphi\sigma_2}{\delta_2+\sigma_2} w_{jt-1}^{A} + \frac{\sigma_1}{\delta_2+\sigma_2} w_{jt}^{B} + \frac{\delta_1}{\delta_2+\sigma_2} w_{jt-1}^{B} \tag{4}$$

For the sake of simplicity, we may rewrite (4) as:

$$w_{jt}^{A} = a_0 + a_{0j} + a_1 w_{jt-1}^{A} + e_1 w_{jt}^{B} + e_2 w_{jt-1}^{B} \tag{5}$$

[1] As an example of these migration costs, Roberts et al. (2010) estimate smuggling costs.

As specified in Robertson (2000), Hendry and Ericsson (1991) show that long-run homogeneity between w^A and w^B implies that the sum of a_1, e_1 and e_2 equals 1. Thus, we may take a differenced form of (5) to obtain:

$$\Delta w^A_{jt} = \alpha_0 + \alpha_1 \Delta w^B_{jt} + \alpha_2 (w^A - w^B)_{jt-1} + \mu_{jt} \quad (6)$$

This equation represents the first measure of labor market integration: the responsiveness to shocks from another country (represented by the alpha 1 parameter) and the speed at which the wages, when shocked, return to the equilibrium differential (the alpha 2 parameter). Measuring labor market integration in this way allows for a persistent "place premium" described elsewhere in the literature. More integrated markets will have stronger responses to shocks (larger alpha 1 parameters) and faster convergence speeds (more negative alpha 2 parameters). Measuring labor market integration in this way captures the "short run."

In the long run, however, we might think that wages would converge. The wage differences between two countries may remain large in the short run, but economic integration in the longer run is often predicted to lead to convergence. An alternative measure is the estimated long-run equilibrium wage differential. The condition of equilibrium implies that wages in both regions are such that labor markets clear; as long as labor markets remain in equilibrium, wage levels do not change over time. As a result, $\Delta w^A_{jt} = 0$, $\Delta w^B_{jt} = 0$ and $(w^A - w^B)_{jt-1} = (w^A - w^B)_{jt}$. We impose this restriction and solve for $(w^A - w^B)_{jt}$:

$$(w^A - w^B)_{jt} = -\left(\frac{\alpha_0}{\alpha_2}\right)_{jt} + \varepsilon_{jt} \quad (7)$$

We then estimate the long-run equilibrium wage differential between matched workers across country pairs. As illustrated above, the equilibrium differential is a function of the "deep" parameters that capture the responsiveness of capital and labor mobility on wages. Deepening economic integration, changes in policy, and a host of other factors may affect the long-run differential. Since the differential may also be affected by changes in the domestic wage structures, we also analyze how the differential changes in the context of changes in the domestic wage structure.

III. Data and Stylized Facts

A. Migration Data

To evaluate labor market integration in Central America, we combine several different datasets. Since migration is a key element of labor market integration, we first present migration data from the United Nations (2015). These data, collected by the Department of Economic and Social Affairs, include bilateral migration stocks for 2015. Since the United States is the number one migration destination, Figure 1 illustrates Central American migrants living in the United States. As is well-known, Mexican migrants are the largest population group. In fact, Table 1 lists the top ten immigration pair countries (the pairs with the largest bilateral flows), and Mexico and the United States topped the list in 2010. Figure 1 also shows that El Salvador and Guatemala have the largest migrant populations in the United States among Central American countries. Nicaragua, Panama, and Belize make up two percent or less of the Central American migrant population in the United States.

Figure 2 shows some of the migration trends over time, which seem to be generally negative. In particular, migration from El Salvador and Guatemala fell from their 2006 peaks. Migration from Honduras and Nicaragua are relatively stable since the mid 2000s, but remain at lower levels than El Salvador and Guatemala.

Bilateral migration within Central America is relatively low – even when Mexico is included. Figure 3 shows bilateral migration for 2015, again using the United Nations (2015) data. The most striking aspect of Figure 3 is the relatively high level of migration from Nicaragua to Costa Rica, as shown by the outstanding bar near the back of the figure. Migration from Guatemala to Mexico is a very distant second in terms of total counts. Overall, however, there is very little bilateral migration within Central America.

B. Macroeconomic Data: GDP per capita

C. Microeconomic Data

One concern about all three integration measures proposed in this paper is that many different factors contribute to an individual's wage. Gender, education, age, experience, industry, and other factors can all explain at least part of any worker's total earnings. Differences in demographic characteristics across countries can therefore explain differences in mean wages across countries. For example, the poorer countries generally have much younger populations spikes at the younger ages. Demographic differences can affect aggregate comparisons (such as GDP per capita). In order to control for these potential differences, it is important to seek individual-level data. Household surveys contain information about individual worker characteristics and earnings.

Seventeen Latin American countries have data that can be used to generate wage comparisons for similar workers across countries. In this section, we describe household surveys from 17 Latin American countries: Argentina, Bolivia, Brazil. Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, and Uruguay. Not all years are included in all surveys. To maximize the overlap between samples, use use data that cover the 2000-2014 period. To limit the sample to workers, we drop workers younger than 18 and older than 65. We also limit the sample to males whose earnings fall between the bottom one percent and top one percent of earnings in order to minimize the influence of outliers.

Since the household surveys are collected for countries that differ in terms of total population and government resources, the sample sizes vary a great deal across countries. Table 2 shows the sample sizes for the 17 countries in our dataset. The numbers in Table 2 show the average number of observations per year after we have imposed the sample restrictions. Mexico, which collects data quarterly, has the largest sample and Nicaragua has the smallest sample. Even the smallest samples, however, surpass the quantity generally understood to be necessary for results to be reliable.

Earnings in the data are in nominal local currency units. Using the World Bank purchasing-power parity (PPP) adjustments for each country, earnings are transformed into constant (2011) PPP dollar valus so that they can be directly compared across countries. The mean wages, not adjusted for demographic differences, are shown in Figure 4.

Figure 4 reveals many known features of wages. Monthly earnings in Costa Rica and Panama are high, and earnings in Nicaragua and Honduras are relatively low. Earnings in Guatemala, however, emerge as the highest in Central America, which raises some concerns about the earnings data. Cross-checking the data with other sources, however, reveals that the same pattern emerges in other studies. We therefore will present results with and without Guatemala to explore the potential robustness of the results. Figure 4 also shows average wages for other countries in Latin America. Chile, Uruguay, and Argentina have high PPP adjusted earnings. Perhaps surprisingly, Peru's wages emerge as the highest in Latin America, which, again, might raise concerns about the data.

To explore the possible concerns about Peru and Guatemala, we compares the mean earnings with gross domestic product per capita (GDP). Figure 5 contains the GDP per capita over time, along with significant dates for Central America. GDP contains both labor earnings and capital earnings, while our household surveys only contain labor earnings. Therefore, the comparison should be better when capital earnings are smaller. To formally compare the GDP per capita and our earnings differentials, Figure 6 shows a scatterplot of GDP per capita and our measure of earnings. Figure 6 shows that the relationship between GDP and mean earnings from the household survey data is strong and positive. Guatemala and Peru are clearly outliers, and both countries are found above the estimated regression line. The main implication is that earnings in Guatemala and Peru are over-estimated in the household surveys. One potential issue is the PPP conversion factors, which will be explored in the next round of revisions of this paper.

To control for demographic differences across countries, we define five age groups (18-26, 27-35, 37-45,46-53, and 54-65) and five education groups based on years of education (1-5, 6-8, 9-11, 12-15, and more than 16 years). Using sample weights, we generate the mean of PPP-adjusted 2005 dollar-value monthly earnings for each cell. These cells are identified by age, education, country, and year. The cells are then matched by country pair. Each country pair would then have two versions of the match.

