RETURN MIGRANTS AND THE WAGE PREMIUM: DOES THE LEGAL STATUS OF MIGRANTS MATTER?

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Abstract

This paper examines the long-term impact of the legal status of overseas temporary migrants. Using unique data from Egypt, where we are able to distinguish between return migrants according to their type of international migration, documented versus undocumented migration, we examine the impact of temporary migration on their wages after return. Relying on a recursive mixed process model which takes into account the double selection into temporary migration and into the legal status of migrants, we examine the effect of illegal status on wages upon return. We find that undocumented migrants witness a wage penalty compared to documented migrants upon return. Our results also suggest that there is no wage penalty nor a wage premium for undocumented migrants compared to stayers. We also find suggestive evidence that undocumented migrants had lower-ranked occupations overseas and had lower earnings and lower savings overseas. Our results are the first to show the long term negative impact of undocumented migration on the migrant even after returning to their country of origin.

ملخص

تبحث هذه الورقة الأثر الطويل الأجل للوضــع القانوني للمهاجرين المؤقتين في الخارج. وباســتخدام بيانات فريدة من مصــر، حيث يمكننا التمييز بين المهاجرين العائدين وفقا لنوع الهجرة الدولية، والهجرة الموثقة مقابل الهجرة غير الموثقة، فإننا ندرس تأثير الهجرة المؤقتة على أجورهم بعد عودتهم. وبالاعتماد على نموذج عملية مختلطة يراعي الاختيار المزدوج في الهجرة المؤقتة وإلى الوضــع القانوني للمهاجرين، ندرس تأثير الوضــع غير القانوني على الأجور عند عودته. ونجد أن المهاجرين غير الحاملين للوثائق اللازمة يشــهدون عقوبة في الأجور مقارنة بالمهاجرين المسجلين لدى عودتهم. وتشــير نتائجنا أيضــا إلى أنه لا توجد عقوبة للأجر ولا علاوة للأجور للمهاجرين غير الحائزين للوثائق اللازمة مقارنة بأجورهم. ونجد أيضــا أدلة مقنعة على أن المهاجرين غير الحاملين لوثائق يحملون وظائف أقل مرتبة في الخارج ولديهم دخل أقل وخفض المدخرات في الخارج. نتائجنا هي أول من يظهر التأثير الســلبي على المدى الطويل للهجرة غير الموثقة على المهاجرين حتى بعد عودتهم إلى بلدهم الأصلي.

1. Introduction

Migration has become a very heated topic and in particular, more recently, the rise in unauthorized migration has ignited public interest in immigration and its impact. This has also brought out the debate on the relationship between migration and economic development to the forefront. Indeed, the academic literature on the determinants and impacts of migration on countries of origin is not new. For example, there has been a growing body of evidence on the impact of temporary migration experience on self-employment, entrepreneurial activities or wage premiums of return migrants. This literature shows that temporary migration can be beneficial for migrants who accumulate savings and skills that they use to better themselves upon return, see Wahba (2014) for a survey of this literature. However, this literature ignores one important dimension of migration which is the legal status of migrants. Although there is a substantial literature on undocumented/illegal migration, the focus has always been on the impact of illegality on migrants relative to natives in the host country. Indeed, there have been very few studies examining the impact on the origin country in particular since many illegal migrants return either because they are deported or because they planned on temporary migration all along.

This paper aims to examine the long-term impact of the legal status of overseas temporary migrants. It studies the impact of return migration on the wage premiums, by disentangling the effects of overseas legal versus illegal status of migrants. We ask whether undocumented temporary migration has any impact on human capital accumulation that persists after return. Indeed, temporary migrants might acquire human capital and skills due to their work experience abroad and hence, earn higher wages compared to stayers upon return but whether all migrants, documented and undocumented, would benefit from their migration experience upon return, is not straightforward. One the one hand, if the illegal status hinders the human capital accumulation and the skill acquisition of undocumented migrants, the well-evidenced wage premiums perceived by migrants upon return might be contested and we might expect that only documented migrants would benefit from their migration experience. On the other hand, the origin country's labor market might remunerate the migration experience disregarding the documented or undocumented nature of migration. In other words, if the latter scenario applies, through a signaling mechanism, all migrants would benefit from their experience overseas, unconditional on the nature of migration and/or on the human capital and skills accumulated abroad.

This paper has important implications. Understanding the impacts of undocumented migration on the migrant and origin country is paramount. Indeed, it is important to examine the potential costs and penalties of unauthorized overseas work and migration. Furthermore, the paper shows that the impact of temporary migration might depend on the legal status of migrants. Hence, ignoring the legal status of migration and its impact are likely to lead to erroneous policies.

