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"STAY WITH US?" THE IMPACT OF EMIGRATION ON WAGES IN HONDURAS

by

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PREFACE

In most industrialised countries, the issue of the impact of immigration on wages and unemployment is at the heart of academic and political debates. Opponents of immigration argue that it contributes to an increase in unemployment and to stagnation in real wages, a fact disputed by its defenders. On the other hand, the issue of the impact of emigration on the labour market in the countries of origin has sparked much less interest. Yet, the increase in the number of emigrants in most developing countries and the parallel growth of remittances produce non-negligible effects on the country of origin, and notably on its labour market.

Emigration issues now occupy an increasingly central place in foreign policy in many developing countries. Notably, migration constitutes a fact for a growing number of inhabitants, either because they have emigrated, have a family member that has emigrated or are indirectly affected, whether positively or negatively, by the course of migratory flows.

This paper analyses the links between emigration and labour markets in Honduras by exploiting the variation in the labour supply over time and finds that a 10% increase in emigration yielded an increase in wages of around 10% – an elasticity much higher than any previous study on the topic. The conclusions suggest that emigration generates a redistribution of wealth from capital to labour in the country.

This paper is part of the "Effective Partnerships for Better Migration Management and Development" project, financially supported by the John D. and Catherine T. MacArthur Foundation. Since June of 2008, the project has aimed at carrying-out an in-depth assessment of the migration-development relationship in Central America and West Africa in two critical policy domains: the governance of international migration at the global, regional, national and local levels; and the link between migration and labour markets in developing countries.

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RÉSUMÉ

Alors que la littérature économique portant sur l'impact de l'immigration sur les marchés du travail est largement développée, il existe un déficit notable concernant l'impact de l'émigration sur le pays d'origine. A partir de la littérature mesurant l'impact de l'immigration, cet article vise à combler ce déficit en étudiant si la période d'émigration, à la fois courte mais intense, entre le Honduras et les États-Unis de 2001 à 2007 a entraîné une augmentation des salaires au Honduras. Il exploite notamment la variation d'offre de travail par groupe de compétences sur le marché du travail pour les années suivant l'ouragan Mitch. Fondées sur des données transversales individuelles et une approche reposant sur des variables instrumentales, les estimations montrent qu'une augmentation de 10% de l'émigration provenant du Honduras accroit les salaires honduriens de près de 10%, une augmentation supérieure à des résultats antérieurs pour d'autres pays – mais qui diminue au cours du temps. Les implications en termes de redistributions au niveau du genre, des ménages ruraux/urbains et des travailleurs privés sont aussi développées.

Classification JEL: J21, F22, E24.
Mots-clés: émigration internationale, force de travail, salaires, développement, Honduras, Amérique Centrale.

ABSTRACT

While the econometric literature on the impact of immigration on labour markets is well developed, there is a striking gap with regards to the impact of emigration on sending countries. Building on the established literature measuring the impact of immigration, this paper attempts to narrow that gap by investigating whether the short but intense emigration period from Honduras from 2001 to 2007 to the U.S. increased wages in Honduras. It notably exploits the variation of labour supply by skill group in the labour market in the years following Hurricane Mitch. Relying on individual cross-sectional data and an instrumental variable approach, the estimates show that a 10% increase in emigration from Honduras increased wages in Honduras by around 10%, an increase which is higher than previous findings in other countries – but diminishing over time. It also provides evidence on implications in terms of redistribution by gender, rural/urban households and private sector workers.

JEL classification: J21, F22, E24.
Keywords: international emigration, labour force, wages, development, Honduras, Central America.

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I. INTRODUCTION

The recent increase in emigration from Honduras has been accompanied by a debate on its impact for the country's development. Campaign slogans such as '*quédate con nosotros*' (translation: '*stay with us*') launched by the Honduran Association of Maquiladoras give evidence that the departure of young, able-bodied workers has had an effect on attitudes towards emigration. However, while emigration may negatively be affecting the maquiladora industry, it may also be benefitting Honduran workers staying behind.

Migration is one of the major mechanisms through which income levels equalise between countries (Hatton and Williamson, 1998). This is in part achieved through wages. A long and standing literature on the impact of immigration on average wages in the receiving country has generally concluded that in most countries the negative impact is small and often statistically insignificant. The literature on the impact of emigration on the other hand, apart from a few recent studies, has remained largely theoretical (see for instance Berry and Soligo, 1969; Hatton, 2007).

This is rather surprising considering that emigration rates are relatively higher than immigration rates when compared to the size of the population they impact, particularly for small developing countries. As an anecdotal example, countries with a high proportion of immigrants,[1] such as Canada and Australia, have estimated stocks of immigrants equalling 19% and 20% of their total population while in countries with high proportions of emigrants like Jamaica and Albania, estimated emigrant stocks as a percentage of population are 39% and 27% (World Bank, 2008). In fact, because most migrants are motivated by employment opportunities, these figures are in reality much higher considering the direct population they impact on the labour market: the country's labour force.

These points are summarised in Mishra (2007), who investigates whether emigration from Mexico to the U.S. impacted wages in Mexico between the 1970s and the 2000s. She finds that a 10% increase in emigration of specific education-experience ("skill-") groups raised wages of their respective skill-groups in Mexico by an average of 3% to 4%.

This paper contributes to the debate with two novelties. First it provides evidence following Mishra (2007) for an under-researched country. Honduras provides a good case study for emigration due to its short, intense migration period following Hurricane Mitch in 1998; emigration has since this time deeply affected public attitudes and firm competitiveness. A study

1. Does not include countries with populations under 1 million as well as countries from the Gulf Cooperation Council (GCC).

on Honduras is also an opportunity to test the arguments presented in previous literature stating that an adjustment in the country's capital-labour ratios should lead to a reversion to long-term equilibrium wages. Honduras has low internal migration rates, low levels of international migration, a high brain drain rate and experienced sluggish capital-adjustment in the past. As such, it is conceivable that the short, intense period of emigration examined in this paper (2001-2007) led to at least a medium-term impact on the labour market.[2]

Second, this paper attempts to reconcile some of the conclusions from the micro literature with the larger macro impacts. The literature on the impact of emigration on labour has been moving in two parallel worlds. On one side, the macro literature has investigated whether emigration has had an impact on labour market equilibria. On the other, household level studies have investigated how the lost-labour and remittance effects alter labour decision taken within the household.

The paper finds that wages increased on average by around 10% following a 10% increase in emigration. This result is much larger than any previous study and may lend further support to the argument that international migration leads to convergence between countries. Furthermore, and coherent with other complementary literature, the impact is stronger in rural regions and for women, the post-secondary educated and private sector workers.

2. Specific country-based research on the impact of emigration is important as the impact depends on how the skill-composition of emigrants as a group differs from the skill-composition of the resident population remaining in the home country and on the way the home economy adjusts to changes in the skill mix. The composition of emigrant flows and adjustment mechanisms differ across countries, sometimes in important ways (Dustmann *et al.*, 2005). Given these differences, it would be misleading to infer from other studies the effects of emigration on the Honduran labour market.

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II. MIGRATION AND WAGES: AN EMPIRICAL APPROACH

II.1 Foundations

The resurgence of international human migration in the last 20 years has been one of the primary motivations for the growing concern on the links between emigration and labour. At least since Sjaastad (1962) posed the question "how effective is migration in equalising inter-regional earnings of comparable labour?", migration has been linked to economic development. Berry and Soligo (1969) and later Boyer *et al.* (1993) followed by providing a theoretical basis and empirical evidence that migration acts as an important vector of economic convergence between poor and rich countries. One impact seldom mentioned and by which the convergence mechanism occurs, is through wages. But as most international migrants were working before and will work during and after their migration episode, this point seems logical; their departure impacts the labour market they leave behind. The debate on brain drain, the emigration of high-skilled workers for instance, derives indirectly from this argument and has been covered extensively in research and media – but the impact on the origin country labour market is rarely mentioned.

The basic premise, based on a labour supply-demand framework, is the following: a decrease in labour supply in the country of origin should increase wages, as the labour market finds its equilibrium. As migration also represents an attractive way out of poverty by providing poor households with economic alternatives outside of the local market, its influence extends to household level labour decisions (Stark, 1991) and often beyond to other households (Dyer and Taylor, 2009). The simplified neoclassical model provides a motivation to answer an empirical question: do wages increase when members of the labour force leave the country? According to the arguments and framework discussed above, the laws of supply and demand have rather unambiguous implications, but the effect can theoretically range from zero to very large.[3]

Recent anecdotal evidence suggests a link between emigration and changes in the labour market and labour supply. Studies such as Macharia (2003) on Kenya and Ennaji and Sadiqi (2004) on Morocco, for instance, mention the importance of the loss of workers in migrant sending regions and its impact on the labour participation of household members left-behind as well as on the productivity of the household as a unit (particularly for rural households). The recent East-to-West migration experience of the European Union accession countries has also

3. In fact, simulating changes in the production function and capital-labour ratios, Docquier *et al.* (2011) find that immigration even led to increases in wages, while emigration led to decreases in wages from 1990 to 2000 in a group of OECD countries, a somewhat counterintuitive result due to general equilibrium effects.

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provided a good natural experiment in observing the impact of the loss of labour. In reviewing the Lithuanian experience, Thaut (2009) notes that the free movement of workers has helped relieve pressure on the domestic labour market, drive down unemployment and push wages upward, although this has caused major labour shortages in certain sectors. In rapidly growing economies like Romania, the simultaneous incompatibility of the outflow of workers in the midst of growing demand for labour has forced the country to turn to immigration to compensate for the gap (Silasi and Simina, 2007).

Several empirical approaches can be taken to answer the question. Grounded in the predictions depicted in the neoclassical labour market model, one approach is to see if emigration contributed to wage convergence historically (in the long run) between sending and receiving countries. In the case of Europe, research shows that emigration contributed to real wage convergence towards that of richer countries in the 19th and early 20th centuries by decreasing the growth of the labour force (Boyer *et al.*, 1993; Williamson, 1996).

Another approach is to exploit variation in the labour force due to the change in the supply of labour from immigration. Many studies exploit the spatial differences in immigration, by either comparing labour market outcomes between regions based on the change in immigrants working in each region, or in one in particular (see for instance Card, 2001; Dustmann *et al.*, 2005; Pischke and Velling, 1997).

Borjas (2003) inspired another branch of research focusing on the *national* impact of immigration, rather than smaller geographical segments.[4] The novelty is that he divides workers by education level and by years of work experience[5] at the national level. As such, a major determinant of the impact of emigration on wages and the key identification of the model lies in the variation in the distribution within skill-groups, over time. He uses long-term (census) data for immigration to the U.S. and divides immigrants into groups based not only on education, but also on years of work experience, thus forming what he calls *skill* groups.