Following the theoretic framework above, each country is country "A" and each country is country "B". All of the A-A and B-B matches are dropped so that no country is matched with itself. Since the AB and BA matches generate the same absolute value of the differential between countries, half of the observations are dropped when analyzing trends in differentials. The differences between wages represent the demographic-adjusted wage differentials.

Matching the cells in this way over countries generates comparisons that could, in practice, generate similar wage gaps across cells if the factors explaining the wage differences between countries were purely country-specific. Figure 7, however, shows that the differentials are not the same over the age-education groups. The differentials are the largest for the oldest, least educated workers (shown in the upper left corner of Figure 7). In contrast, the mean wage gaps are smallest for the middle-educated youngest workers, such as the 18-26 year-olds with 9-11 years of education. As it turns out, the youngest, middle-educated workers also happen to be those most likely to migrate. Being mobile may help reduce the differentials across countries as described in the literature cited above.

Taking the overall mean differentials (that is, the average differential across all age-education groups over all country pairs) for each year illustrates how the differentials have changed over the sample period. Figure 8 shows that the differentials have been falling significantly over time. The change in mean differentials over time is shown in Figure 8. The mean differential and the standard deviation of the differentials over time both fall sharply until about 2012. The falling differentials suggest the convergence of earnings across countries. It is possible that the poorer countries were experiencing rising wages during this period, but it is also possible that the richest countries were experiencing falling wages. Either way, however, Figure 8 shows increasing wage convergence in Central America. Increasing wage convergence is one potential sign of increased labor market integration. To explore this result more formally, we turn to the empirical results.

IV. Empirical Results

The empirical results are divided into three parts. The first part focuses on the trends in wage differentials using equation (7) as a guiding equation. The second part focuses on the other two measures of economic integration outlined in the theory section. The third part looks at a specific channel of labor market integration: U.S. apparel imports and remittances to Central America.

A. Trend Results

For the empirical analysis, we refer to equation (7). An equilibrium is defined as there being no changes to wages so that the differences between countries are at their long-run levels. These long-run levels may change over time, however, as technology or other variables change. Table 3 shows the results from a regression of the differentials on a time trend. The reason for Table 3 is to test the hypothesis that convergence in Central America was somehow different from wage convergence in the rest of Latin America. Table 3's first column shows that differentials were indeed falling, but slowly. The second column of Table 3 breaks out Central America and tests the hypothesis that the wage differentials were falling faster in Central America. The point estimate of -0.020 does suggest that the differentials were falling (much) faster in Central America, but the difference over time is not statistically significant. Therefore, it is not clear that Central America was necessarily experiencing falling differentials that were different than Latin America.

Table 3 estimates a constant trend, but it is possible that the trends of convergence were different before and after the global financial crisis. Table 4 shows that the rates of convergence were faster after the beginning of the financial crisis. The estimates in the first column of Table 4 compare the trend of convergence relative to the 2000-2004 period. The negative coefficients for 2005-2009 and the slightly larger (in absolute value) coefficient for 2010-2013 show that the differentials were smaller in the later part of the sample period. The second column again formally tests that Central America experienced differences from the rest of Latin America. Although the differentials are higher in Central America than for Latin America on average (as shown by the positive CAM estimate), and the estimates for Central America for both later period are quite large, the estimates for the differences are imprecisely estimated so that on would have to conclude that there is no statistically significant difference in the differentials in the two later periods.

B. Error-Correction Model Results

Two other measures of labor market integration are the responsiveness to shocks and the rate of convergence back to the long-run differential. In this section, we report the results from estimating equation (6) using the pair-wise matched age—education cell data. The first set of results are found in Table 5. The first column includes the baseline results for equation (6). The first estimate is the responsiveness to shocks. That is, if wages change in region A, region B's wages also change by the amount suggested by the estimated coefficient. The coefficient estimates are positive and statistically significant. The values suggest that countries respond to shocks in other countries in Latin America.

The second estimate, convergence speed, is negative as expected. The larger country A's wages are relative to region B, the larger the negative change in wages in country A. Thus, the larger the value is in absolute value, the faster the rate of convergence back to the equilibrium differential. As with the shock estimate, the estimate is statistically significant. Thus, the results in column 1 suggest that Latin American labor markets are integrated.

The second column of Table 5 also presents estimates of equation (6), but with the addition of fixed effects for both education and age. Adding these fixed effects allows for the possibility that the different age and education groups have different differentials, as shown in figure 6. Note that including these controls has very little effect on the estimate parameters. Both estimates have about the same value and are both still statistically significant.

Turning to Central America in particular, column 3 suggests that Central American labor markets are slightly more responsive to common shocks than Latin America generally, but have a slightly slower convergence speed. The same message emerges when we include controls for education and age in column 4. The main message here is that Central American labor markets are not very different in terms of labor market integration than the rest of Latin American labor markets.

One question that emerges is whether or not countries that share a border or are geographically closer are more integrated. Table 6a reports estimates of equation (6) that allow for the estimates to differ for countries that share a physical border. The first column contains the analogous baseline results shown in Table 5. The main messages are consistent: countries show statistically significant evidence of labor market integration. The border effects are marginal effects, which means that the "X Border" estimates are the difference from the main estimates shown above each border estimate. The shock border estimate is positive and suggests that bordering countries are about 17% more responsive to neighbor's shocks. Bordering countries also exhibit faster convergence speeds. The negative border effect suggests that bordering countries converge about 11% faster than non-bordering countries.

When age and education controls are included, the coefficient estimates are basically the same, but the marginal shock term is no longer statistically significant at traditional levels. The convergence speed estimates are basically the same and the marginal effects are statistically significant, which supports the intuitive result that bordering countries have more integrated labor markets.

Turning again to Central America, column 3 shows again that the Central American countries have integrated labor markets, but the bordering countries are not necessarily more integrated than non-bordering countries. This may not be surprising since the Central American countries are all small and geographically very close. Interestingly, the convergence coefficients for the marginal border effects are positive (but not statistically significant), which would imply that bordering countries are slightly less integrated. Again, however, these estimates are not statistically significant so the main conclusion seems to be that bordering countries in Central America are not necessarily more integrated than non-bordering countries.

Table 6b is very similar to Table 6a, except that instead of controlling for a common border the regressions include a measure of distance between the capital cities of each country. As it turns out, the effect of distance is very large. The estimated responsiveness to shocks, as shown in the first row, is much larger than in other tables. The effect of distance is also significant (and negative). Countries that are closest have highly correlated shocks, and distance attenuates the correlation of the shocks. Including distance seems to reduce the estimate of the speed of convergence, and the direct effect of distance is to reduce the rate of convergence back to the equilibrium differential (but not significantly so for Central America). The main messages from Table 6a, however, are the same. Central American measures of integration are similar to those in the rest of Latin America.

Mexico, which is clearly very large relative to Central American countries, may have shocks that affect Central America. To estimate Mexico's influence into Central American countries, we estimate equation (6) using Mexico as country B for all of Latin America. We include the controls for bordering countries. The results in Table 7 suggest that Latin American countries do not respond in a statistically significant way to Mexican shocks. Actually, the estimated values are negative, but are not statistically significant. The convergence estimates are negative, but the border effects (which basically pulls out Guatemala) are positive, which means that Guatemala is especially less integrated with Mexico than other Latin American countries. The same results emerge when age and education controls are included in Column 2.

In unreported results, we also used the United States as country "B" and estimated the responsiveness of Latin American wages to U.S. shocks. None of these results were statistically significant. In other words, our estimates do not support the hypothesis that the Latin American countries' labor markets are significantly integrated with the United States labor market. These results contrast sharply with the results that emerge when focusing on the United States and Mexico using quarterly data. The results suggest, in fact, that the Mexican and U.S. labor markets are more integrated than even internal Mexican labor markets.