The literature on illegal migration is rather sparse which is not surprising given lack of data. Hanson (2006) provides a survey of the determinants of illegal migration to the US focusing on the role of immigration policy and enforcement. A few papers have examined the return intentions of undocumented migrants and find that a significant share intends to immigrate only temporarily and return to their home country eventually (see e.g Massey and Liang (1990) and Borjas, Freeman and Lang (1991)). Reyes (1997) finds that undocumented Mexican immigrants are much more likely to return than documented ones. Coniglio, Arcangelis and Serlenga (2009) find that more than 70% of illegal immigrants to Italy planned to return home after an intended stay of 6 years on average. In addition, Coniglio, Arcangelis and Serlenga (2010) find that high skilled clandestine migrants are more likely to return back to the origin country compared to the migrants with no or low skills, as illegality reduces the returns to individual capabilities.

Focusing on the impact of illegality on the migrant, a few papers have examined the wage penalty of illegality experienced by Mexican undocumented immigrants in the US. Using the 1990 Legalized Population Survey, Rivera-Batiz (1999) finds a 52% wage penalty. Kossoudji and Cobb-Clark (2002) also use the Legalized Population Survey, but report a wage penalty that ranges between 14% to 24%. Also, an even smaller literature has investigated the impact of illegality on remittances. Amuedo-Dorantes and Poso (2006) find that undocumented Mexican migrants remit proportionately more of their earnings than documented migrants, though they do not control for any selection issues. Schluter and Wahba (2009) after controlling for selection find considerable illegality effect on wages but mixed effects on remitting behaviour. None of the previous literature has examined the impact of illegality on returnees and their wages upon return.

The existing literature suggests that there is a positive wage premium for return migrants associated with overseas work experience (Wahba, 2015; Co, Gang and Yun, 2000 and Barrett and O'Connell, 2001). However, none of these studies has examined the differential effects of return migration on the wage premiums received by returnees with respect to their overseas legal status.

We use unique data from Egypt (ELMPS12) and define undocumented migrants as those migrants who entered the destination country without having a visa or official document, for countries that required an entry visa and for the countries that didn't require an entry visa, undocumented migrants are those who didn't have a work contract for their employment abroad. We note the use of the term undocumented and illegal interchangeably in the rest of the paper. Our empirical analysis relies on a recursive mixed process model that takes into account the double selection into temporary migration and into the legal status of migrants and allows us to estimate the effect of the overseas illegal status on wages after return. We find that undocumented migrants witness a wage penalty compared to documented migrants upon return. Our results also suggest that there is no wage penalty nor a wage premium for undocumented migrants compared to stayers. We also find suggestive evidence that undocumented migrants had lower-ranked occupations overseas and had lower earnings and lower savings overseas. Our results contest the positive wage premiums evidenced in the previous literature, being conditional on the type of migration undertaken. More importantly, our findings are the first to show the long term negative impact of undocumented migration on the migrant even after returning to the country of origin.

The rest of this paper is organized as follows. Section 2 provides a brief description of Egyptian migration and the data used in our analysis. Section 3 describes our empirical methodology and identification strategy. Section 4 presents the results, discusses the possible mechanisms behind the findings, and provides various robustness checks. Section 5 concludes.

2. Background on Egyptian Migration and the Data

2.1 Egyptian migration

Egypt has been a main labor sending country since the 1970s. Although the largest boost to migration flows occurred after the 1973 War, when oil revenues quadrupled and, Gulf countries started implementing major development programs, ever since Egypt has experienced regular outflows of its workers. To a large extent this was triggered by the labor shortages in the Gulf oil-producing countries and the increased demand for foreign labor, and the temporary nature of migration. The majority of Egyptian migrants went to neighboring Arab countries to the oil exporting Arab countries (the Gulf States, Libya and Iraq) and to non-oil exporting Arab Countries (Jordan and Lebanon) to replace nationals of those countries who migrated to the Gulf. A small proportion of Egyptian migration is permanent in nature and destined to North America and Australia. More recently, migration to Europe, namely Greece and Italy, has

increased (MPC Migration Profile, 2013). Overall Egyptian migration is temporary in nature, and is male dominated.

There is a small literature focusing on the effects of temporary migration experience and return migration in Egypt. Wahba and Zenou (2012) examine the entrepreneurial activities of returnees in Egypt. Bertoli and Marchetta (2015) study how the temporary migration alters the fertility choices of returnees upon return. Wahba (2015) focuses on the wage premium incurred by Egyptian returnees relative to non-migrants and finds that overseas temporary migration leads to a wage premium on return. More recently, El-Mallakh and Wahba (2016) examine the impact of temporary migration on human capital accumulation of returnees by measuring the occupational mobility of returnees relative to non-migrants. We extend this literature by investigating the extent to which the impact of return migrants depends on the legal status whilst overseas.

2.2 Data description

For the empirical analysis, we use data from the Egypt Labor Market Panel Survey 2012 (ELMPS 12). The ELMPS is a nationally representative panel survey carried out by the Economic Research Forum (ERF) in cooperation with Egypt's Central Agency for Public Mobilization and Statistics (CAPMAS) since 1998. As in a typical labor force survey, the ELMPS covers topics such as employment, unemployment, job dynamics and earnings but also provides very rich information on education, residential mobility, migration and socio-economic characteristics (Assaad and Krafft, 2013).