While education groups might show little variation over time, when combined with experience, the immigrant supply shock per different skill group over time displays decidedly more variation which can be exploited to identify the impact of immigration on labour market indicators. The identification of the model comes from the comparison of the most likely migrant that could theoretically substitute for a locally-born worker in the host country labour force. This approach also solves the problem posed by the fact that mobility between skill groups is

4. Decaluwé and Karam (2010) furthermore confirm Borjas' claim that internal migration will obfuscate the impact of migration on labour markets. Focusing solely on regional changes could hide the impact of emigration if the jobs left behind by emigrants were subsequently taken by other workers in Honduras from other regions. The net impact in this case would be zero; internal migration may wipe out any positive impact in the medium-to-long run, hence the need to have a national view of the labour market. Another advantage of Borjas' approach is that it solves a problem that has complicated the analysis of spatial correlation: native workers may react to the change in labour supply due to emigration by migrating internally. Mobility between skill groups is less frequent than over space.

5. To be clear, the level of analysis is not the individual, the household or different countries but rather the skill group.

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typically lower than mobility over space, a significant departure from previous studies exploiting variation over space.[6]

Besides identifying substitutable workers, two additional factors influence whether and by how much a change in the labour force will alter the labour market. The first is a direct change in skill composition of the labour force, an effect via the labour supply. An impact on the labour market is expected if the skill composition of migrants (for both cases of emigration and immigration) differs from the composition of the native work force. Otherwise, migration only scales up (or down) the labour component of production. A second factor is an indirect effect affecting the demand for labour. The output mix of tradable goods and the level of international openness of a country will determine whether and how quickly a country's labour market readjusts to its long-term equilibrium (capital adjustment). For instance, the labour market of a relatively closed economy with little variety in exported goods will likely experience long-term alterations in its labour market equilibrium when facing a change in its labour force, while a relatively open economy with a high output mix will revert back to its original labour market equilibrium as the adjustment occurs rather through its capital-labour ratio and its mix of exported goods (Dustmann *et al.*, 2005).

Few papers have empirically measured the impact of emigration exploiting the variation in the departure of skill groups over time. The few studies that have estimated the impact of emigration using a similar framework to Borjas (2003) include Mishra (2007) and Aydemir and Borjas (2007) on Mexico, Borjas (2008) on Puerto Rico and Bouton *et al.* (2009) on Moldova; they all conclude that emigration increased wages with elasticities ranging from 2% to 6% (interpretation: a 10% increase in emigration leads to a 2% to 6% increase in wages).[7]

Complementary but not fully integrated to this literature is a growing body of micro-oriented (household level) research. Household reaction to a decrease of labour force within its internal stock to emigration has been the focus of recent research, partly inspired by the growing

6. This approach yields a closer approximation of the substitutability between immigrants and native workers. Comparing high school graduates with respectively 30 and 5 years of experience on the labour market, for instance, is likely not realistic, as they will compete for different jobs and thus in different labour markets.

7. Mishra (2007), Aydemir and Borjas (2007) and Borjas (2008) all take a very long-term approach, while Decaluwé and Karam (2010), Hanson (2007) and Bouton *et al.* (2009) use shorter periods. Since migration is an adaptable phenomenon, the point at which a country finds itself in the migration cycle will surely influence the impact it has on wages. Social groups (*i.e.* Hometown Associations, HTAs), households, regions and countries have different ways of coping with emigration and remittances depending on the length of time since migrants have left the home country. Moreover and as pointed out by Dustmann *et al.* (2005), while there may be impacts in the short term, so long as the distribution of skills between migrants and non-migrants is different, the long-term effects depend on the openness and output mix of the country. Using a slightly modified approach to exploit regional differences in Mexico, Hanson (2007) also arrives at a similar conclusion. While the elasticity derived in Hanson (2007) is higher, the author warns that the number includes both direct and indirect effects (emigration's impact on growth) of emigration and therefore likely overvalues the true elasticity. In a simulation exercise based on a 1998 social accounting matrix of Morocco, Decaluwé and Karam (2010) also find that the direction of the effect is positive.

availability of household surveys in developing countries. This empirical literature attempts to answer whether and why household members staying in the home country alter their labour supply decision following the emigration of a fellow household member. It is important however to differentiate between two effects: the lost-labour effect and the remittance effect. A decrease in household labour will clearly affect labour decisions differently than the influx of income. Conclusions in this literature are mixed but four key messages can be synthesised.

First, women and men react differently, mostly because of their different roles in the household. When men emigrate, women are left with more housework but also the extra burden of working to provide short term needs, at least until remittances arrive. Several papers have also pointed to the emigration of husbands as a catalyst for the emancipation of women in the labour market and to household decision-making (Cabegin, 2006; Carletto and Mendola, 2009; Glinskaya and Lokshin, 2009). Second, as rural labour forces empty out, households must cope with the loss of workers to continue meeting their needs – sometimes even after remittances start flowing in (safety nets often do not exist). The rural labour market is often imperfect, meaning an outflow of the productive workers may lead to lower productivity and a raise in wages (Damon, 2009; Görlich *et al.*, 2007). Third, education level highly impacts changes in preference of labour in the household; in fact, the highest levels of education are less affected by the departure of a household member (Rodriguez and Tiongson, 2001). Yet the debate on the brain drain suggests that they may have the most to gain. Finally, informal employment increases, partly due to the same reasons mentioned above (initial reaction to a departure of labour by women and in rural areas, Görlich *et al.*, 2007) but also because more opportunities are created through entrepreneurial initiatives and end up generating more jobs (Yang, 2008). Moreover, those with relative job security, roughly those with formal jobs, are less likely to not leave, leaving more opportunities for informal workers left behind.

But what can this mean for wages and for non-migrant households? Simulations can help answer this question and model the interlinkages that transmit influences among households. According to a disaggregated rural economy-wide analytical exercise, migration and remittances spurred labour opportunities and higher wages for members of rural Mexican households with no migrants (Dyer and Taylor, 2009).

The two literatures have rarely been considered together. One of the objectives of this paper is to shed light on the impact of emigration on specific categories of individuals in the labour market (gender, rural/urban, education level, informal work), so as to contribute in reconciling the above stated conclusions.

This paper turns to the empirical foundations of Borjas (2003) using rich micro-data from Honduras to maintain the flexibility of the Borjas model, but with more efficient estimates by using an entire dataset to pin down the fixed effects and an instrumental variable approach to deal with the potential endogeneity between wages and emigration. Furthermore, by interacting the variable of interest with specific group dummies, we can observe which groups were more affected by the departure of labour. Finally, the use of micro-data helps capture seasonal variation in labour demand (at two periods of the year), as well as a good approximation of informal employment. This paper looks at the short run (2001-2007) but posits that labour markets in Honduras are likely affected in the medium run, due to its middle-of-the-road

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ranking in openness,[8] its low output mix and its difficulty to appropriately replenish its work force.

In light of this literature, the next section provides the empirical framework on which this paper is based.

II.2 Framework

The identification strategy of this paper follows the one developed in Borjas (2003). The theoretical foundation of Borjas (2003) supposes a very simple supply and demand framework suggesting that increases (decreases) in domestic labour supply due to (e) immigration lead to a decrease (increase) in local wages. Looking at Honduras, this would mean that a decrease in labour supply should lead to an increase in wages, for specific education-experience (skill-) groups. This paper follows this literature and exploits differences across skill groups in the Honduran labour force and emigrant flows to the U.S. for 2001, 2004 and 2007. However, as opposed to the Borjas (2003) baseline model, this paper uses individual-level data, thus using more information to pin-down individual-level controls.

The baseline estimated equation is as follows:

$$w_{ijt} = \delta m_{ijt} + s_i + v_j + \pi_t + (s_i * \pi_t) + (v_j * \pi_t) + (s_i * v_j) + \varepsilon_{ijt} \quad (1)$$

where w_{ijt} represents the logged mean monthly wage for education group i, in experience group j in year t. m_{ijt} is the emigrant supply shock[9] from Honduras to the U.S. in cell (*i, j, t*) and is measured as follows:

$$m_{ijt} = \frac{M_{ijt}}{N_{ijt}} \quad (2)$$

where M_{ijt} is the number of Honduran emigrants in the U.S. in cell (*i ,j, t*) and N_{ijt} is the national labour force in Honduras in group (*i, j, t*). m_{ijt} measures the ratio between emigrant stock (out) and the labour force (in) in a particular skill group and in a particular year, in other words, the intensity of emigration in a particular skill group at a particular point in time.

s_i, v_j and π_t are vectors for specific group fixed effects while $(s_i * \pi_t)$, $(v_j * \pi_t)$ and $(s_i * v_j)$ are their respective interaction terms. The first two interaction terms control for the fact that the profile of returns to education and experience might change over time, while the last term controls for the possibility that the profile of returns to experience changes between different education groups. Economy-wide shocks are captured by the time fixed effect.

The parameter of interest is δ which gives the percentage change of wage given a 1% change in emigrant shares. Because the group size, on which data for wages is derived, varies, the regressions are weighed by the size of the labour force (N_{ijt}).

A major addition to the literature in this paper is the use of rich cross-sectional microdata; in addition to the skill-group regressions described above, the equation is also estimated using an individual-level wage regression. Individual micro data increases significantly the number of observations, and consequently the accuracy. The equation is specified as follows:

8. KOF Index of Globalization, available at http://globalization.kof.ethz.ch/.

9. The paper follows Borjas (2003) in calling this term a "supply shock", even though emigration may not necessarily be a shock to the labour market.

$$w_{nt} = \delta m_{ijt} + \beta X_{nt} + s_i + v_j + \pi_t + (s_i * \pi_t) + (v_j * \pi_t) + (s_i * v_k) + \varepsilon_{nt} \quad (3)$$

where w_{nt} represents the wage for individual n in year t. m_{ijt} is the emigrant supply shock from Honduras to the U.S. in cell (*i, j, t*) in which the individual belongs; it is measured in the same way as in the group level regressions. But in contrast to equation (1), equation (3) includes the term βX_{nt}, a vector of standard Mincerian individual controls such as marital status, education level and working experience in years.[10] The error term, ε_{nt}, is robust to heteroskedasticity and clustered at the *ij* level to allow for arbitrarily correlated errors within groups over time.

In addition, instrumental variable estimates are calculated using a two-stage least-squares method. That is, in the first stage m_{ijt} is regressed on all other exogenous variables mentioned in equation (3) plus an instrument and the predicted values from this regression are used to replace m_{ijt} in equation (3).

Against this background, the next section argue why Honduras is a particularly interesting case for investigating the impact of emigration on the labour market in comparison to previous studies on Mexico, Moldova, Morocco and Puerto Rico.

10. While the standard wage regression stipulates adding occupation and industry control variables, it makes little sense to add these in the context of emigration. Most emigrants, even high-skilled ones, will change occupation and sometimes industry once in the host country. Therefore it is difficult to match individuals to occupations and industries between two countries like Honduras and the U.S.

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III. HONDURAS: A NATURAL EXPERIMENT

While Section II provided the background and methodology to answer the empirical question of the link between emigration and labour markets, this section discusses why Honduras is a particularly interesting case to investigate. It presents details on the Honduran economy, its labour market and the rapid emigration period it experienced following Hurricane Mitch. It then presents information on the data as well as summary statistics used in the empirical framework.

III.1 Why Honduras?

Honduras is a poor country with a population of just fewer than 8 million inhabitants. In 2006, 60% of Honduran households were living under the national poverty line (ISACC, 2009). GDP/capita is low, just over USD 4000, somewhere in the middle of the ranking in Central America, while its human development index[11] is also typically amongst the lowest in the region.