One of the main assumptions in the model is that workers respond to wage differentials by migrating. Migration decisions are complex and are the result of economic, social, and political factors (Jennissen (2007) and Massey, D. S., Durand, J., & Pren, K. A. (2014)). Others suggest that even more factors can be identified (e.g. see Fawcett (1989)'s matrix of states, culture, regulation, and relational linkages). Migrant networks also help determine where migrants go and settle (Figueroa (2016). These migration networks help to lower communication and information costs and strengthen the links between countries (Chinchilla and Hamilton 1999). Family networks influence both documented and undocumented immigration flows (1989).

The importance of chain migration and migration networks is clearly established in the literature. Chain migration does not, however, rule out the responsiveness of migrants to economic opportunities and wage differentials. On the contrary, migration networks can make migrants *more* responsive to wage differentials. Thus, migration theory suggests that migration will be larger when the wage differentials are larger, holding all else constant. To evaluate this hypothesis, Table 8 shows the estimates of the relationship between migration flows and the estimated wage differentials. The first column reports a simple bivariate regression. The results suggest that the relationship between migration and the wage differentials are positive, but only statistically significant at the ten percent level. When the border variable is added to capture countries that share a physical border, the border effect is quite large, positive, and statistically significant. The results suggest that countries with large wage differentials and that share a border have a large amount of migration.

Earlier we expressed concerns about Guatemala's wage data. The results in column 3 show that the estimated results of this simple regression greatly improve when Guatemala is excluded. The results suggest that there is large, positive, and statistically significant relationship between wage differentials and migration flows, and that this relationship is much stronger between countries that share a physical border. The results in column 3 are consistent with the theory outlined above, and raise additional concerns about the validity of the Guatemalan data.

To explore the potential effects without Guatemala further, Table 9 contains the estimates of the same regressions as in Table 5, but excluding Guatemala. The results are somewhat stronger in the sense that the absolute values of the estimated coefficients are larger. In particular, the Central American results excluding Guatemala suggest that Central America is much more responsive to neighbor's shocks than the rest of Latin America. The estimated rate of convergence, however, is about the same. The results from Table 5 are not driven by including Guatemala, and removing Guatemala seems to generate results that are more consistent with theory.

C. Apparel Trade and Remittances

Using wage differentials, the preceding analysis suggests that Central American labor markets are integrated, but not necessarily more than other Latin American countries. Perhaps surprisingly, the United States does not seem to have an aggregate impact on Central America using the wage differentials analysis. This does not, however, mean that the U.S. and Central American markets are not related. One potential way for the U.S. and Central American markets to be linked is through trade and migration. While the preceding analysis does not find that changes in aggregate U.S. wages are related to aggregate Central American wages, it is possible that specific industries are closely linked.

Possibly the leading candidate for such linkages is apparel. Latin America's relatively large supply of labor creates a comparative advantages in the textile and apparel trade (Dicken, 2003). The World Trade Organization (WTO) in 1995 helped gradually phase out quotas. Other changes, like the Agreement on Textiles and Clothing (ATC), bolstered Chinese and East Asian export markets (Doyran and DelaCruz, 2011). The Latin American-U.S. apparel trade partnership has been cited as important to Latin American economic growth. Since the Central American Free Trade Agreement (including the Dominican Republic), also known as CAFTA-DR, the U.S. has increased apparel imports from Central America. Figure 9 shows U.S. apparel imports from Mexico and three Central American countries to illustrate the growth in Central American apparel imports. Note that there is variation over time and countries in U.S. apparel imports.

Apparel is important for understanding the links between trade and migration for at least two reasons. First, apparel is labor-intensive, which means that the worker-to-output ratio is relatively high. Expanding apparel production often requires many workers. Second, apparel is often the first step in the process of industrialization and therefore draws workers from agriculture (see Robertson, Brown, Pierre, and Sanchez-Puerta (2009)). Thus, apparel is an alternative to agriculture. Apparel employment may also be an alternative for migration.

If apparel employment is an alternative for migration, then we would expect that trade and migration are substitutes. Aroca et al. (2005) suggest that trade with developing countries can boost the domestic employment opportunities in the developing countries and reduce the propensity for domestic workers to migrate to higher-income countries. Aroca et al. (2005) argue that trade (perhaps mixed with FDI) reduces the incentives to migrate (2005).[2] Falling trade may increase the incentive for migration so that remittances may help compensate for the lack of domestic labor market opportunities. When migration increases, however, remittances encourage chain migration (Massey et al. 2014, Dimova & Wolff, 2015). Remittances have become an important source of funding for local development, such as Guatemala and El Salvador.

Remittances, therefore, are an imperfect yet valid proxy for migration (United Kingdom's House of Commons 2013). Migration is often measured with error, both statistically based (i.e. small sample size) and systemic biases. Respondents may provide inaccurate information or be unwilling to participate. As a result, remittance data often serves as a proxy for migration (Docquier et al., 2011). In our case, we therefore us remittances as our primary independent variable.

Trade Data

The trade data used in this section come from the U.S. Department of Commerce's International Trade Administration. Specifically, the U.S. Office of Textile and Apparel (OTEXA)posts monthly data for U.S. General imports of Textile and Apparel Products by country of origin. The data include both a value (dollar) figure and a quantity (square meter equivalent (SME)) figure. We replace all missing values with zero[3] and summed the monthly values into annual totals.

Remittance Data

[2] While trade increases labor demand, Aydemir and Borjas (2006) and Mishra (2003) find that migration has a strong positive effect on Mexican wages due to changes in the local labor supply.
[3] Gromski et al. argue that zero replacement methods "perform relatively well" in terms of data accuracy, second to the random forest imputation technique (2014).

The remittance data for 1970 to 2016 come from the World Bank's Understanding Poverty website.[4] Comparing remittance data with the migration data from the same website shows that remittances and migration data follow a pattern similar to migration. The average increase in remittances between 1989 and 2016 reached 11.38%, with a maximum increase of 34.68% between 2002 and 2003. The minimum increase (or greatest decrease) occurred between 2008 and 2009, which coincides with the global financial crisis.

The dataset measures annual inflow of remittances to each country in U.S. dollar terms. Table 10 contains the summary statistics for both remittances and U.S. apparel imports (both in millions of nominal U.S. dollars). The figures in the table are the mean values by country, which means that the figures are the average across years for each country. The values show that Mexico is clearly an outlier, but remittances are important for several other countries as well. Remittances tend to increase over time, especially in Mexico, Guatemala, and Colombia. Bolivia, Honduras, El Salvador, Colombia, and Guatemala all indicate remittance increases in recent years.

Analysis

Since the data are in panel format, panel techniques can be applied to estimate the relationship between remittances and U.S. apparel imports. We present estimates in for both values and quantities, and first present the value estimates in Table 11. Table 11 has four columns. The first has the simple ordinary least squares estimation of

$$\text{Remittances}_{it} = \alpha + \beta \text{Imports}_{it} + e_{it} \quad (8)$$

in which both variables are expressed in natural logs.

The first column shows that the relationship between U.S. imports and remittances is positive and significant. This result suggests that U.S. imports increase, so do remittances, which is the opposite of

[4] The World Bank. Migration and Remittances Data (2015) http://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data

what we expected. The positive coefficient suggests that U.S. imports and remittances are complements. The second column shows the random effect results, which are closer to zero and not statistically significant. The third column shows that the fixed effect results generates a marginally significant negative coefficient. The final column shows a strongly significant and negative coefficient.