The ELMPS is a rich wide-ranging panel survey, administered to nationally representative samples in 1998, 2006 and 2012. In this paper, we focus particularly on the 2012 round, ELMPS 2012. 12,060 households were interviewed in 2012 which yields to a total sample size of 49,186 individuals. The ELMPS 2012 tracks households and individuals that were previously interviewed in 2006, some of which were also interviewed in 1998 as well as individuals that were exclusively interviewed in 2006. In 2012, a refresher sample of 2,000 households was selected from an additional 200 PSUs randomly selected from a new master sample prepared by CAPMAS and by design, it over-sampled areas with high migration rates, and is nationally representative once weights are applied (Assaad and Krafft, 2013).

We rely on the return migration module that surveys all individuals aged between 15 and 59 years old who have worked abroad for more than six months. This module features return migrants' characteristics, incidences of migration, reason for migration, and financial situation before migration, year and country of first migration episode, year of final return, earnings and savings abroad, remittances, as well as other relevant information.

We focus on working-age men, aged 15 to 59 years old as Egyptian migration is mostly male dominated. In Table 1, we report descriptive statistics on the sample of stayers and returnees. The two groups of individuals are significantly different along a large set of individual, geographical and job characteristics. Returnees are found to be significantly older compared to stayers and also significantly more likely to be married. On average, returnees were also found to be more educated compared to stayers. They are about 17% more likely to have either secondary education or above secondary education compared to stayers. In terms of geographical choices, returnees are also found to be less likely to live in Cairo, Alexandria, Canal Cities and Urban Upper Egypt. However, returnees are significantly more likely to live in Rural Lower Egypt. Returnees have on average around 7 years more work experience compared to stayers, and have higher job tenure, around 8 months. As for the sector of employment for their current job upon return, returnees are also found to be significantly more likely to be employed in the public sector compared to stayers. Along the spectrum of economic activities, both stayers and returnees seem to be equally employed in the different job activities.

The mere exception is the wholesale and retail trade where stayers are significantly more likely to be employed in.

In the ELMPS 2012, return migrants were also asked whether they had a visa or official document to enter the country of destination during the first migration episode as well as the type of document they had. Relying on this information, we are able to identify documented and undocumented migrants among the pool of return migrants. Following Divounguy and Wahba (2015), we define undocumented migrants as those migrants who entered the destination country without having a visa or official document, for countries that required an entry visa and for the countries that didn't require an entry visa, undocumented migrants are those who didn't have a work contract for their employment abroad. In Table 2, we focus on the sample of returnees by summarizing their descriptive statistics according to their legal status when they entered the destination country during their first migration episode. One important dimension of difference between the documented and undocumented migrants is their educational attainment. Documented migrants are significantly more likely to have an above secondary education compared to undocumented migrants, while, undocumented migrants are more likely to have no educational degree. In terms of geographical regions, documented migrants are more likely to locate in Cairo and Upper Egypt in general, both urban and rural, whereas, undocumented migrants are more likely to live in rural Lower Egypt. As for their current job in Egypt upon return, undocumented migrants have around one-year higher job tenure and are significantly less likely to have a work contract compared to the documented migrants.

In Table 3, we examine additional differences between the documented and undocumented migrants with respect to their migration spell abroad. Documented migrants are found to have significantly higher monthly earnings and savings while abroad. They are also more likely to remit and to send higher remittances compared to undocumented migrants. In addition, documented migrants are also found to have longer migration spells relatively to undocumented migrants, by about one year on average. In the 1970s and in the 1980s, a significantly higher proportion of undocumented migrants had their first migration spell compared to documented migrants. By contrast, in the 1990s, a higher proportion of documented migrants migrated for the first time compared to undocumented migrants. In terms of destination choice, undocumented migrants were significantly more likely to choose Libya, Jordan and Iraq. However, documented migrants were found to be significantly more likely to migrate to Saudi Arabia, United Arab Emirates, Kuwait and other destination countries.[1]

Looking at the average hourly wages for the current job in 2012 for stayers, returnees, legal and illegal migrants in Table 4, we find that the average hourly wage for returnees is higher than stayers. We also find that the legal migrants have higher hourly wages compared to the illegal migrants upon return. In the second column, we report a t-test for whether the difference in hourly wages between each group and the stayers is statistically significant. We only find a statistically significant difference between the legal migrants and the stayers; however, we don't find any statistically significant difference between the illegal migrants and the stayers or between the pool of returnees and stayers.

3. Empirical Strategy and Regression Specification
We estimate the effect of the legal status of migrants on the wage premium upon return by using a conditional mixed process estimator that fits a Seemingly Unrelated Regressions (SUR), following Roodman (2011). It fits a simultaneous equation model that allows for the correlation between the error terms of the interrelated equations. Before estimating the effect

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[1] Other destination countries include: USA, United Kingdom, Netherlands, France, Austria, Czech Republic, Italy Greece, Cyprus, Bulgaria, Romania, Iceland, Uganda, Mozambique, Morocco, Algeria, Sudan, Syria, Lebanon, Palestine, Yemen, Bahrain, Qatar, Oman and Japan.

of the migrants' legal status on their wages upon return, we model two interrelated decisions: the first one is the probability of migration (1) and the second one is the probability of undocumented migration (2).