It would also be difficult to characterise the Honduran labour market as a functional and integrated one. Job insecurity and informal employment are the norm for most workers (ISACC, 2009) and the lack of formal job creation has yielded a labour market with robust segmentation and low mobility between sectors. As a comparison, the share of the labour force employed informally between 1995 and 2006 ranged from 66% to 71%, while these shares were 54% to 58% for Mexico in comparison (IILS, 2009). Indeed, an ISACC (2009) report claims that 62% of Hondurans were self-employed in 2006.

There are many reasons for such high informal employment, notably an economy with a lack of sustained supply of formal jobs and a large agricultural sector. A complex minimum wage structure also likely contributes to the difficulty in forming a strong formal employment base. From 1990 to 2004, 22 different minimum wages were applied in Honduras, defined by firm size, industry and, for some years location (Gindling and Terrell, 2010).

Registering and running a formal venture is also not easy in Honduras; the country has regularly ranked behind all other economies in Central America in the World Bank's Doing Business ranking.[12] With little in terms of social safety net, the unemployment rate is low: in 2006 the unemployment rate in Honduras was around 3%, after falling for several years with a high of around 6% in 2004 (CEMLA, 2008). However, the active labour force in Honduras is also

11. http://hdr.undp.org/en/statistics/
12. http://www.doingbusiness.org/

relatively low. The ratio between the number of individuals working or looking for work over the number of individuals old enough to work was only 55% in 2006 (CEMLA, 2008).

While internal migration was a typical feature of the Honduran labour market in the 1980s and 1990s, it has progressively given way to international migration (UNAT-UNFPA, 2006); rural-to-urban labour migration has decreased. The percentage of individuals living outside their major administrative unit (region) in comparison to total population was 17.2% in 2001 (ECLAC, 2007). Moreover, approximately 56% of the population in Honduras still lived in rural regions in 2000; in Mexico, by comparison, this figure was 25%, in Puerto Rico 5% and in Morocco 47% with no major change for any of these countries by 2005 (UN, 2008). However, immigration into Honduras is low relative to the native population (the stock of immigrants made up 0.4% of the population in 2005) and is unlikely to have a distinguishable impact on the labour market. In contrast, immigrants to Puerto Rico made up 9% of the population in 2005.[13]

These facts suggest that unlike previous studies, the Honduran labour market likely does not replenish its stock when labour supply shifts out. In other words, the labour gap following a shift of labour due to emigration is not likely to be filled by internal or international migrants, as was found by Decaluwé and Karam (2010) in Morocco, where individual-lifetime internal migration rate was 33.4% between 1990 and 2005 (World Bank, 2008).

In terms of industries, Honduras is highly concentrated in both exports and trading partners, although it is slowly diversifying. In 2001 its Herfindahl-Hirschmann index[14] was nearly 0.20 but had decreased by more than half by 2005, a figure closer to its Latin American neighbours. Exports are concentrated on coffee and banana, amongst other commodities. As such, most low-skilled labourers work in these agricultural sectors. Coffee harvesting season lasts from October to March.

Over 70% of exports reach the U.S., a figure which has not changed for many years, making it one of the highest export-concentrated countries by destination in Latin America (OECD, 2007). 36% of the working population is involved in agriculture and livestock farming [followed by commerce (18%) and manufacturing (15%)]; the agricultural sector also experienced the highest growth (34%) between 2001 and 2006 (ISACC, 2009). The manufacturing sector is dominated by the maquiladora system, the third largest of its kind in the world. It employs approximately 130 000 Hondurans and increasingly women (CEMLA, 2008). The public sector, on the other hand, is relatively small (5.6%).

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13. In fact, Honduras has one of the lowest immigrant stocks in the world (UN, 2008). United Nations, Department of Economic and Social Affairs, Population Division (2009). Trends in International Migrant Stock: The 2008 Revision.

14. The Herfindahl-Hirschman Index (HHI) is a measure of the size of firms in relation to the industry and an indicator of the amount of competition among them. It is calculated with the following formula: $H = \sum_{i=1}^{n} s_i^2$ where si is the market share of firm i in the market and N is the number of firms. As such, a low HHI can be interpreted as a sign of a highly competitive economy. Because prices are often used to calculate a HHI, economies based primarily on commodity exports are often subject to variations in their HHI which do not necessarily reflect changes in the competitive nature of their economy but rather changes in the price of the exported commodity; this may explain, to a certain degree, the drop in HHI value for Honduras.

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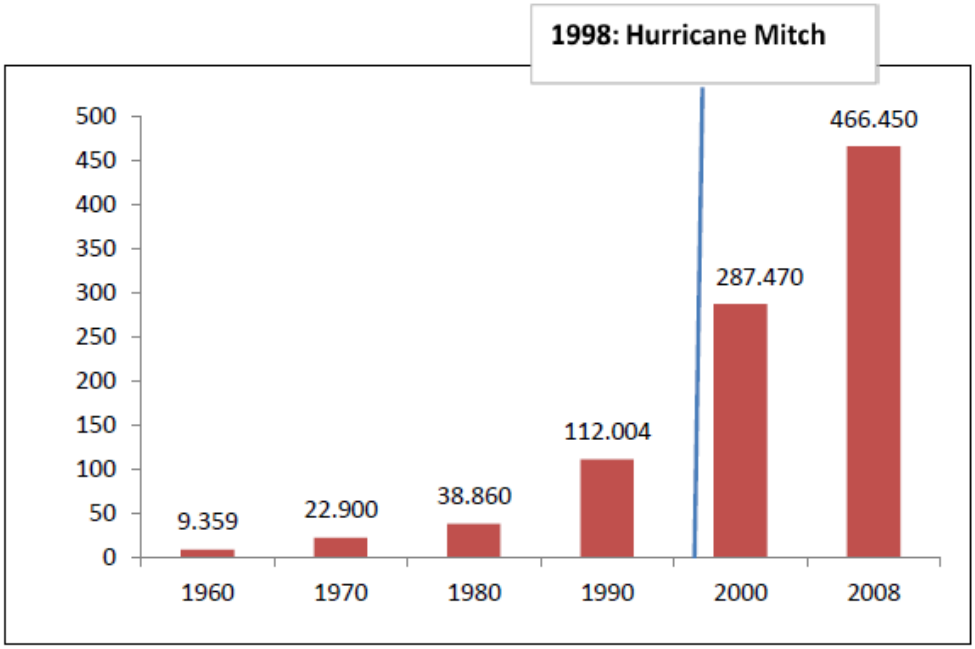
III.2 A new country of emigration

Until recently, emigration from Honduras was relatively low in comparison to its neighbouring Central American countries; most movement out of the country in the 1970s and 1980s was spurred by regional conflict. The combination of economic growth and the sudden devastation caused by Hurricane Mitch in October 1998 ignited a wave of emigration from Honduras. Honduras, along with Nicaragua, took the brunt of the Hurricane, the second deadliest Atlantic Hurricane on record at the time; nearly 15 000 Hondurans were killed as a direct result of the Hurricane[15] and many fled the country to the U.S.

Emigration from Honduras since Hurricane Mitch has been intensive. Table 1 below shows the evolution of emigrant stocks of Hondurans in the U.S. based on U.S. Census and American Community Surveys from 1960 to 2008.[16]

Table 1: **Number of individuals born in Honduras living in the USA (thousands)**



Source: Census and American Community Surveys (IPUMS), tabulated by the author.

The largest absolute increases occur in the decades following 1990, which includes Hurricane Mitch in 1998. The intensity of emigration from Honduras is remarkable. In fact, according to the 2006 American Community Survey (ACS), 87% of all Honduran emigrants had

15. The track of the hurricane crossed through the country entirely. As an emergency response, the U.S. granted Hondurans that were in the U.S. at the time of the hurricane (Hondurans living in the U.S. had to provide proof of continuous residence in the U.S. since 30 December 1998 and continuous physical residence since January 5, 1999) temporary protected status (TPS); such protection covered Hondurans without legal papers and prevented their detainment, deportation and enabled them to legally work in the country. This protection continues to this day (US Citizenship and Immigration Services, www.uscis.gov). Information on the number of deaths comes from www.preventionweb.net.

16. A comparable plot for the years in this study (2001, 2004, 2007) shows a similar trend.

emigrated within the 10 years prior (CEMLA, 2008) and by 2006, more than 11% of households had at least one migrant abroad (BID, 2008). According to Borowik *et al.* (2009), the increase in emigration from Honduras also saw the most rapid growth of all Latin American countries.[17]

Yet, despite the rapid increase, the stock of Honduran emigrants in 2005 as a percentage of home country population (5.8%) was lower than both Mexico (10.7%) and Morocco (8.6%) (World Bank, 2008) – another sign that Honduran emigration was relatively low in prior years in comparison to many other countries.

Migration has slowly crept into the Honduran policy-making agenda. Almost concurrently, the Honduran government began drafting its Poverty Reduction Strategy Paper (PRSP) with the IMF. While the initial 2001 version of the Honduran PRSP did not incorporate international migration into the strategy, progress reports in 2003 and again in 2005 saw an increase of references to emigration and remittances as potential tools for development.[18]

In relation to other developing countries, and unlike its Guatemalan and Salvadoran neighbours, Honduras has established very few bilateral and multilateral migration agreements. In 2006, it signed a repatriation program with Mexico[19] and a VISA-waiver agreement with its neighbours (the CA4 agreement).[20] In 2007, a small temporary migration programme began with Canada and in 2008 discussions began for a temporary labour migration agreement with Spain. Nonetheless, most emigration flows continue to be towards the U.S. and remain lower on average than other countries with similar socio-economic characteristics.

The U.S. is the primary destination for Honduran migrants; a variety of sources show that more than 90% of Hondurans abroad lived in the U.S. in the period following Hurricane Mitch, while the remainder was scattered among Mexico, Spain, Canada and other countries in Central America (Borowik *et al.*, 2009; CEMLA, 2008).

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17. The increase may be slightly less pronounced than appears in this table. The reason is that the U.S. census bureau began better tracking unauthorised immigrants in 2000 with the census and subsequently with the American Community Surveys (ACS). The ACS is the primary statistical tool used by the U.S. Department of Homeland Security to estimate the numbers of unauthorised immigrants. According to the Department of Homeland Security, Honduras had the highest relative increase of any country of irregular migrants from 2000 to 2009; the number of unauthorised immigrants born in Honduras to the U.S. between those years increased by 100% (Baker *et al.*, 2010). Between those years the unauthorised population in the U.S. born in Honduras reportedly doubled from 160 000 to 320 000, while the next biggest percentage increase was of the order of 65% (Guatemala). Irregular migration is an increasingly frequent characteristic of Latin American migrants; for many of these countries, the people residing irregularly in the U.S. represent more than 50% of the total immigrant stock from the home country. Using different sources, Borowik *et al.* (2009) show a much steeper increase between 2000 and 2006. Thus it is reasonable to say that the figures prior to 2000 in Table 1 are likely higher than they should be; alternatively, the numbers reported after 2000 are less underreported than those prior.