The reason why the sign of the coefficients changes as we move to the right is that the estimated regression captures two phenomena. The first is that countries that send migrants also produce and export apparel. Thus, in the cross-section, we would expect a positive relationship. The random effects regressions are essentially a mix of the cross-section and time-series variation. The real question that we pose, however, relies on the time-series variation. The time series variation is identified in the third and fourth columns using fixed effects estimation. The fixed effects estimation essentially controls for the fact that we import more from countries that send more migrants. To see if a drop in U.S. imports contribute to rising remittances, we rely on the fixed effects regressions. The fixed effects results show that, in fact, falling U.S. imports of apparel are correlated with rising remittances and, by implication, rising migration. Thus, the negative values in the third and fourth columns suggest that migration and trade are substitutes. The results also show how the U.S. and Central American economies are linked. Falling demand for apparel exports seems to motivate workers to migration in search of remittances.

While the results in Table 11 are strong, they could be sensitive to changes in the apparel prices. In other words, falling global apparel prices would reduce the value of the imports, even if the quantity were to increase. Since the quantity is more closely linked to employment than the value, we would therefore expect that using apparel quantities instead of values would be a more accurate indicator of the trade-remittance relationship.

The results in Table 12 follow the same format as the results in Table 11 in the sense that the four columns follow the same progression as one moves from left to right. Qualitatively, the results are very similar to those in Table 11. The OLS estimates are positive and the random effects estimates are close to zero. One key difference in Table 12 is that the results in column 3 are no longer marginally statistically significant; they are strongly statistically significant. The results are best interpreted as an elasticity: A ten percent increase in apparel exports would reduce remittances by about 1.1 percent. The fact that the elasticity estimate is less than one could be due to the importance of chain migration. That is, once migration starts, the other factors that contribute to migration increase in importance. Nevertheless, the results in Table 12 show that the relationship is strong, negative, and lasting.

V. Conclusions and Policy Implications

Labor market integration is important because it measures the success of efforts to foster economic integration more broadly, such as trade agreements, investment incentives, and even policies to facilitate migration. Overall the results presented in this paper complement earlier work that finds that even without wage convergence, labor markets are integrated across countries. Central American labor markets in particular are integrated, and the results in this paper, especially the measure of wage convergence, suggests that labor markets in Central America are becoming more integrated. One potential mechanism driving this integration is migration, and the results here show that migration and wage differentials are positively related. That is, countries with larger wage differentials tend to have more migration and the wage differentials in Central America are falling over time.

One of the main policy concerns about globalization is how shocks in trading partners or regional neighbors would be transmitted into the domestic market. The estimates generated here can be used to generate estimates of how the local labor markets would respond to adverse foreign shocks. Using the data from Table 5 as a baseline, we can also estimate how a change in wages in a given country could be spread into another country in Latin America. Using the Central American results from Table 5, for example, suggests that a ten percent drop in wages in a partner country would cause domestic wages to fall by 1.2%. If wages fall because emigration is limited, or the labor supply of a neighboring country increases due to, say, migrants returning from the United States, the domestic labor market would, on average, experience falling wages. Table 6 shows that the results are only slightly stronger for countries that share a border, which implies that national policy makers should be concerned about events beyond their borders. Using the data from Table 9 generates similar implications. Even without the potential data issues in the Guatemalan data, a ten percent drop in wages in a neighboring country could cause wages to drop by about 1.5%. Policymakers, therefore, may want to anticipate potential changes in wages in other countries, especially those driven by migration restrictions.

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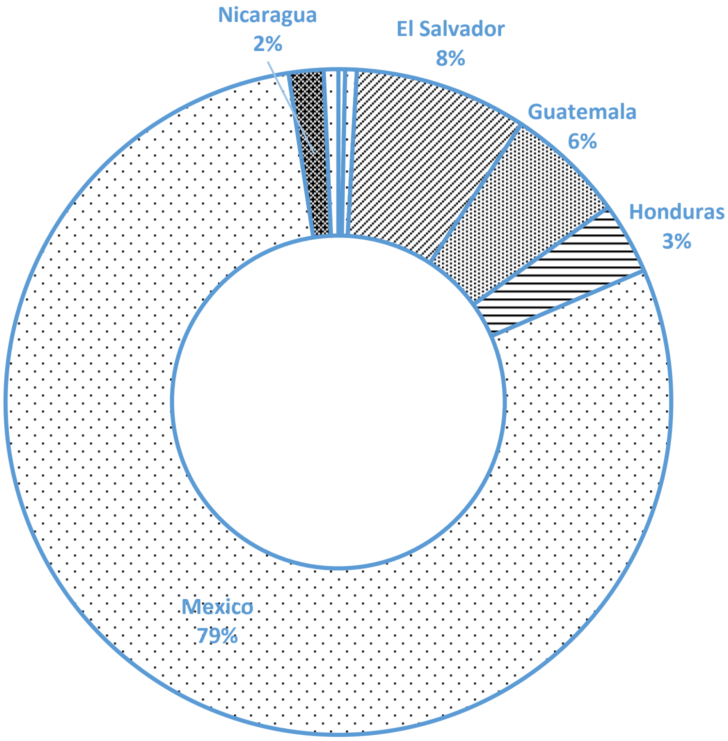
FIGURE 1: U.S. IMMIGRANT STOCK 2015



Source: United Nations, Department of Economic and Social Affairs (2015). Trends in International Migrant Stock: Migrants by Destination and Origin (United Nations database, POP/DB/MIG/Stock/Rev.2015). Additional countries between Nicaragua and El Salvador in the figure but not listed separately are Panama, Costa Rica, and Belize.