First, we denote the probability of migration as M. An individual decides to migrate when the unobservable latent variable M^* capturing the individual gains from migration is positive. An individual decides to stay if the gains from migration are negative, *i.e.* if he loses from migration. For identification, in equation (1), we include the inflation adjusted oil prices (Oil) that are matched with the year when each individual was aged 25 years old (the average age for males at first migration for the estimation sample). We follow the same identification strategy proposed by Wahba and Zenou (2012) to obtain an exogenous source of variation in the probability of temporary migration.[2] The rationale behind using historic oil prices as a predictor of the migration probability is that other Arab countries constitute the most important destination for Egyptian migrants, where oil prices played a crucial role in driving the demand for foreign labor both directly in the Gulf countries or indirectly, in other non-oil Arab countries.[3]

$$M_i = \alpha_0 + \alpha_1 X_{i,\ t-1} + Oil + \varepsilon_i \qquad M_i = \begin{cases} 1\ if\ M^* > 0 \\ 0\ if\ M^* \leq 0 \end{cases} \qquad (1)$$

Second, we denote the probability of undocumented migration by I. This is only observed for the subsample of migrants. A migrant decides to undertake an illegal migration if the value of the unobservable latent variable I^* is positive and it captures the perceived gains from undocumented migration. By contrast, a migrant decides to undertake a legal migration if the value of the latent variable I^* is negative. In equation (2), we use the diplomatic exchange (Dip) between Egypt and the countries of destination of Egyptian migrants at the time of migration for identification, derived from the Correlates of War Diplomatic exchange dataset. It captures diplomatic representation at the level of chargés d'affaires, minister and ambassador between Egypt and all members of the Correlates of War interstate system, every five years for our analysis' period of interest. The identifying assumption is that exogenous shocks to the bilateral diplomatic relations between Egypt and the countries of destination of Egyptian migrants constitute a strong predictor of undocumented migration. Our diplomatic exchange variable is both country and year specific and we find strong suggestive evidence that negative shocks to the bilateral relations between Egypt and the countries of destination of Egyptian migrants have driven illegal migration to the destination countries. We use three alternative definitions for diplomatic exchange: the first one captures the diplomatic representation of each country of destination of Egyptian migrants in Egypt at the time of migration; the second one captures the diplomatic representation of Egypt in each of the countries of destination of Egyptian migrants at the time of migration, while, the third definition captures the diplomatic representation in both Egypt and the country of destination of the migrant at the time of migration.[4]

$$(I_i| M_i = 1) = \beta_0 + \beta_1 X_{i,\ t-1} + Dip + \omega_i \qquad I = \begin{cases} 1\ if\ I^* > 0 \\ 0\ if\ I^* \leq 0 \end{cases} \qquad (2)$$

After correcting for the double selection into migration and into legal status of migrants using proper identification for this structural model, we estimate the impact of the legal status of

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[2] See Wahba (2015), Bertoli and Marchetta (2015) and El-Mallakh and Wahba (2016) for similar approach.

[3] 98% of Egyptian returnees in our estimation sample went to other Arab countries.

[4] According to the first definition, the diplomatic exchange is a dummy variable that takes the value 1 if there is evidence of diplomatic representation of the country of destination in Egypt at the time of migration and takes the value zero, otherwise. The second definition is a dummy variable equal one if there is evidence of diplomatic representation of Egypt in the country of destination of the migrant at the time of migration and zero, otherwise. The third definition is a dummy variable equal one if there is diplomatic representation in both Egypt and the country of destination of the migrant at the time of migration and zero, otherwise.

migrants on their hourly wages for the current job upon return, denoted by W, fitting two distinct models where in the first one we estimate the effect of illegality conditional on being a returnee on wages upon return while in the second one we estimate the effect of illegality and legality, unconditional on return migration. In equation (3), the illegality dummy is conditional on being a return migrant while in equation (3a), the illegality and legality dummies are defined as unconditional on return migration.

$$W_i = \delta_0 + \delta_1 \, (Illegal|M_i = 1) + \ \delta_2 X_{i,t} + v_i \tag{3}$$

$$W_i = \delta_0 + \delta_1 \, Illegal + \delta_2 \, legal + \delta_3 X_{i,t} + v_i \tag{3a}$$

ε, ω and v are the errors of our structural model and are allowed to be correlated through a multidimensional distribution. We also allow for arbitrary within-governorate correlation. Equations (1), (2), (3) are estimated using Full Information Maximum Likelihood. Equations (1) and (2) include the following control variable: the age of the individual and its squared term, educational attainment dummies and a dummy for rural residence at birth. Equation (3) and (3a) include the following controls: the age of the individual and its squared term, educational attainment dummies, a dummy for current rural residence, work experience and its squared term, job tenure and its squared term, the incidence of work contract, sector of employment dummies and job activity dummies.