18 . Poverty Reduction Strategy Papers for Honduras can be downloaded at www.imf.org/external/np/prsp/prsp.aspx.

19. Revised and updated in October 2010.

20. With El Salvador, Guatemala and Nicaragua.

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A study by the Inter-American Development Bank (BID, 2008) also shows that in 2006, 70% of emigration from Honduras was undertaken by men (mostly husbands and sons) with relatively low education (59% had at most completed primary education or lower) and age (65% of emigrants were between the ages of 15 and 29). The Statistical Institute of Honduras (INE) adds that 91% of Hondurans abroad in 2008 had emigrated to seek employment. While two thirds of emigration before 1997 originated from urban regions, in 2006 the split between rural and urban was close to 50% (CEMLA, 2008).

Despite being of relatively low-skill in comparison to emigrants from other countries and the native workforce, the rate of the emigrated tertiary educated population in Honduras around 2000 (21.8%) was noticeably higher than in both Mexico (14.3%) and Morocco (10.3%).[21] This reflects the low numbers of educated individuals back home. In contrast, brain drain of medical workers was relatively low from Honduras in 2000. According to the World Bank (2008), 1.1% of medical workers had emigrated from Honduras, while this number was 4.1% for Mexico and between 7% and 31% (depending on sources used) for Morocco.

The fact that many young, able-bodied Honduran men have left the country in a relatively short time span has not gone unnoticed back home; the Honduran Association of Maquiladoras, which relies heavily on low-cost labour, has been pushing a campaign in Honduras with the slogan '*quédate con nosotros*' in response to their inability of retaining workers in Honduras. Given this context, it is not surprising that an increasing number of women are finding employment in this sector.

21. World Bank (2008).

IV. DATA AND SUMMARY STATISTICS

Because the vast majority of Hondurans abroad are in the U.S. (>90%), we can use data solely on Hondurans in the U.S. – with the assumption that the remaining emigrants in other countries are somewhat similarly selected on education and experience. Data on individuals born in Honduras and living in the U.S. are drawn from microdata samples of the American Community Surveys (ACS) for the years 2001, 2004 and 2007. The ACS is a statistical survey tool which began in 2000 and administered by the U.S. Census Bureau, collecting similar information as in the standard decennial census, on approximately 250 000 nationally representative American households on a monthly basis (3 000 000/year). The survey is the largest and most representative survey in the U.S. tracking immigrants and includes questions on country of birth, U.S. citizenship status, the year of entry into the U.S. and the place of residence one year prior. Its surveying method also allows it to give a good approximation of irregular migrants in the U.S., although it is likely that the ACS still underestimates the number of unauthorised workers entering the U.S. – simply due to the difficulty in tracking them. The data used in this paper were obtained from the Integrated Public Use Microdata Samples (IPUMS) USA Project and are 1/232nd, 1/239th and 1/100th random draws from the 2001, 2004 and 2007 raw data respectively (see Ruggles *et al.*, 2010).

An emigrant is defined as a person over the age of 15 and under the age of 66 born in Honduras and living in the U.S. according to the ACS; this definition does not depend on naturalisation or on whether the migrant is in a regular (*i.e.* legal) situation or not. At the age of 16, individuals can legally work in almost all U.S. states.[22]

Individuals are divided into education and experience groups. There are four education groups corresponding to (a) no education (less than 6 years of formal education completed), (b) primary education (at least 6 but less than 13 years of formal education completed), (c) secondary education (at least 12 but less than 17 years of formal education completed) and (d) post-secondary education (more than 16 years of formal education completed).[23] Because information on work experience is not available in the surveys, it is estimated using Age-AT, where AT is the assumed age of entry into the labour market. For those without education or primary education,

22. U.S. Department of Labor, www.dol.gov.

23. Formal and compulsory education in Honduras begins at the age of 6 and ends at the age of 12, in what is called '*basica*' or primary education. It is free and paid by the public system. Secondary education is divided in two. From the age of 12 to 15, students attend the '*ciclo comun*' and follow-up with another two years in '*ciclo diversificado*' (ages 15-17). Beyond this, students can attend technical school (ages 16-19) or enter university (World Higher Education Database). According to the ISACC (2009) report, 71% of the population had not progressed further than primary education by 2006.

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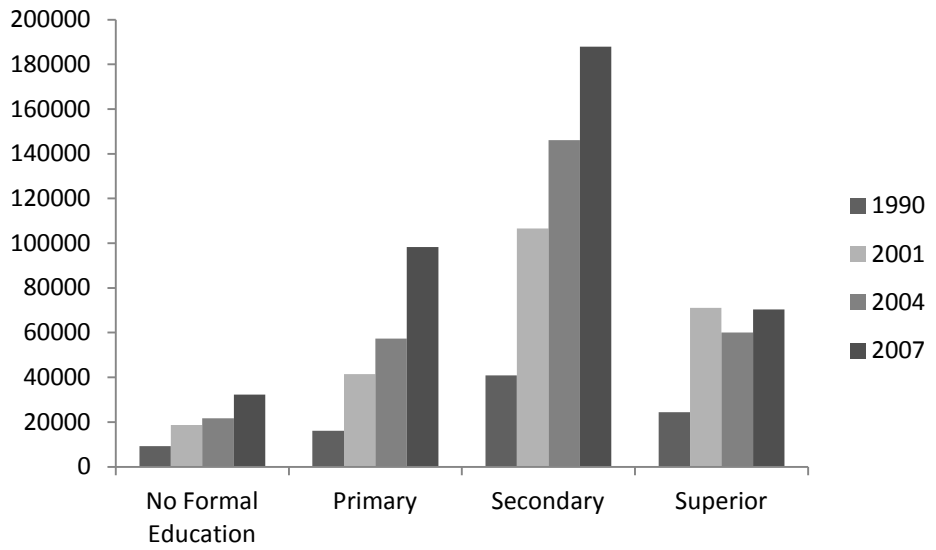
AT=16; for those with secondary education, AT=18 and for individuals with a post-secondary degree, AT=22. This is a crude approximation; by definition it assumes individuals enter the labour force immediately after completion of their studies. It also assumes that experience for men and women can be approximated in the same way, which is not necessarily the case – childbearing and childrearing undoubtedly have an impact on the experience profile of women.

Table 2 presents data from the ACS on Honduran migrants in the U.S. by education level for four years: 1990, 2001, 2004 and 2007. 1990 is included to show the relatively remarkable jump in the group with superior education.[24] The data clearly shows the rapid rise in Honduran emigrant stock, particularly those with secondary education, as well as the stagnation of those with superior education after 2001.

Table 2: **Honduran emigrant stock in the U.S., by education level and year**



Note: The data in Table 2 represent *M* in equation (2).

Source: Census and American Community Surveys (IPUMS), tabulated by the author.

The data used to obtain the size of the Honduran labour force and average wages in Honduras come from the *Encuesta Permanente de Hogares de Propositos Multiples* (EPHPM) (translation: multi-purpose permanent household survey), a biannual (May and September) nationally representative household survey for the years 2001, 2004 and 2007. The EPHPM is administered by the Honduran National Statistical Institute (INE) since 1990. It provides a wide range of individual information such as gender, education, year of birth and rural/urban location. While in some years the data is missing or incomplete, the years 2001, 2004 and 2007 has complete data for both May and September surveys, aside from September 2004 for which the paper complements with another similar source.[25] Sample sizes vary substantially, from around

24. 1990 data are from IPUMS and are a 1/20th random draw.

25. From August to November 2004, a similar national household survey took place under the name *Mejoramiento de las Encuestas y Medición de las Condiciones de Vida* (MECOVI) survey project in many Latin American countries, including Honduras. In this paper, the MECOVI survey is used to extract data for September 2004.

36 000 individuals in May 2001, May 2004 and September 2004 to over 80 000 in September 2001, May 2007 and September 2007. Because this may affect the accuracy of the averages, weights are used in the regressions and year and month dummies are added. While in 2001 the stock of Honduran male and female immigrants in the U.S. were nearly the same, the stock of men grew faster over the 2001 to 2007 period (72% vs. 55%), perhaps linked to the increasing number of irregular immigrants entering the U.S. The primary educated group experienced the largest growth in numbers for both men and women. However, there was also strong growth in the stock of women with secondary education, while for men growth also occurred in the group with no formal education.

A member of the labour force in Honduras is defined as a person over the age of 15 and under the age of 66, working or looking for work in Honduras according to national household surveys. The survey questions asked were "In the last week, did you dedicate at least one hour for an activity for which you were paid" and "In the last week, did you search for paid employment?". An individual part of the labour force was defined as a person answering yes to either one of these questions, which are standard ILO-defined criteria typically used to count the labour force. It is notable that the definition of wages and the labour force used in this paper includes, to an extent, informal employment; as pointed out earlier this is a key characteristic of the Honduran labour market.

To match the education information with the two databases (from two different countries), the following was done. In the EPHPM survey, individuals that declared their highest educational level as 'none', 'an alphabetisation programme' or 'pre-basica' were categorised as 'without any level' ('No Formal Education'). Individuals that declared their highest education level as '*basica*' were categorised as 'primary education' ('Primary'). Those who declared '*ciclo comun*' or '*diversificado*' were categorised as having 'secondary education' ('Secondary') and finally those with '*tecnico superior*' or anything higher, regardless of whether they completed their university studies, were categorised as having a 'superior' ('Superior') education level. The following was done to match this with the American Community Survey (ACS) data. Individuals with at most nursery or kindergarten education were categorised as having no formal education. Individuals with their education level at most grade 1 to grade 6 (included) were categorised as having 'primary education'. Individuals with education levels ranging from grade 7 to grade 12 (including U.S. General Education Diplomas, GEDs) were categorised as 'secondary education' and all individuals with any higher form of education were categorised as having 'superior education'.

Table 3 below provides details on the total labour force for each education category. Overall, the labour force grew over the time period in question, but not for those with 'no formal education' any education and mostly for those with primary and secondary education. In comparison to Table 2, those with primary education form a very large part of the labour force in Honduras, while those with secondary and superior education form a much smaller part. There was in other words, a shift to the right in the distribution of education levels over time. The comparison of the evolution of these groups with their counterparts in the U.S. is noteworthy. The group of individuals with no formal education has stagnated in Honduras, while the group in the U.S. has grown. The opposite can be said of the group with superior education; it has stagnated in the U.S., while it has slightly grown in Honduras. Notably the group of primary and

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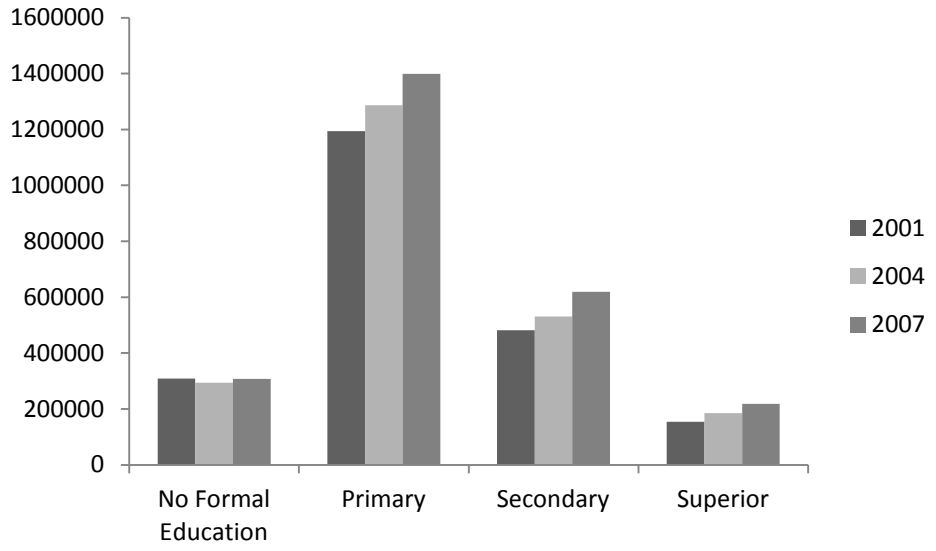
secondary educated has grown by a great margin in the U.S. and only slightly in Honduras. For all education groups apart from those with superior education, the growth of the group over the 2001-2007 period was larger in Table 2 than in Table 3; more people relative to the previous stock of similarly educated individuals were leaving the country than entering the labour force in Honduras.