Figure 2: Migration Flows over Time from Central America to the United States

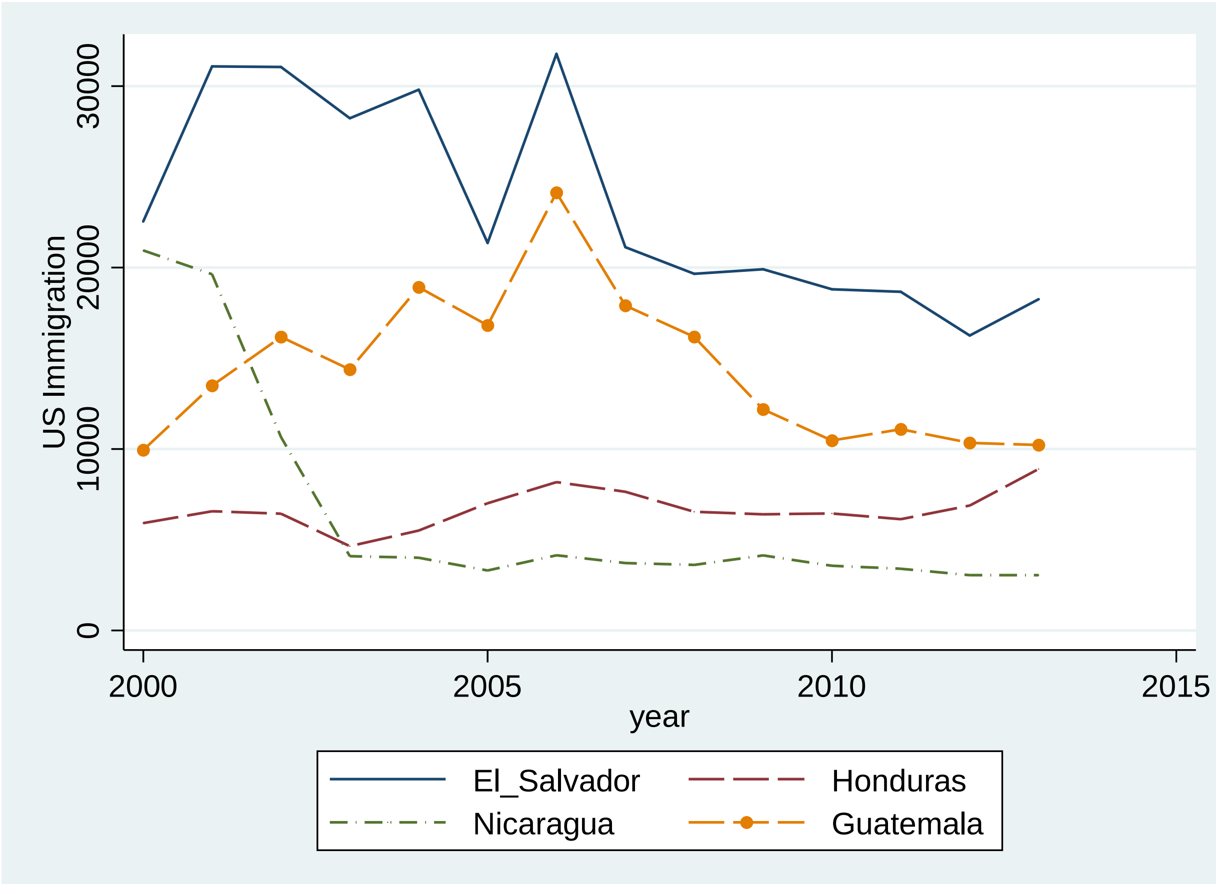


Figure 3: Central American Bilateral Migration 2015

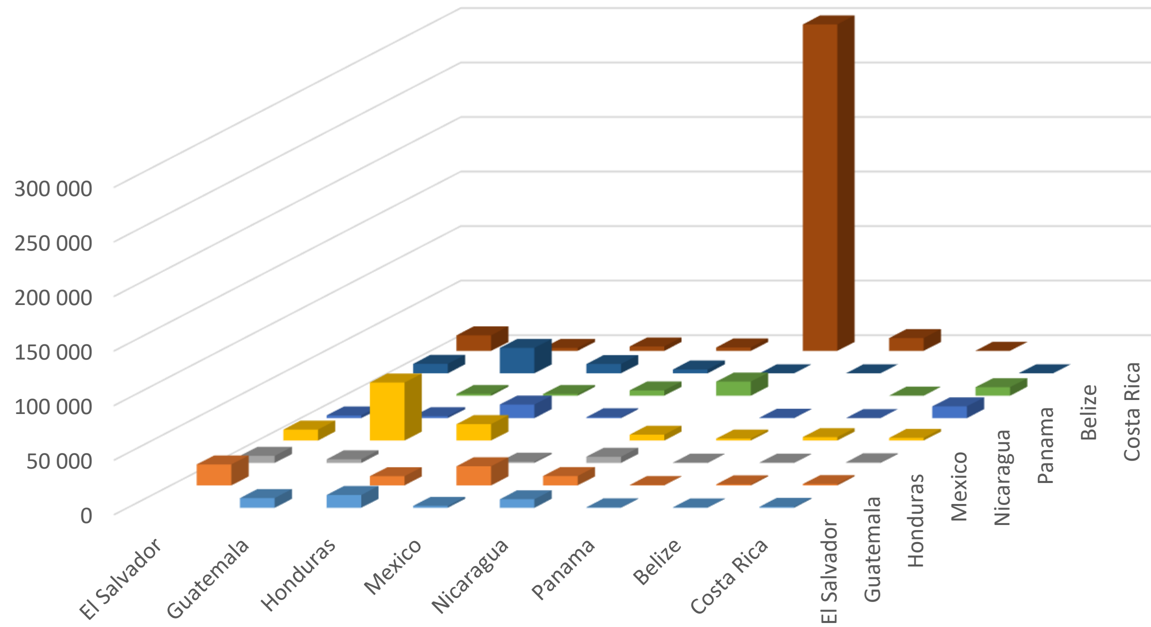


Figure 4: Monthly Earnings 2011 PPP USD

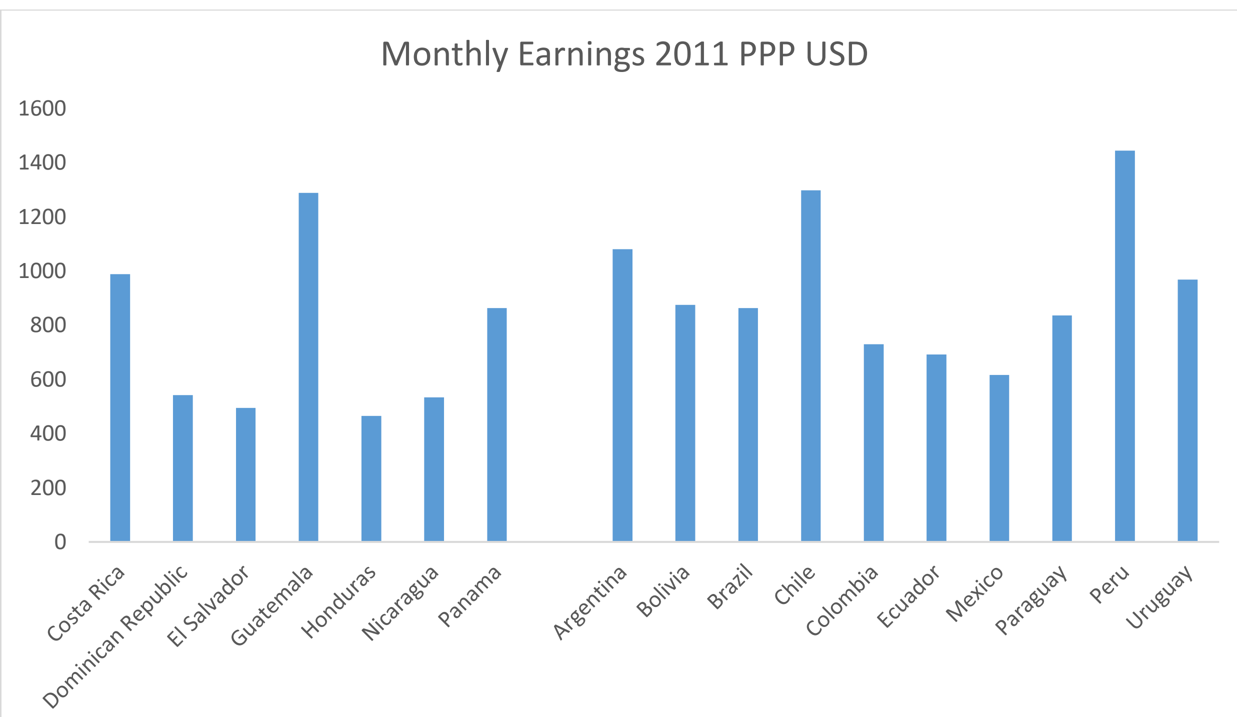
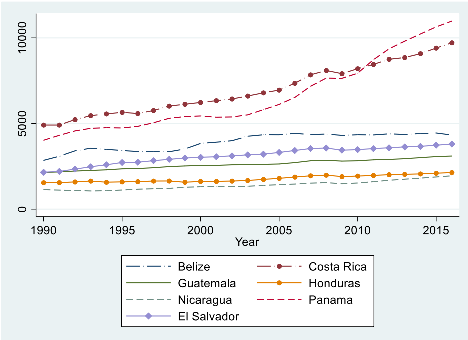