4. Empirical Findings

4.1 Does the legal status of migrants matter?

In Table 5, we first run simple OLS regression and recursive mixed process model where in the first stage we estimate the probability of being a returnee using the inflation adjusted oil prices for identification and in the second stage, we examine the effect of being a returnee on the log of hourly wages in 2012 upon return. In this table, we are particularly interested in examining whether the legal status of migrants has a differential effect on their wage premium upon return. In columns (1) and (2), we focus on the full sample of stayers and returnees. In columns (3) and (4), we focus on the subsample of documented migrants compared to stayers and in columns (5) and (6), we compare the subsample of undocumented migrants with respect to stayers. Both types of regressions include the full set of control variables discussed previously. We find early evidence that only documented migrants earn from their migration experience abroad in terms of wage premium upon return in Egypt, in line with the descriptive findings in Table 4. In columns (1) and (2), when we pool all migrants, we find a positive and statistically significant effect of return migration on wage premium. In columns (3) and (4), when we only focus on documented migrants compared to stayers, we find a positive wage premium associated to the migration experience overseas that is even greater in magnitude compared to the first two columns. When focusing only on the subsample of undocumented migrants compared to stayers, we don't find any statistically significant effect of return migration on wage premium.

Turning to the main results using a recursive mixed process model to account for the double selection into migration and the legal status of migrants, in Table 6, we first estimate the probability of migration and the probability of undocumented migration before estimating the effect of the illegal status of migrants on the wage premium upon return using simultaneous equations model. In the third stage, we focus on the effect of illegality conditional on being a returnee. First, we find that oil prices are a strong predictor of the probability of return migration in Equation (1); one dollar increase in oil prices increases the probability of being a return migrant by 1.6%. Diplomatic exchange also plays a crucial role in driving the legality/illegality status of migrants as we find in Equation (2) that the lack of diplomatic representation of the country of destination of migrants in Egypt, at the time of migration, increases the probability of illegal migration by 30%. Correcting for this double selection, in

Equation (3), we find that the illegal status of migrants affects negatively their hourly wages upon return. Conditional on being a return migrant, we find that the undocumented migrants witness a 5% wage penalty compared to documented migrants upon return in Egypt.

In Table 7, we examine the effect of illegality and legality unconditional on being a returnee in the third stage. Findings provided in Table 6 provide evidence that illegal migrants are faring worse than the documented migrants upon return in Egypt. The results in Table 7 complement this picture as we find that only the legal migrants witness a wage premium upon return in Egypt, however, there is no wage penalty nor a wage premium for the illegal migrants compared to the stayers. The wage premium for the legal migrants is about 9% compared to stayers.

4.2 Underlying mechanisms

We test formally for potential underlying mechanisms that could be driving our results in Table 7. We use simple OLS regressions where we examine the effect of the illegal status of migrants on the logarithm of monthly wages abroad, the logarithm of their monthly savings, on their occupations overseas, on migration duration and on their current occupations, while controlling for the same set of covariates included in our benchmark specification. We focus on all the returnees in our estimation sample. In line with the descriptive statistics presented in Table 3, we find that the illegal status of migrants affects negatively their monthly wages and savings, while abroad. Illegal migrants earn about 34% less monthly wages while abroad and have 23% less savings with respect to legal migrants. They were also found to have shorter migration spells; the illegal status of migrants reduces their migration duration by about half a year, also in line with the descriptive findings reported in Table 3.

In columns (3) and (5) of Table 7, we examine the effect of the illegal status of migrants on their occupations while overseas and their current occupations, respectively. Occupations are split into 9 distinct categories according to the ISCO-88 classification and are ranked 1 to 9 according to the amount of human capital needed to be employed in each occupation following Sicherman and Galor (1990) and Carletto and Kilic (2011). According to this ranking, our dependent variable takes the value 1 for the lowest-ranked occupation and the value 9 for the highest-ranked occupation.[5] We find that being an illegal migrant reduces the occupational ranking of the job held abroad by 36%, while being an illegal migrant doesn't significantly affects the occupations upon return.[6] These results suggest that the underlying mechanism for the wage penalty experienced by illegal migrants is driven by bad overseas jobs; i.e. human capital waste story. Indeed, it is important to note that although undocumented workers do worse than documented migrants overseas, they also underperform relative to non-migrants. This begs the question, why do people migrate illegally then? There are possibly several potential contenders. First, it is possible that undocumented workers hope to become legalized/regularized but that does not materialize. Secondly, it has to be remembered that undocumented workers still accumulate savings, even though lower than legal migrants, that they wouldn't have accumulated if they haven't migrated.

4.3 Robustness checks

For robustness checks, in Table 8 and Table 9, we use two alternative definitions of diplomatic exchange. In Table 8, our diplomatic exchange variable captures the diplomatic representation of Egypt in each country of destination of migrants at the time of migration, instead of the diplomatic representation of each country of destination of the migrants in Egypt as in Table

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[5] In Table A1, we compute the occupational indices following Sicherman and Galor (1990) and Carletto and Kilic (2011).