While overall the labour force in Honduras grew by about 19% from 2001 to 2007, women's labour force participation grew faster than men's, but not by much (21% vs. 17%). However, the growth in women's labour force participation came mostly in the 'superior' education group and to a lesser extent the group with no formal education, while the male labour force grew fastest relative to women in the secondary education group. In terms of rural and urban areas, the rural labour force grew faster (22%) than the urban labour force (16%) in general and also in every education category, mostly driven by those with secondary and superior education. Finally, the private sector labour force grew much faster than the public sector (20% vs. 8%).

Combined together, tables 2 and 3 form the elements of the key variable of interest defined in equation (2). Table 4 below shows the size of the change in labour supply due to emigration (M/N) for Honduras by education groups. Between 2001 and 2007, M/N increased overall by about 4 percentage points, but the changes varied widely between education groups. As pointed out, a major difference between Honduras and Mexico is the level of brain drain and these data confirm the magnitude, although the magnitude of the brain drain decreases after 2001. Recent immigration to the U.S. is characterised by low-educated individuals, but the relative distribution changes drastically when taking the point of view of the sending country. Unsurprisingly, the greatest labour shocks for the Honduran labour market were in the two most educated groups. This is mostly because the labour force of lower educated individuals in Honduras is relatively larger than those with higher education; as a result, even though there may be less high educated individuals emigrating from Honduras in absolute terms, the relative quantitative importance of this group vis-à-vis the group of similar workers left in Honduras is much higher. In order of size, M/N is thus highest for those with superior education, followed by secondary education, no formal education and primary education.

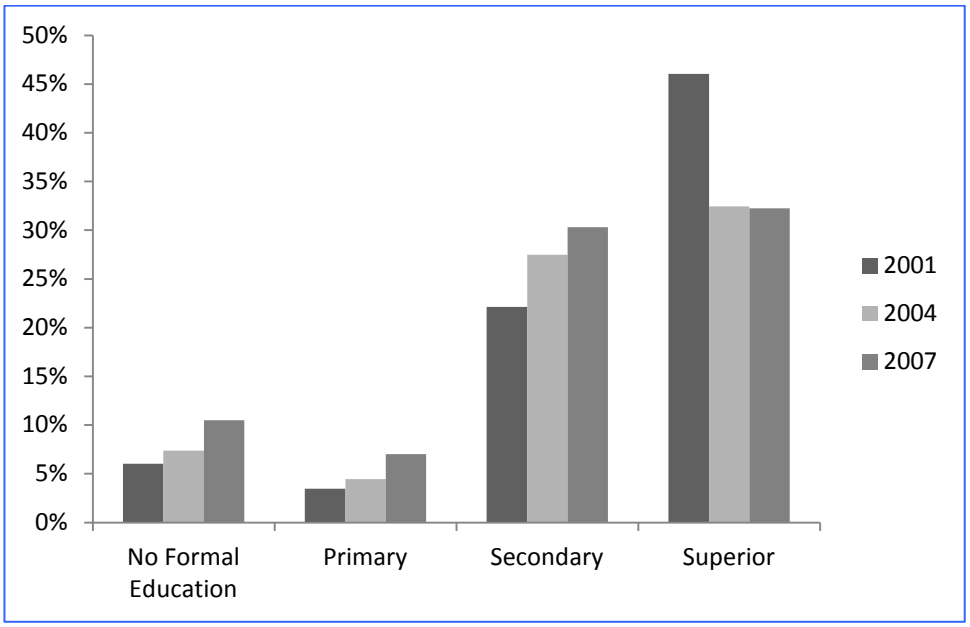
Table 3: **Honduran labour force (N), by education level and year**



Note: The data in Table 3 represent *N* in equation (2).

Source: Encuesta Permanente de Hogares de Propositos Multiples (EPHPM), tabulated by the author.

Table 4: **Honduran emigrant stock by Honduran labour force, by education level and year**



Note: The data in Table 4 represent *M/N* in equation (2).

Source: American Community Surveys (IPUMS) and Encuesta Permanente de Hogares de Propositos Multiples (EPHPM), tabulated by the author.

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To demonstrate the level of variation between years of experience, Appendix 1 plots M/N by experience groups 1 to 10 (5-year intervals) in three different graphs over time (2001, 2004, 2007). It is clear by comparing the three tables that the distribution changes from year to year. Overall, M/N increased from 11% in 2001 and 12% in 2004 to 15% in 2007. From these tables, it becomes even clearer that the brain drain reduced over time (those with superior education), while individuals with secondary education have been increasingly emigrating out of Honduras in comparison those staying behind. This variation is key in identifying an impact from emigration on wages.

Wages are defined as the sum of monthly monetary or in-kind income, including income derived from self-employment. The fact that both May and September surveys are used avoids biases due to seasonal labour demand. Appendices 2 and 3 show real wages in May and September (base=2005) by education and experience groups over time (top to bottom). As expected, wages increase with education and experience level. While high growth was experienced over time by groups with superior education (and to a lesser extent those with secondary education), growth was smaller for groups with the lowest levels of education. This sluggish wage growth is consistent with the relative size of this group in Honduras and the relatively lower number of Hondurans emigrating (Table 4) as well as with the gradual movement to the right of the educational distribution in the country (Table 3).

A final table of interest, and possibly the most revealing, is the difference between the distribution of the labour force remaining in Honduras (within *N*) and the distribution of migrants (within *M*) over time and by education group. The size of the impact depends on the difference between the distributions of these two groups (Dustmann *et al.*, 2005). Because many high-skilled workers leave developing countries, but also because developing countries typically have lower stocks of high-skilled migrants to replace them, upward pressure on wages is strongest as we move up the scale of education levels. We would therefore expect little or no change, even in the medium run if the distributions were similar. However, different distributions in the two groups would warrant, at least in the medium run, a change in the equilibrium of the labour market, as the economy re-adjusts its capital-labour ratio.

It is clear from Table 5 that the group leaving Honduras (*M*) has a different distribution than those staying behind (*N*). The majority (>44% in all three years) of emigrants fall in the secondary education category, with superior education ranking second. The labour force in Honduras however, has relatively little secondary (about half relative to emigrants) and superior (about one-quarter to half relative to emigrants) educated individuals in comparison. The low output mix and the low openness of the Honduran economy means that at least in the medium run, the labour market should take the brunt of the impact from emigration. Conversely, the incomplete and segmented labour market in Honduras might suggest a small, indiscernible impact. It is noteworthy however, that the gap in each education group has reduced over time.

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Table 5: **Educational distribution, emigrants and non-emigrant labour force in Honduras**

			2001		
Education	None	Primary	Secondary	Post-Secondary	Total
Left-behind LF (N)	14%	56%	23%	7%	100%
Emigrants (M)	8%	17%	45%	30%	100%
			2004		
Education	None	Primary	Secondary	Post-Secondary	Total
Left-behind LF (N)	13%	56%	23%	8%	100%
Emigrants (M)	8%	20%	51%	21%	100%
			2007		
Education	None	Primary	Secondary	Post-Secondary	Total
Left-behind LF (N)	12%	55%	24%	9%	100%
Emigrants (M)	8%	25%	48%	18%	100%

Source: American Community Surveys (ACS, from IPUMS) and EPHPM, tabulated by the author.

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V. RESULTS

This section presents results derived from the model described in Section II. Only those who emigrated to the U.S. after the age of 15 are included, so as to best control for the differences in the quality of education between the two countries, although including the entire population regardless of age of entry only slightly reduced the size of the coefficients.

The basic regression results, shown in Table 6, estimate δ from equation (1), which provides the effect of emigration on logged wages in Honduras – using the grouped model. In total there are 120 different groups (4 education groups x 10 experience groups x 3 years), weighed by the labour force in each group and clustered at the *ij* level (4 x 10).[26] There is a trade-off between weighing or not. Weighed regressions add more importance to average wages that contain more values thus increasing its measured precision. However, by weighing the groups by their labour force we are not reaching the full distribution of skill groups equally, likely according less importance to those at the upper level of both education and experience. One robustness check was to ensure this did not alter the results.

Specification I presented in column I is the most basic, which includes a fixed effect for education, experience and time. Specification II includes education and experience interacted with time, and the last specification includes all fixed effects and all interaction terms. The first two specifications show that there is a positive and statistically significant link between emigration of Honduras to the U.S. and wages in Honduras. The last column shows a positive relation but much smaller and only significant at the 10% level , which suggests that the effect on wages is partly absorbed by the fact that the returns to experience differs between the different education groups and not on the emigrant shock.

26. As a robustness check, the error terms were also clustered at the *ijt* level. This did not drastically alter the results.

Table 6: **Basic Results**

Estimated effect of emigration on wages in Honduras (2001, 2004, 2007)			
Dependent variable: average real monthly earnings (in logs) in education-experience-time cell (*i, j, t*) in Honduras			
	I	**II**	**III**
Ratio of the number of emigrants (>age 15) to the workforce in Honduras in cell (*i, j, t*) (M/N)	0.88***	0.89***	0.26*
education, experience and time fixed effects	yes	yes	yes
interaction between education and time fixed effects	no	yes	yes
interaction between experience and time fixed effects	no	yes	yes
interaction between education and experience fixed effects	no	no	yes

An adjustment must be made to these coefficients to be able to interpret them as elasticities, that is the percent change in wages associated with the percent change in labour force. Following Borjas (2003), this would mean multiplying the coefficient of interest obtained in Table 6 by $\frac{1}{(1+m_{ijt})^2}$. In 2007, m_{ijt} was 15%. Therefore, multiplying 0.26 by 0.76 yields a marginal effect of 0.20. A 10% shift in labour supply in Honduras yielded a 2% increase in wages.

The drop in coefficient size may also be due to the large amount of fixed effect variables in the model since experience groups are counted by 5-year intervals and to problems related to weighing, which limit the data as discussed earlier. A better approach is to use micro data.