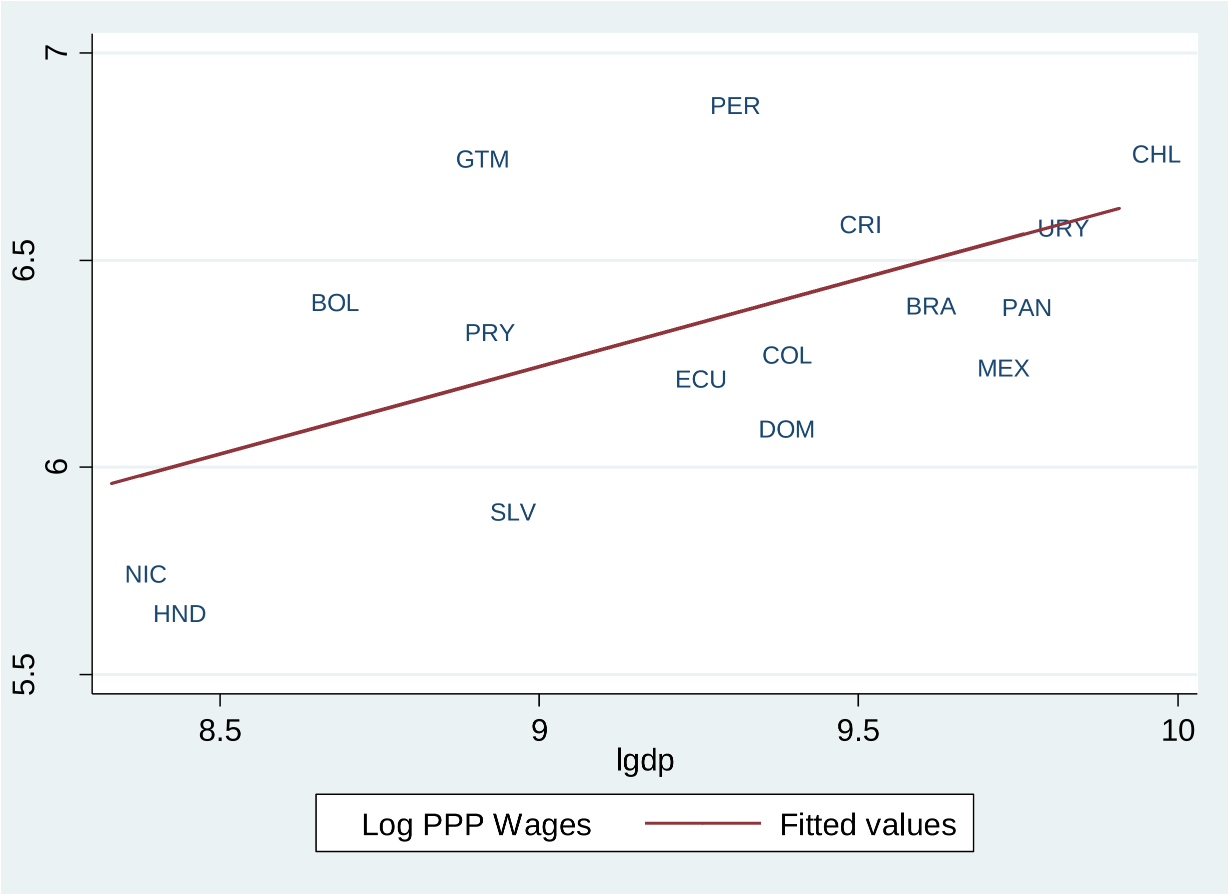
Figure 5: GDP per Capita



Notes: Data are from the World Bank Development Indicators. Units are constant (2010) U.S. dollars per capita.

DATES	
Hurricanes	
Felix (Honduras, Nicaragua)	2007
Stan (Guatemala, El Salvador, Honduras)	2005
Mitch (Honduras, Nicaragua)	1998
Tropical Storms	
Agatha (Guatemala, El Salvador, Honduras, Nicaragua)	2010
Earthquakes	
El Salvador	2001
Guatemala	2012
Costa Rica	1991
Costa Rica	2012
Nicaragua	1992
Costa Rica	2009
Honduras	2009
Miscellaneous	
CAFTA	2004

Figure 6: Comparing Household Wages to GDP/capita



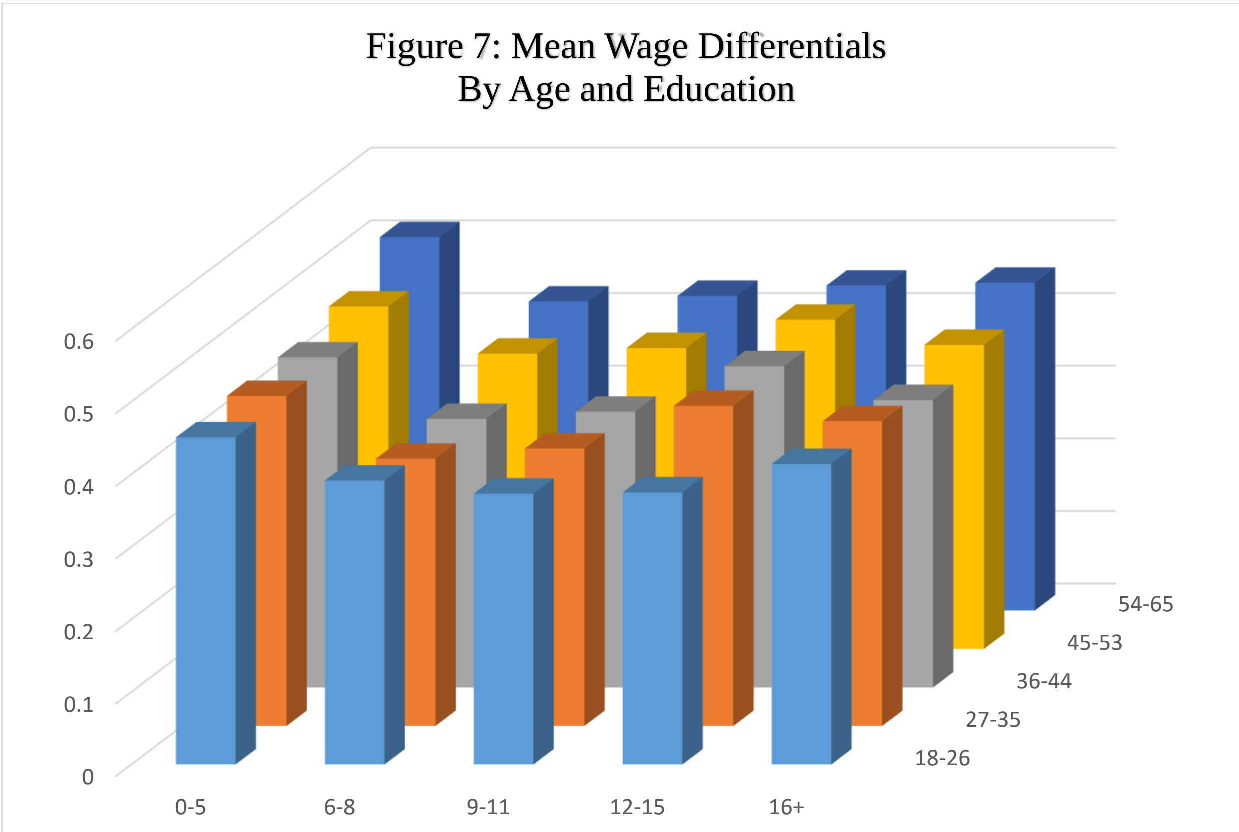
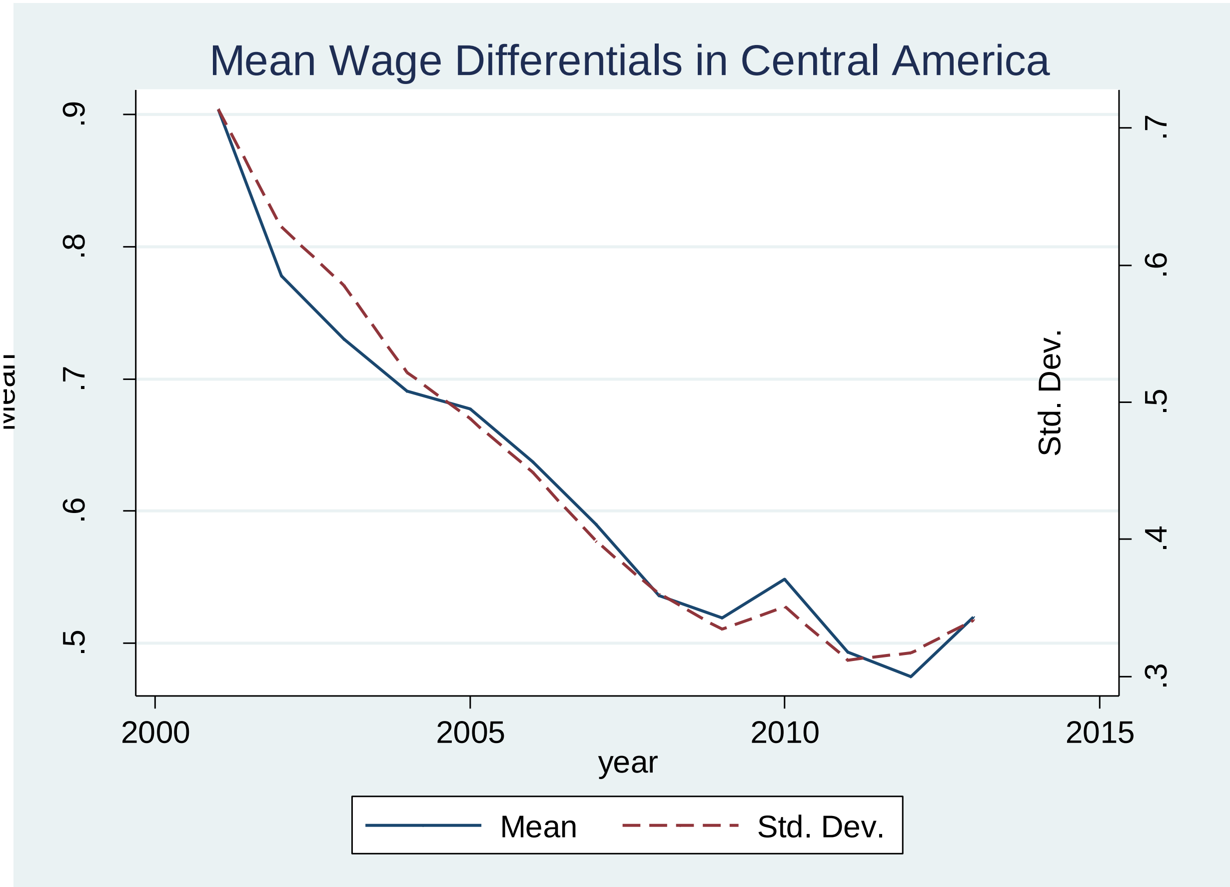