[6] This finding is robust to using alternative definitions for the occupational rankings: based on either three occupational categories (agriculture, blue collar occupations and white-collar occupations) or based on five occupational categories (agriculture, low-skilled blue collar, high-skilled blue collar, low-skilled white collar and high-skilled white collar occupations).

6. In Table 9, the diplomatic exchange variable captures the diplomatic representation in both Egypt and the country of destination of the migrants at the time of migration. Our results are very robust and remain very stable in terms of magnitude.

5. Concluding Remarks

This paper examines the long-term impact of the legal status of overseas temporary migrants. Using unique data from Egypt, we distinguish between return migrants according to their type of international migration, documented versus undocumented migration, and examine the impact of temporary migration on their wages after return. We define undocumented migrants as those migrants who entered the destination country without having a visa or official document, for countries that required an entry visa and for the countries that didn't require an entry visa, undocumented migrants are those who didn't have a work contract for their employment abroad. Relying on a recursive mixed process model which takes into account the double selection into temporary migration and into the legal status of migrants, we examine the effect of illegal status on wages upon return.

Our findings show that undocumented migrants have a wage penalty compared to documented migrants upon return in Egypt. In other words, return migrants who migrated illegally earned less after return compared to documented migrants even after controlling for observed and unobserved characteristics. However, there doesn't seem to be a wage premium or a wage penalty for illegality when comparing the undocumented migrants and the stayers. We also find evidence that illegal migrants experience a waste of human capital overseas as they end up in lower-ranked occupations overseas and having lower earnings which might explain their lower earnings after return.

Our results are the first to show the long term negative impact of undocumented migration on the migrant even after returning to their country of origin. Those findings have important policy implications as they suggest that there is a need to raise awareness amongst potential migrants planning on migrating and working illegally about the long term negative consequences. Furthermore, countries of origin should maximize the benefits of migration by supporting legal migration and curbing illegal migration.

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Table 1: Descriptive Statistics on The Sample of Stayers and Returnees

| | Stayers | | Returnees | | |
| | (1) | (2) | (3) | (4) | (5) |
VARIABLES	Mean	St. Dev.	Mean	St. Dev.	Difference
Individual characteristics					
Age	34.150	10.680	42.430	9.936	-8.275***
Ever-married	0.744	0.436	0.948	0.221	-0.204***
No educational degree	0.188	0.391	0.195	0.397	-0.007
Primary or preparatory education	0.182	0.385	0.141	0.348	0.041***
Secondary education	0.383	0.486	0.484	0.500	-0.101***
Above secondary education	0.247	0.431	0.180	0.384	0.067***
Work experience	15.780	10.830	22.330	11.010	-6.550***
Geographical regions					
Cairo	0.121	0.326	0.080	0.271	0.041***
Alexandria and Canal cities	0.099	0.299	0.049	0.216	0.050***
Urban Lower Egypt	0.107	0.310	0.127	0.333	-0.020
Urban Upper Egypt	0.146	0.353	0.110	0.313	0.036***
Rural Lower Egypt	0.277	0.448	0.384	0.487	-0.106***
Rural Upper Egypt	0.249	0.433	0.251	0.434	-0.002
Current job characteristics					
Job tenure	11.790	9.609	12.620	9.283	-0.826**
Incidence of work contract	0.422	0.494	0.488	0.500	-0.070***
Sector of employment					
Public sector	0.322	0.467	0.435	0.496	-0.114***
Private sector	0.654	0.476	0.551	0.498	0.103***
Other sector	0.025	0.156	0.014	0.117	0.011*
Economic activities					
Agriculture, Forestry, Fishing	0.114	0.318	0.119	0.323	-0.004
Manufacturing, Mining, Quarrying	0.195	0.396	0.130	0.336	0.066
Construction	0.163	0.369	0.185	0.389	-0.023
Wholesale, retail trade, transportation and other activities	0.237	0.426	0.159	0.366	0.078***
Professional, scientific, technical and administrative activities	0.024	0.152	0.024	0.152	0.000
Other activities	0.267	0.442	0.384	0.487	-0.117***
Number of observations	7315		717		

Notes. Column 5: is t-test for whether the difference in means between the two groups is statistically significant. *** p<0.01, ** p<0.05, * p<0.1

Table 2: Descriptive Statistics on The Sample of Documented and Undocumented Return Migrants