Table 7 presents data using micro-data. The first column shows the results using the basic Borjas (2003) specification, identical to the third column of Table 6. That is, a fixed effect is included for education, experience and year, as well as their interactions. The result is essentially the same – as it should be theoretically; the difference stemming from the aggregation of wages in both May and September in the grouped specifications.

Column II presents results from adding individual controls: urban household, gender, married, public worker, month fixed effect, experience (continuous), experience squared and controls for each department. This time, the result is more than twice as strong, but adding interactions (column 3) like in specification I, we get nearly the same results as before: a coefficient of 0.23. Much of the effect is absorbed by the fixed effects of education, experience and time.

Column IV presents results from the same specification as in column III, but adds interaction effects with the variable of interest (m_{ijt}). First the effect is much stronger; it is clear that the individual-level controls are soaking up some irrelevant variation. Second the interactions reveal the following: the effect is stronger in rural areas, for women and non-public workers. Apart from the fact that rural labour markets work imperfectly, the first result is somewhat surprising because the labour force of rural areas is growing faster than urban areas. However, digging deeper into this trend reveals that the growth relative to urban areas came mostly in the 'superior' education group. Women have increasingly entered the labour force in Honduras, signalling higher competition for jobs with men. In terms of education, it is strongest for those with post-secondary levels of education, followed by those with no formal education, secondary education and weakest for those with primary education. The interaction coefficient for secondary education is somewhat surprising since emigration has increased very fast in

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relation to the labour force with secondary education in Honduras. But the growth of emigration from this group is driven by women, while the growth of the labour force in Honduras with secondary education is driven by men. More men with secondary education are relatively staying in Honduras relative to other education groups and women. It would seem that the jobs left open in Honduras are in sectors traditionally dominated by men – and that a 'reserve' army is limiting the effect of emigration on wages.

These results are consistent with the literature. First, rural areas often lack a fully functioning labour market. As such, the departure of labour leads to difficulties in replacing labour - especially manual labour; this is consistent with results found by Filipski and Taylor (2011) and Wouterse (2011). For the highest educated, the highest returns to labour are in cities. Second, the gradual emancipation of women on the labour market means they are exploiting new opportunities – some which are being left open by emigration. On the other hand, it leaves open the question of whether women are being over burdened by the added unreported activities related to "home production".

The post-secondary educated are benefiting the most by emigration, which is no surprise since the brain drain is still quite high in Honduras – even though it is decreasing. The relatively low amount of post-secondary educated individuals in Honduras means less competition on the labour market. At the other end of the spectrum, those with primary education benefit the least, since they are growing in number in Honduras, yet emigration rates for this group remain low. However, the overall effect is still positive for this group (=1.25-0.75), meaning the reaction from the Honduran Association of Maquiladoras still makes sense, as wages have increased in light of emigration. Finally, those in the private sector, mostly informal workers, are also benefiting more from emigration in terms of average wages than public workers - a sign of the flexibility of the labour market vis-à-vis the more shielded public sector. As emigration leads to higher entrepreneurship, informal work should increase, as well as the income yielded from its activities.

A critical identification issue in this paper is the endogeneity between migration and wages. Wages can also be the determining factor for migration as an increase or a decrease in local wages might spur the outflow of workers. For this reason, the paper also presents results from a 2SLS instrumental variable regression in Table 8.

Hurricane Mitch contributed to destroying capital in the country and as a consequence and in many ways, reset the labour market in 1999 and forced many Hondurans to search for work abroad. An important determinant for migration is expected wages in the destination country. As such, this paper turns to wages in each *ijt* cell in the U.S. in the same year using data from the ACS.[27] Honduras' relatively closed economy and largely informal labour market form a basis on which to argue that wages in Honduras are not correlated with those in the U.S.

27. Lagging wages, that is using the previous year's wages, does not alter results.

Table 7: **Microdata model**

[Variable of interest: Ratio of the number of emigrants to the workforce in Honduras in cell (*i, j, t*)]

Estimated effect of emigration on individual wages in Honduras (2001, 2004, 2007)				
Dependent variable: real monthly earnings (in logs) of individual workers in Honduras				
	I	**II**	**III**	**IV**
Ratio of the number of emigrants to the workforce in Honduras in the worker's *ijt* cell (M/N)	0.28***	0.75***	0.23***	1.25***
Controls:				
urban (=1)	no	0.58***	0.58***	0.57***
male (=1)	no	0.31***	0.30***	0.23***
married (=1)	no	0.08***	0.09***	0.09***
public worker (=1)	no	0.52***	0.51***	0.64***
September (=1)	no	0.04***	0.04***	0.04***
primary (=1)	0.36***	0.37***	0.17***	0.15***
secondary (=1)	0.93***	0.76***	0.46***	0.40***
post-secondary (=1)	1.79***	1.38***	1.14***	1.04***
experience	no	0.20***	no	no
experience squared	no	-0.00***	no	no
experience groups control	yes	no	yes	yes
year control	yes	yes	yes	yes
year * experience groups	yes	no	yes	yes
year * education groups	yes	no	yes	yes
experience groups * education groups	yes	no	yes	yes
urban*M/N	no	no	no	-0.90***
male*M/N	no	no	no	-0.16***
primary *M/N	no	no	no	-0.75***
secondary*M/N	no	no	no	-0.22***
post-secondary*M/N	no	no	no	0.16***
public*M/N	no	no	no	-0.65***
departmental controls	yes	yes	yes	yes
number of observations	113761	113761	113761	113761
R-squared	0.26	0.38	0.38	0.39

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Table 8: **Microdata model with instrumental variable**

Estimated effect of emigration on individual wages in Honduras (2001, 2004, 2007)			
with IV (wage in *ijt* group in U.S.)			
Dependent variable: real monthly earnings (in logs) of individual workers in Honduras			
	I	**II**	**III**
Ratio of the number of emigrants to the workforce in Honduras in the worker's *ijt* cell (M/N)	0.98*	1.69***	1.22**
Controls:			
urban (=1)	no	0.58***	0.58***
male (=1)	no	0.30***	0.30***
married (=1)	no	0.08***	0.09***
public worker (=1)	no	0.51***	0.50***
September (=1)	no	0.04***	0.04***
primary (=1)	0.41***	0.39***	0.24***
secondary (=1)	0.97***	0.61***	0.49***
post-secondary (=1)	1.74***	1.18***	1.04***
experience	no	0.14***	no
experience squared	no	-0.00***	no
experience groups control	yes	no	yes
year control	yes	yes	yes
year * experience groups	yes	no	yes
year * education groups	yes	no	yes
experience groups * education groups	yes	no	yes
departmental controls	yes	yes	yes
number of observations	113761	113761	113761
R-squared	0.26	0.38	0.38

Results from Table 8 show that using the same specifications but with a 2SLS method for columns 1-3 yields very high elasticities, ranging from 0.98 to 1.69.[28] These can be translated into the following marginal effects: a 10% shift of labour force in an individual's skill group increases his/her wage on average from around 7.4% to 12.8%. The fact that these results tend in the same direction and significance as the potentially endogenous results Table 7 is generally reassuring. Without instrumenting, the results in the first model are biased downward. Moreover, standard errors do not vary much between specifications, another sign that the point estimates are precise.

28. Standard IV tests were carried-out. The first stage F-statistic was highly significant.

While these coefficients are quite high it is not surprising given the description of the labour market in Section III, particularly segmentation between sectors and regions. Another explanation is that the result, while intense in the years following Hurricane Mitch, reduces over time. Interacting m_{ijt} with year reveals a large effect in 2001 and a reduction in 2004 and again in 2007 (not reported) – an indication that the Honduran economy and its labour market are adjusting to changes in its capital-labour ratio over time. It is also consistent with the fact that M/N is decreasing over time for the group with 'superior' education (Table 4) and the relative distributions of M and N (Table 5) converging over time.

It is also conceivable that while self-selection may be an issue, Hurricane Mitch contributed to randomising the emigration process. In any case, literature alludes to a positive self-selection of migrants, meaning the results, if anything, are biased downward. That is, those staying behind may be at the low end of the "ability" distribution – yet the results still show a positive correlation – in other words, their wages increased. In any case, as an additional robustness check for self-selection, this paper follows Mishra (2007) who argues that in Mexican states where emigration rates are low, the difference in 'ability' between those emigrating and those staying behind should be minimal, thus minimising issues related to self-selection. The states with the lowest emigration rate according to the Honduran 2001 Census were El Paraiso, Gracias a Dios, Islas de la Bahia, Ocotopeque and Santa Barbara. Limiting the model to only include these provinces still reveals a positive and significant coefficient on m_{ijt}.

Honduras' low ranking in openness and output mix combined with its inability to appropriately replenish and retain its high-skilled work force implies that the impact is likely to last in the medium run, possibly contributing to rising inequality. The conclusions of this paper suggest that emigration generates a redistribution of wealth from capital to labour. The Honduran Association of Maquiladoras likely sees emigration as a threat as it must pay workers higher salaries as a result. As such, at least from a global distribution point of view, the 'stay with us' slogan – which focuses on the dangers and risks of migration – appears to be biased. In fact, interacting M/N with workers declaring their sector as manufacturing, the effect is strongest for primary and weakest for those with superior education levels, a reverse of the average effect.

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VI. CONCLUSION

This paper deals with a migration topic which has largely not been investigated: the impact of emigration on wages. It also focuses on a country which has not been adequately covered in the literature, despite fast growing emigration in the 2000s, following Hurricane Mitch. The conclusions on equilibrium derived from the neoclassical labour market model assume a competitive labour market. In light of this, how competitive is the labour market in Honduras? Marred by incomplete labour markets in rural regions, segmented formal and informal labour markets as well as between rural and urban regions, high under-employment with a large reserve army of workers, the labour market in Honduras can be summarised as not integrated. It has a low output mix, sluggish capital adjustment and a labour market which is slow to replenish foregone employment opportunities – a fact made public by the National Maquiladoras Association's campaign "quédate con nosotros". As such, it forms an interesting case study for investigating whether emigration produced a discernible effect on its labour market.

This paper shows that the sudden and intense emigration period from Honduras following Hurricane Mitch yielded an increase in wages of around 10% for every 10% shift of labour supply due to emigration from 2001 to 2007 – an elasticity much higher than any previous study on the topic.

These results offer a few insights for policy. First, emigration has an impact on more than just migrants and their households. It impacts the labour market through an increase in wages by reducing the labour supply of individuals competing for jobs. However, although it leads to a national redistribution from capital to labour, the absolute loss in labour means an aggregate loss in productivity for the country.

Second, the rise in wages affects individuals differently, depending on their circumstance. This paper has shown that rural areas, women, the post-secondary educated and private sector workers benefited the most from 2001 to 2007. On one hand, this is a good sign; women are entering the labour force and taking the jobs of men who have left – a sure sign of labour emancipation of women in Honduras. Second, the fact that private sector workers are gaining more than public sector workers means that the labour market is somewhat efficient in Honduras – but also that it is highly segmented.