Figure 7: Mean Wage Differentials
By Age and Education
0.6
0.5
0.4
0.3
0.2
0.1
0
0-5
6-8
9-11
12-15
16+
54-65
45-53
36-44
27-35
18-26

Figure 8: Central American Differentials over Time



Notes: Data are from the Office of Textiles and Apparel (OTEXA). Values in billions of U.S. dollars.

Table 1: Top 10 Bilateral Migration Stocks 2010

Origin Country	Destination Country	Number of Migrants (2010)
Mexico	United States	11635995
Russian Federation	Ukraine	3684217
Ukraine	Russian Federation	3647234
Bangladesh	India	3299268
Turkey	Germany	2733108
Kazakhstan	Russian Federation	2648315
Russian Federation	Kazakhstan	2226706
China	Hong Kong SAR, China	2224503
India	United Arab Emirates	2185919
China	United States	1736314

Source: World Bank Global Migration database.
http://databank.worldbank.org/data/reports.aspx?source=global-bilateral-migration

Table 2: Household Survey Sample Sizes

Country	2000-2004	2005-2009	2010-2013	Total
Costa Rica	41,982	51,905	38,729	132,616
El Salvador	54,584	63,123	64,673	182,380
Honduras	46,310	77,118	23,988	147,416
Nicaragua	3,658	12,522	69,826	86,006
Panama	53,584	55,998	42,390	151,972
Guatemala	10,801		15,184	25,985
Argentina	57,441	63,165	50,685	171,291
Brazil	337,827	459,953	249,981	1,047,761
Chile	11,377	11,797	11,833	35,007
Colombia	97,123	115,284	172,999	385,406
Dominican Republic	26,903	32,039	26,098	85,040
Bolivia	19,445	15,575	21,456	56,476
Ecuador	45,611	81,447	65,495	192,553
Mexico	395,060	1,420,325	1,066,396	2,881,781
Paraguay	25,813	21,145	18,631	65,589
Peru	63,046	96,209	91,037	250,292
Uruguay	57,796	161,64	116,511	335,951
Total	1,348,361	2,739,249	2,145,912	6,233,522

Notes: Author's elaboration using data from household surveys.

Table 3: Wage Differentials over Time

	(1)	(2)
VARIABLES	Latin America	Central America
Year	-0.012*	-0.010*
	(0.006)	(0.005)
CAM		40.502
		(23.744)
CAM*Year		-0.020
		(0.012)
Constant	24.512*	20.923*
	(12.153)	(10.128)
Observations	89,550	89,550
R-squared	0.021	0.052

Notes: Author's elaboration using data from household surveys. Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Wage Differentials over Time

VARIABLES	(1) Latin America	(2) Central America
Period 2005-2009	-0.085***	-0.079***
	(0.024)	(0.021)
Period 2010-2013	-0.120**	-0.104**
	(0.056)	(0.047)
CAM		0.304***
		(0.095)
CAM*Period 2		-0.091
		(0.052)
CAM*Period 3		-0.180
		(0.106)
Constant	0.517***	0.488***
	(0.060)	(0.051)
Observations	89,550	89,550
R-squared	0.022	0.052

Notes: Author's elaboration using data from household surveys. Robust standard errors in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5: ECM Household Surveys

VARIABLES	(1) LAM Basline	(2) LAM Controls	(3) CAM Baseline	(4) CAM Controls
Response to Shocks	0.087*** (0.003)	0.084*** (0.003)	0.121*** (0.011)	0.117*** (0.011)
Convergence Speed	-0.054*** (0.001)	-0.054*** (0.001)	-0.051*** (0.002)	-0.050*** (0.002)
Constant	0.014*** (0.000)	0.030*** (0.001)	0.018*** (0.001)	0.033*** (0.004)
Observations	82,750	82,750	8,650	8,650
R-squared	0.050	0.053	0.077	0.080

Notes: Author's elaboration using data from household surveys. Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 6a: ECM Household Surveys with Border Effects

	(1)	(2)	(3)	(4)
VARIABLES	**LAM Basline**	**Ed/Age Controls**	**CAM Baseline**	**CAM Controls**
Resp. to Shocks	0.084***	0.081***	0.121***	0.118***
	(0.004)	(0.004)	(0.011)	(0.011)
X Border	0.014*	0.014	0.017	0.017
	(0.008)	(0.008)	(0.019)	(0.019)
Convergence Speed	-0.053***	-0.052***	-0.048***	-0.048***
	(0.001)	(0.001)	(0.002)	(0.002)
X Border	-0.006***	-0.006***	0.004	0.004
	(0.002)	(0.002)	(0.003)	(0.003)
Constant	0.014***	0.030***	0.015***	0.026***
	(0.000)	(0.001)	(0.001)	(0.004)
Observations	82,750	82,750	12,300	12,300
R-squared	0.050	0.053	0.072	0.075