VARIABLES	Documented return migrants		Undocumented return migrants		
	(1) Mean	**(2)** St. Dev.	**(3)** Mean	**(4)** St. Dev.	**(5)** Difference
Individual characteristics					
Age	42.670	9.644	41.940	10.490	0.732
Ever-married	0.954	0.210	0.938	0.242	0.016
No educational degree	0.172	0.378	0.241	0.428	-0.068**
Primary or preparatory education	0.147	0.355	0.129	0.335	0.018
Secondary education	0.471	0.500	0.510	0.501	-0.040
Above secondary education	0.210	0.408	0.120	0.326	0.090***
Work experience	22.780	10.970	21.450	11.040	1.329
Geographical regions					
Cairo	0.095	0.293	0.050	0.218	0.045**
Alexandria and Canal cities	0.046	0.210	0.054	0.226	-0.008
Urban Lower Egypt	0.120	0.325	0.141	0.349	-0.021
Urban Upper Egypt	0.128	0.335	0.075	0.263	0.053**
Rural Lower Egypt	0.334	0.472	0.481	0.501	-0.147***
Rural Upper Egypt	0.277	0.448	0.199	0.400	0.078**
Current job characteristics					
Job tenure	12.180	8.977	13.480	9.823	-1.296*
Incidence of work contract	0.515	0.500	0.436	0.497	0.079**
Sector of employment					
Public sector	0.452	0.498	0.402	0.491	0.049
Private sector	0.536	0.499	0.581	0.494	-0.045
Other sector	0.013	0.112	0.017	0.128	-0.004
Economic activities					
Agriculture, Forestry, Fishing	0.116	0.320	0.124	0.331	-0.009
Manufacturing, Mining, Quarrying	0.124	0.330	0.141	0.349	-0.017
Construction	0.179	0.383	0.199	0.400	-0.021
Wholesale, retail trade, transportation and other activities	0.153	0.361	0.170	0.377	-0.017
Professional, scientific, technical and administrative activities	0.023	0.150	0.025	0.156	-0.002
Other activities	0.405	0.491	0.340	0.475	0.065*
Number of observations	476		241		

Notes. Column 5: is t-test for whether the difference in means between the two groups is statistically significant. *** p<0.01, ** p<0.05, * p<0.1

Table 3: Descriptive Statistics on The Migration Experience of Documented and Undocumented Return Migrants

VARIABLES	Documented return migrants			Undocumented return migrants			
	(1) Observations	(2) Mean	(3) St. Dev.	(4) Observations	(5) Mean	(6) St. Dev.	(7) Difference
Monthly income abroad in EGP	476	2,015	2,136	241	1,286	1,222	728.663***
Monthly savings abroad in EGP	311	1,554	2,062	140	1,194	1,712	360.343*
Incidence of remittances	476	0.607	0.489	241	0.506	0.501	0.101***
Monthly remittances in EGP	136	1,963	3,212	63	1,014	1,736	949.250**
Migration duration	475	4.318	0.194	241	3.386	0.226	0.932***
Year of migration							
1970 - 1979	475	0.030	0.169	241	0.058	0.234	-0.029*
1980 - 1989	475	0.343	0.475	241	0.440	0.497	-0.097**
1990 - 1999	475	0.238	0.426	241	0.170	0.377	0.067**
2000 - 2009	475	0.368	0.483	241	0.311	0.464	0.057
2010 - 2012	475	0.021	0.144	241	0.021	0.143	0.000
Year of return							
1970 - 1979	474	0.006	0.079	241	0.012	0.111	-0.006
1980 - 1989	474	0.179	0.384	241	0.303	0.460	-0.124***
1990 - 1999	474	0.312	0.464	241	0.270	0.445	0.043
2000 - 2009	474	0.361	0.481	241	0.282	0.451	0.079**
2010 - 2012	474	0.129	0.335	241	0.133	0.340	-0.004
Countries of destination							
Libya	476	0.120	0.325	241	0.340	0.475	-0.221***
Jordan	476	0.118	0.323	241	0.170	0.377	-0.052*
Saudi Arabia	476	0.338	0.474	241	0.025	0.156	0.313***
Iraq	476	0.225	0.418	241	0.402	0.491	-0.178***
United Arab Emirates	476	0.063	0.243	241	0.025	0.156	0.038**
Kuwait	476	0.063	0.243	241	0.008	0.091	0.055***
Other countries	476	0.074	0.261	241	0.029	0.168	0.044**

Notes. Column 7: is t-test for whether the difference in means between the two groups is statistically significant. *** p<0.01, ** p<0.05, * p<0.1

Table 4: Average Hourly Wages for Stayers, Returnees, Legal and Illegal Migrants

	Average hourly wage [standard deviation]	Difference with respect to stayers [P-value]
Stayers	6.231	-
	[12.414]	
Returnees	6.893	0.662
	[11.486]	[0.146]
Legal migrants	7.284	1.053
	[12.653]	[0.065]
Illegal migrants	6.339	0.108
	[9.893]	[0.890]

Notes. In the first column, average hourly wages for stayers, returnees, legal and illegal migrants are reported in Egyptian Pounds for the current job in 2012, as well as standard deviation between brackets. In the second column, differences with respect to the group of stayers and the associated P-value for a t-test of whether the difference between the two groups is statistically significant.