However, it also reveals potential problems in the Honduran labour market. The fact that rural areas are gaining the most means that labour markets there are highly imperfect – agricultural help is costing more because no one is left; farmers are thus losing out. Second, post-secondary educated workers are already those that have the highest returns to labour; an increase in their wages is only increasing inequality between skill groups.

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This paper has also highlighted potential for future research. In light of the low internal migration in some countries, it would be a valuable exercise to estimate the impact of emigration on the labour market using the spatial correlation approach, contributing a valuable comparison of the two approaches. Unfortunately, countries do not track information on those who leave the country and therefore, while the aggregate emigrant shock on the labour market can be estimated, estimates on the differences between regions based on emigration intensity are much more difficult to obtain.

A second area of research is related to remittances. The question dealt with in this paper is strongly linked to the debate on the clear differentiation between the impact of emigration and the impact of remittances on labour outcomes. An influx of money in a household changes individual preferences for work, but it is difficult to predict where the trade-off between working more and working less lies. In the lone known study, Kim (2007) shows that remittances increase unemployment in Jamaica. Adding remittances in the framework above has little sense because remittances are primarily a household variable. Because the framework in this paper uses a skill group level analysis, there is no reason to believe that remittances sent from a certain skill group should impact the labour choices of the same skill group in Honduras. Integrating remittances into the framework would be a useful contribution to the understanding of the links between migration and labour markets.

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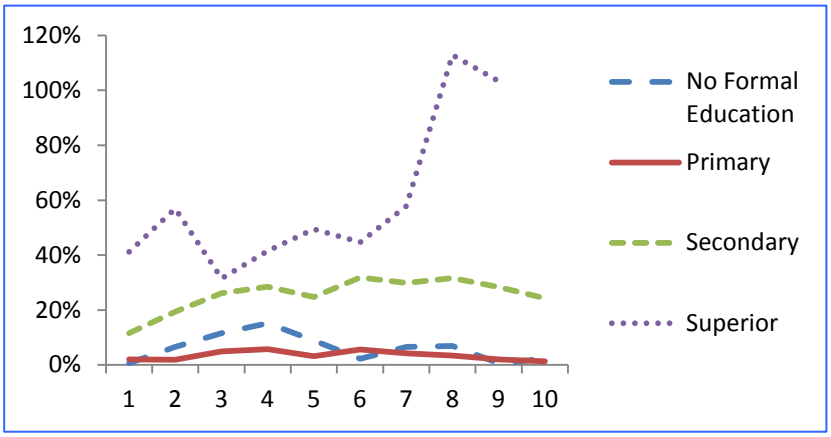
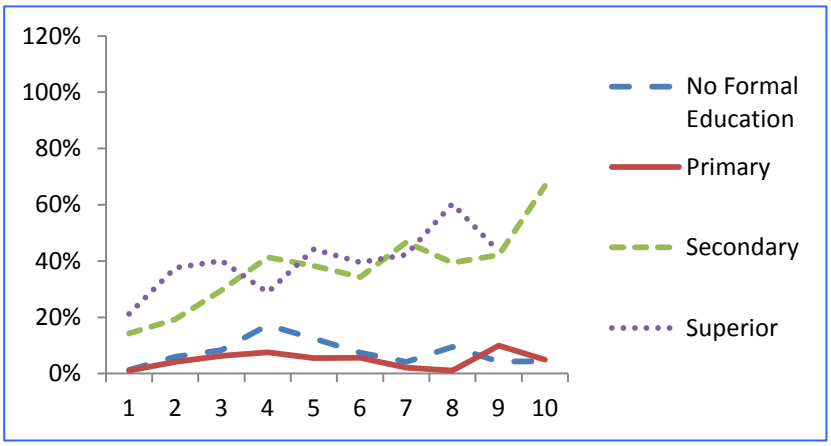
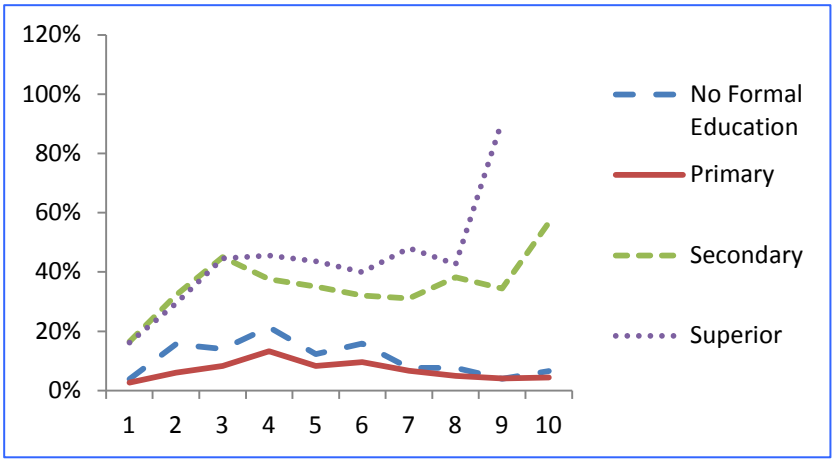
APPENDIX

Appendix 1: **Variation in emigrants-to-labour supply ratio in Honduras, by education and experience groups (2001, 2004, 2007)**

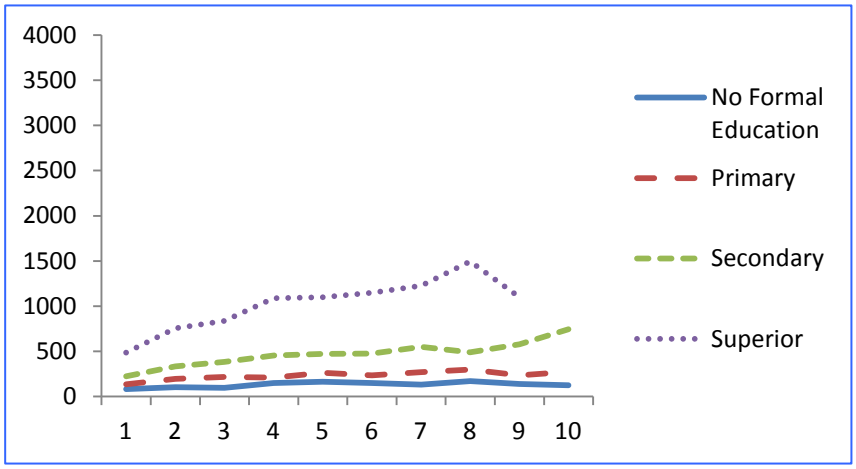


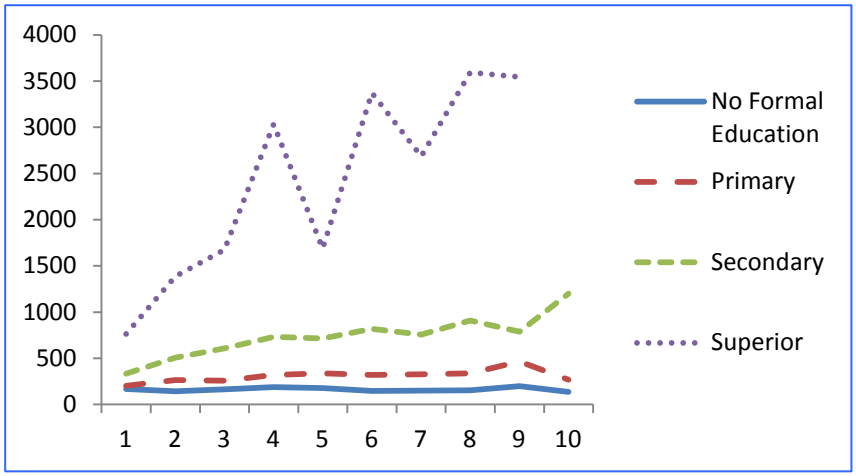


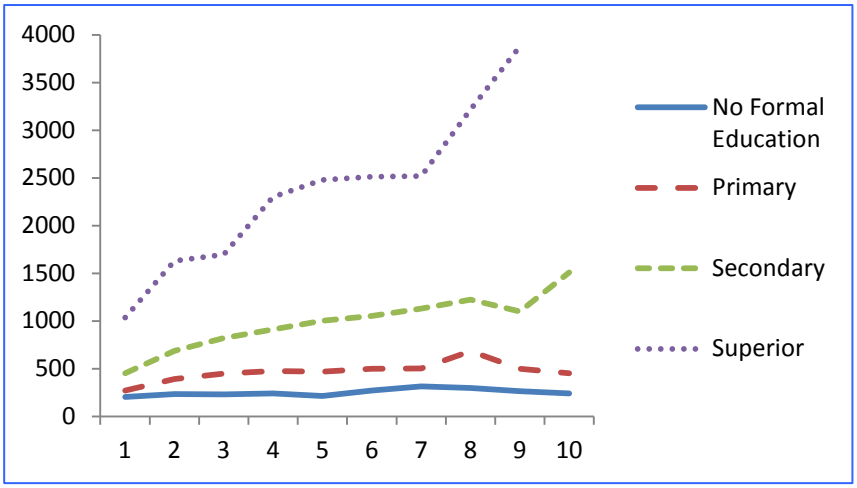


Source: American Community Surveys (IPUMS) and *Encuesta Permanente de Hogares de Propositos Multiples* (EPHPM), tabulated by the author.

Appendix 2: **Real wages in May (base=2005) by education and experience group (2001, 2004, 2007)**







Source: Encuesta Permanente de Hogares de Propositos Multiples (EPHPM), tabulated by the author.