Notes: Author's elaboration using data from household surveys. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6b: ECM Household Surveys with Distance Effects

VARIABLES	(1) LAM Basline	(2) Ed/Age Controls	(3) CAM Baseline	(4) CAM Controls
Resp. to Shocks	0.315***	0.310***	0.393***	0.387***
	(0.032)	(0.032)	(0.072)	(0.072)
X Distance	-0.029***	-0.029***	-0.041***	-0.040***
	(0.004)	(0.004)	(0.011)	(0.011)
Convergence Speed	-0.032***	-0.032***	-0.026**	-0.026*
	(0.006)	(0.006)	(0.013)	(0.013)
X Distance	-0.003***	-0.003***	-0.003	-0.003
	(0.001)	(0.001)	(0.002)	(0.002)
Constant	0.014***	0.030***	0.014***	0.026***
	(0.000)	(0.001)	(0.001)	(0.004)
Observations	82,750	82,750	12,300	12,300
R-squared	0.050	0.054	0.074	0.076

Notes: Author's elaboration using data from household surveys. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7: ECM Household Surveys with Mexico

VARIABLES	(1) LAM Basline	(2) Ed/Age Controls
Resp. to Shocks	-0.047	-0.045
	(0.042)	(0.042)
X Border	-0.133	-0.158
	(0.179)	(0.180)
Convergence Speed	-0.084***	-0.088***
	(0.004)	(0.005)
X Border	0.053***	0.052***
	(0.015)	(0.015)
Constant	0.016***	0.006
	(0.002)	(0.006)
Observations	5,000	5,000
R-squared	0.070	0.072

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Mexico is the only shock on the right-hand side. Note that the border effect therefore captures Guatemala, which is discussed later.

Table 8: Migration and Wage Differentials

VARIABLES	(1) Baseline	(2) Border	(3) No Guatemala
Wage D.	0.706*	0.407	1.323***
	(0.368)	(0.305)	(0.415)
Border		2.076***	2.212***
		(0.402)	(0.466)
Constant	7.746***	7.221***	7.322***
	(0.215)	(0.203)	(0.211)
Observations	53	53	39
R-squared	0.067	0.392	0.473

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Wage D. represents the mean wage differential between countries.

Table 9: ECM Without Guatemala

VARIABLES	(1) LAM Basline	(2) Ed/Age Controls	(3) CAM Baseline	(4) CAM Controls
Resp. to Shocks	0.090***	0.088***	0.152***	0.150***
	(0.004)	(0.004)	(0.010)	(0.010)
Convergence Speed	-0.058***	-0.058***	-0.057***	-0.056***
	(0.001)	(0.001)	(0.002)	(0.002)
Constant	0.012***	0.026***	0.010***	0.017***
	(0.000)	(0.001)	(0.001)	(0.004)
Observations	74,000	74,000	9,050	9,050
R-squared	0.056	0.058	0.107	0.108

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Remittances and U.S. Apparel Imports

Country	Remittances	U.S. Apparel Imports	Country	Remittances	U.S. Apparel Imports
Argentina	300.79	14.42	Guyana	148.22	6.26
	(257.12)	(14.56)		(154.73)	(3.17)
Belize	45.18	10.74	Honduras	1423.91	1868.63
	(28.08)	(7.92)		(1350.06)	(928.32)
Bolivia	469.68	13.54	Mexico	14654.88	4983.12
	(506.75)	(10.79)		(9709.17)	(2675.24)
Brazil	2375.67	217.02	Nicaragua	499.31	613.61
	(897.95)	(119.75)		(419.28)	(542.58)
Chile	27.24	24.19	Panama	227.55	16.21
	(49.86)	(13.39)		(192.68)	(20.18)
Colombia	2564.16	356.91	Paraguay	305.93	1.73
	(1660.17)	(120.66)		(182.61)	(3.47)
Costa Rica	304.39	472.38	Peru	1349.76	451.00
	(231.79)	(271.90)		(1022.62)	(276.39)
Ecuador	1570.78	12.43	Suriname	4.49	0.04
	(1108.98)	(6.02)		(5.22)	(0.05)
El Salvador	2333.28	1256.28	Uruguay	53.37	17.00
	(1399.60)	(660.25)		(54.40)	(17.94)
Guatemala	2476.50	1159.56	Venezuela	81.86	4.48
	(2333.43)	(502.18)		(80.30)	(5.22)

Notes: Remittances are calculated by World Bank staff based on data from IMF Balance of Payments Statistics database and data releases from central banks, national statistical agencies, and World Bank country desks. Ouflow data based on numbers reported by country authorities to IMF Balance of Payments. All numbers are in millions of current (nominal) US $. For a discussion of the definition of remittances, see Dilip Ratha, 2003, "Workers' Remittances: An Important and Stable Source of External Development Finance", Global Development Finance 2003, World Bank. Data since 2005 are based on IMF BOP Statistics that use the definitions of IMF BPM6. For latest data and analysis on migration and remittances, please visit http://www.worldbank.org/migration. U.S. apparel imports are from the Office of Textiles and Apparel (OTEXA). See http://otexa.trade.gov/.

Table 11: Remittances and U.S. Apparel Import Values

VARIABLES	(1) OLS	(2) Random Effects	(3) Fixed Effects	(4) Lagged Values
U.S. Import Values	0.418***	0.061	-0.085*	-0.386***
	(0.025)	(0.044)	(0.049)	(0.105)
Lagged Imports				0.308***
				(0.102)
Constant	-1.657***	4.417***	7.117***	7.063***
	(0.444)	(0.813)	(0.861)	(0.866)
Observations	519	519	519	503
R-squared	0.351	n.a.	0.006	0.028
Number of Countries	20	20	20	20

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Remittances are calculated by World Bank staff based on data from IMF Balance of Payments Statistics database and data releases from central banks, national statistical agencies, and World Bank country desks. Ouflow data based on numbers reported by country authorities to IMF Balance of Payments. All numbers are in millions of current (nominal) US $. For a discussion of the definition of remittances, see Dilip Ratha, 2003, "Workers' Remittances: An Important and Stable Source of External Development Finance", Global Development Finance 2003, World Bank. Data since 2005 are based on IMF BOP Statistics that use the definitions of IMF BPM6. For latest data and analysis on migration and remittances, please visit http://www.worldbank.org/migration. U.S. apparel imports are from the Office of Textiles and Apparel (OTEXA). See http://otexa.trade.gov/.

Table 12: Remittances and U.S. Apparel Import Quantities

VARIABLES	(1) OLS	(2) Random Effects	(3) Fixed Effects	(4) Lagged Values
U.S. Import Quantity	0.398***	0.025	-0.111**	-0.231***
	(0.025)	(0.040)	(0.044)	(0.076)
Lagged Imports				0.130*
				(0.075)
Constant	-0.960**	5.070***	7.475***	7.384***
	(0.418)	(0.712)	(0.727)	(0.740)
Observations	519	519	519	503
R-squared	0.334		0.013	0.023
Number of Countries		20	20	20

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Remittances are calculated by World Bank staff based on data from IMF Balance of Payments Statistics database and data releases from central banks, national statistical agencies, and World Bank country desks. Ouflow data based on numbers reported by country authorities to IMF Balance of Payments. All numbers are in millions of current (nominal) US $. For a discussion of the definition of remittances, see Dilip Ratha, 2003, "Workers' Remittances: An Important and Stable Source of External Development Finance", Global Development Finance 2003, World Bank. Data since 2005 are based on IMF BOP Statistics that use the definitions of IMF BPM6. For latest data and analysis on migration and remittances, please visit http://www.worldbank.org/migration. U.S. apparel imports are from the Office of Textiles and Apparel (OTEXA). See http://otexa.trade.gov/.