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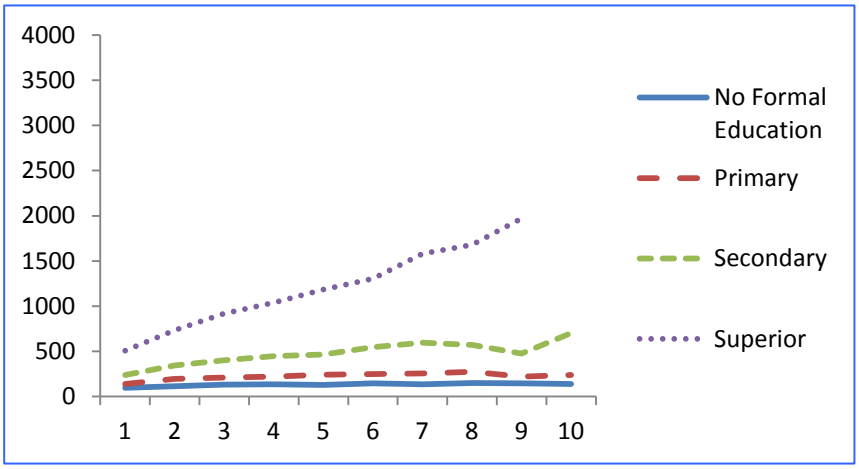
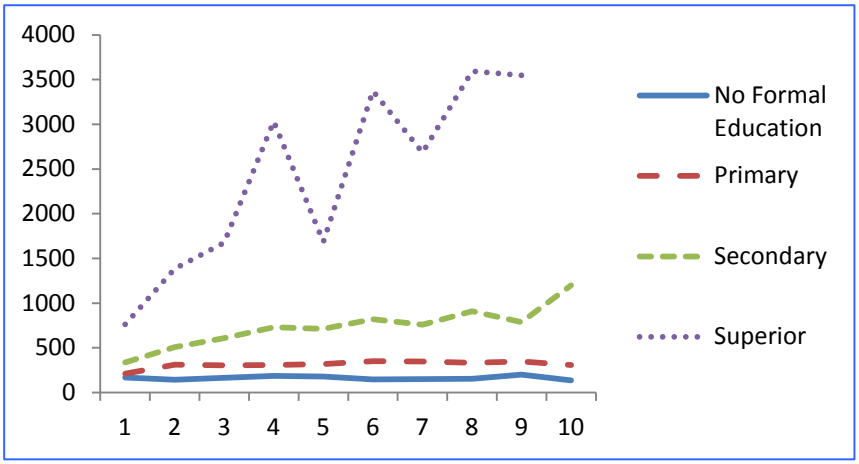
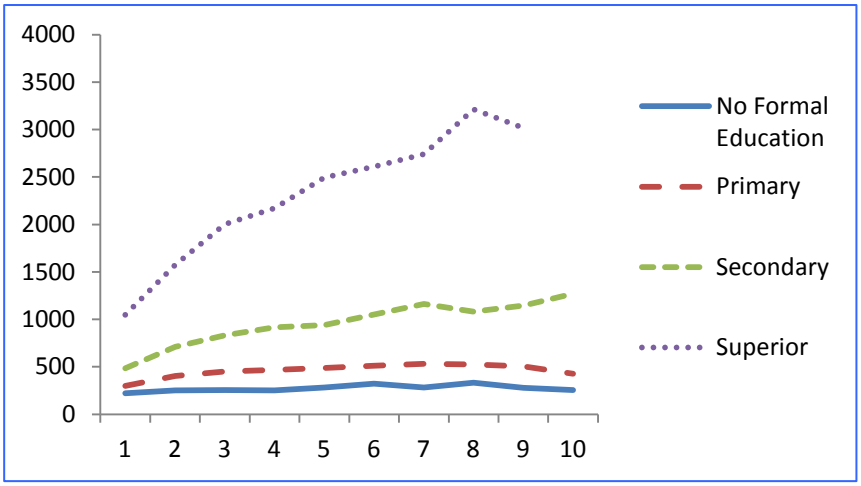
Appendix 3: **Real wages in September (base=2005) by education and experience group (2001, 2004, 2007)**







Source: Encuesta Permanente de Hogares de Propositos Multiples (EPHPM), tabulated by the author.

REFERENCES

AYDEMIR, A.B. and G. BORJAS (2007), "A Comparative Analysis of the Labor Market Impact of International Migration: Canada, Mexico and the United States", *Journal of the European Economic Association*, Vol. 5(4), pp. 663-708.

BAKER, B., M. HOEFER and N. RYTINA (2010), "Estimates of the Unauthorized Immigrant Population Residing in the United States: January 2009," Office of Immigration Statistics, Policy Directorate, U.S. Department of Homeland Security.

BERRY, A. and R. SOLIGO (1969), "Some Welfare Aspects of International Migration", *The Journal of Political Economy*, Vol. 77(5), pp.778-794.

BID (2008), "Tendencias en las migraciones y remesas internacionales en los paises de America Central y la Republica Dominicana", Banco Interamericano de Desarrollo (BID), Tegucigalpa, Honduras, pp.17.

BOUTON, L., S. PAUL and E.R. TIONGSON (2009), "The Impact of Emigration on Source Country Wages: Evidence from the Republic of Moldova", mimeo, World Bank, Washington, D.C.

BORJAS, G. (2003), "The Labor Demand Curve is Downward Sloping: Reexamining the Impact of Immigration on the Labor Market", *Quarterly Journal of Economics*, Vol. 118(4), pp. 1335-1374.

BORJAS, G. (2008), "Labor Outflows and Labor Inflows in Puerto Rico", *Journal of Human Capital*, Vol. 2(1), pp. 32-68.

BOROWIK, K., I. ENDO, S. HIRSCH and J. ROGGE (2009), "The U.S.-Honduras Remittance Corridor: Acting on Opportunities to Increase Financial Inclusion and Foster Development of a Transnational Economy," *World Bank Working Paper* No.177, World Bank, Washington, D.C.

BOYER, G., T. HATTON and K. O'ROURKE (1993), "The Impact of Emigration on Real Wages in Ireland 1850-1914", *CEPR Discussion Papers* No. 854.

CABEGIN, E. (2006), "The Effect of Filipino Overseas Migration on the Non-migrant Spouse's Market Participation and Labor Supply Behavior", *IZA Discussion Paper* Series 2240, Institute for the Study of Labor, Bonn, Germany.

CARD, D. (2001), "Immigrant Inflows, Native Outflows, and the Local Labor Market Impacts of Higher Immigration", *Journal of Labor Economics*, University of Chicago Press, Vol. 19(1), pp. 22-64, January.

CARLETTO, G. and M. MENDOLA (2009), "International Migration and Gender Differentials in the Home Labor Market: Evidence from Albania", *Development Working Papers* 272, Centro Studi Luca d'Agliano, University of Milano.

CEMLA (2008), "Remesas Internacionales en Honduras", Centros de Estudios Monetarios Latinoamericanos, Mexico D.F., 83 pp.

DAMON, A. (2009), "Household Labor Allocation in Remittance-Receiving Households: The Case of El Salvador", mimeo.

DECALUWÉ, B. and F. KARAM (2010), "Is International Migration a Cure for Moroccan Unemployment?" *Journal of North African Studies*, Vol. 15(4), pp. 497-520.

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DOCQUIER, F., C. OZDEN and G. PERI (2011), "The Wage Effects of Immigration and Emigration", *World Bank Policy Research Working Paper* No. 5556, World Bank, Washington, DC.

DUSTMANN, C., F. FABBRI and I. PRESTON (2005), "The Impact of Immigration on the British Labour Market", *The Economic Journal*, 115, November, F324-F341.

DYER, G.A. and J.E. TAYLOR (2009), "Migration and the Sending Economy: A Disaggregated Rural Economy-wide Analysis", *Journal of Development Studies*, Vol. 45(6): 966-989.

ECLAC (2007), "Social Panorama of Latin America: Chapter 4", ECLAC, Santiago, Chile, pp.40.

ENNAJI, M. and F.SADIQI (2004), "The Impact of Male Migration from Morocco to Europe on Women: A Gender Approach", Finisterra, Vol. 39(77), pp.59–76.

FILIPSKI, M. and E. TAYLOR (2011), "Migration Policies and Rural Welfare in Mexico and Nicaragua", *OECD Development Centre Working Paper* No. 298, Paris.

GINDLING, T. and K.TERRELL (2010), "Minimum Wages, Globalization, and Poverty in Honduras," *World Developmen*t, Vol. 38(6), pp.908-918.

GLINSKAYA, E. and M.LOKSHIN (2009), "The Effect of Male Migration on Employment Patterns of Women in Nepal", *World Bank Economic Review*, Vol. 23(3), pp. 481-507.

GÖRLICH, D., T.O.MAHMOUD and C.TREBESCH (2007), "Explaining Labour Market Inactivity in Migrant-Sending Families: Housework, Hammock, or Higher Education?", *Kiel Working Papers* No. 1391, Kiel Institute for World Economy.

HATTON, T. (2007), "Should We Have a WTO for International Migration?", *Economic Policy*, Vol. 22(4), pp. 339-383.

HATTON, T. and J.G. WILLIAMSON (1998), "The Age of Mass Migration: Causes and Economic Impact", Oxford University Press, New York and Oxford, 301 pp.

HANSON, G. (2007), "Emigration, Labor Supply, and Earnings in Mexico," Chapter in Mexican Immigration to the United States, pp. 289-328.

IILS (2009), "International Institute for Labour Studies Informality Database", International Labour Organization, Geneva.

ISACC (2009), "Estudio sobre el mercado laboral y su relacion con la probreza en Honduras, Guatemala y Nicaragua", Instituto Sindical Para America Central y el Caribe (ISACC), Managua, Nicaragua, pp. 61.

KIM, N. (2007), "The Impact of Remittances on Labor Supply: The Case of Jamaica", *Policy Research Working Paper* Series 4120, World Bank, Washington, DC.

MACHARIA, K. (2003), "Migration in Kenya and Its Impact on the Labor Market," Paper prepared for Conference on African Migration in Comparative Perspective, Johannesburg, South Africa, 4-7 June.

MISHRA, P. (2007), "Emigration and Wages in Source Countries: Evidence from Mexico", *Journal of Development Economics*, Vol. 82(1), pp. 180-199.

OECD (2007), "Chapter 4: Trade for Development," in *Latin American Economic Outlook 2008*, OECD Development Centre, Paris, p.189.

PISCHKE, J.-S. and J.VELLING (1997), "Employment Effects of Immigration to Germany: An Analysis Based on Local Labor Markets", *The Review of Economics and Statistics*, MIT Press, Vol. 79(4), pp. 594-604.

RODRIGUEZ, E.R. and E.R.TIONGSON (2001), "Temporary Migration Overseas and Household Labor Supply: Evidence from Urban Philippines", *International Migration Review*, Vol. 35(3), pp. 709-725.

RUGGLES, S., T. ALEXANDER, K. GENADEK, R. GOEKEN, M. SCHROEDER and M. SOBEK (2010), Integrated Public Use Microdata Series (IPUMS): Version 5.0 [Machine-readable database]. University of Minnesota, Minneapolis, available at http://usa.ipums.org/usa/.

SILASI, G. and O.L. SIMINA (2007), "Romania, A Country in Need of Workers? The Bitter Taste of Strawberry Jam", *MPRA Paper* 14855, University Library of Munich, Germany.

SJAASTAD, L.A. (1962), "The Costs and Returns of Human Migration", *The Journal of Political Economy*, Vol. 70(5), pp. 80-93.

STARK, O. (1991), "The Migration of Labor," Basil Blackwell, Oxford, 406 pp.

THAUT, L. (2009), "EU Integration and Emigration Consequences: The Case of Lithuania," International Migration, Vol. 47(1), pp.191-233.

UN (2008), "World Urbanisation Prospects: The 2007 revision population database," available at http://esa.un.org/unup/.

UNAT-UNFPA (2006), "Migración, Mercado de Trabajo y Pobreza en Honduras," UNAT-UNFPA, Honduras.

WILLIAMSON, J.G. (1996), "Globalization, Convergence, and History", *The Journal of Economic History*, Cambridge University Press, Vol. 56(02), pp. 277-306.

WORLD BANK (2008), "Migration and Remittances Factbook", Washington, DC, pp.240.

WORLD HIGHER EDUCATION DATABASE (WHED), International Association of Universities, Paris, France, available at http://www.whed-online.com/.

WOUTERSE, F. (2011), "Continental vs. Intercontinental Migration: An Empirical Analysis of the Impact of Immigration Reforms on Burkina Faso", *OECD Working Paper* No. 299, Paris.

YANG, D. (2008), "International Migration, Remittances and Household Investment: Evidence from Philippine Migrants' Exchange Rate Shock", *The Economic Journal*, Vol. 118(528), pp.591-630.

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