Table 5: Estimating the Effect of Return Migration on Wage Premium

VARIABLES	All sample of returnees		Documented return migrants		Undocumented return migrants	
	(1) OLS	(2) IV	(3) OLS	(4) IV	(5) OLS	(6) IV
Return migrant	0.048*	0.048*	0.064**	0.064*	0.007	0.007
	[0.026]	[0.028]	[0.032]	[0.034]	[0.043]	[0.044]
Observations	8,081	8,084	7,791	7,794	7,556	7,559
R-squared	0.151	0.004	0.154	0.119	0.150	0.244
Individual Controls	YES	YES	YES	YES	YES	YES
Job characteristics	YES	YES	YES	YES	YES	YES

Notes: Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Coefficient estimates are reported for OLS in column (1), (3) and (5). In columns (2), (4) and (6), we use a recursive mixed process model that fits a simultaneous equation model, where in the first stage we estimate the probability of being a returnee and in the second stage, we estimate the effect of return migration on the hourly wage. The inflation adjusted historical oil prices (in US dollars), matched with the year when each individual was aged 25 years old (the average age for males at first migration for the estimation sample), are used to instrument return migration. Regressions include a full set of controls.

Table 6: Estimating the Effect of Migrants' Legal Status on Wages After Return, Conditional on Return Migration

VARIABLES	(1) Returnee	(2) Illegal	(3) Log hourly wage
Age	0.015***	-0.112***	-0.030
	[0.002]	[0.031]	[0.038]
Age squared	-0.000***	0.001***	0.000
	[0.000]	[0.000]	[0.001]
No education	0.005	0.550***	-0.526***
	[0.005]	[0.157]	[0.129]
Primary or preparatory	0.014***	0.373**	-0.588***
	[0.004]	[0.153]	[0.134]
Secondary	0.013***	0.364***	-0.250**
	[0.004]	[0.115]	[0.102]
Rural	0.004	0.140	[0.000]
	[0.003]	[0.104]	-0.082
Job tenure			0.012
			[0.008]
Job tenure squared			-0.000
			[0.000]
Work experience			0.019
			[0.012]
Work experience squared			-0.000
			-0.072
Work contract			[0.124]
Oil prices	0.016***		
	[0.000]		
Diplomatic exchange		-0.295***	
		[0.066]	
Illegal status			-0.075*
			[0.044]
Job activity dummies	NO	NO	YES
Sector of employment dummies	NO	NO	YES
Observations	8,752	8,752	8,752
lnsig_1		-2.070***	
		[0.053]	
lnsig_3		-0.460***	
		[0.055]	
atanhrho_12		0.012	
		[0.017]	
atanhrho_13		0.010	
		[0.024]	
atanhrho_23		-0.007	
		[0.000]	

Notes. Model 1 is probability of return migration. Model 2 is probability of undocumented migration. Model 3 is a model of log hourly wages upon return. Regressions include a full set of controls. For identification of equation (1), we use the inflation adjusted historical oil prices (in US dollars), that are matched with the year when each individual was aged 25 years old (the average age for males at first migration for the estimation sample). For identification of equation (2), we use the diplomatic exchange which is the diplomatic representation of each country of destination of Egyptian migrants in Egypt at time of migration. It is a dummy variable equal zero if there is no evidence of diplomatic exchange and is equal one if there is evidence of diplomatic exchange at the level of chargé d'affaires, minister, ambassador or other. The model deals with the conditionality/selectivity of equation (2). Robust standard errors in parentheses are clustered at the governorate level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 7: Estimating the Effect of Migrants' Legal Status on Wages After Return, Unconditional on Return Migration

VARIABLES	(1) Returnee	(2) Illegal	(3) Log hourly wage
Age	0.015***	-0.112***	-0.015**
	[0.001]	[0.040]	[0.006]
Age squared	-0.000***	0.001**	0.000***
	[0.000]	[0.000]	[0.000]
No education	0.005	0.550***	-0.455***
	[0.004]	[0.123]	[0.032]
Primary or preparatory	0.014***	0.373***	-0.437***
	[0.004]	[0.135]	[0.030]
Secondary	0.013***	0.364***	-0.305***
	[0.004]	[0.115]	[0.022]
Rural	0.004	0.140	-0.056***
	[0.003]	[0.085]	[0.022]
Job tenure			0.015***
			[0.003]
Job tenure squared			-0.000**
			[0.000]
Work experience			0.013***
			[0.004]
Work experience squared			-0.000***
			[0.000]
Work contract			0.099***
			[0.029]
Oil prices	0.016***		
	[0.000]		
Diplomatic exchange		-0.295***	
		[0.087]	
Illegal status			0.001
			[0.048]
Legal status			0.059*
			[0.034]
Job activity dummies	NO	NO	YES
Sector of employment dummies	NO	NO	YES
Observations	8,781	8,781	8,781
lnsig_1		-2.070***	
		[0.027]	
lnsig_3		-0.437***	
		[0.016]	
atanhrho_12		0.012	
		[0.020]	
atanhrho_13		-0.003	
		[0.013]	
atanhrho_23		-0.014	
		[0.000]	

Notes. Model 1 is probability of return migration. Model 2 is probability of undocumented migration. Model 3 is a model of log hourly wages upon return. Regressions include a full set of controls. For identification of equation (1), we use the inflation adjusted historical oil prices (in US dollars), that are matched with the year when each individual was aged 25 years old (the average age for males at first migration for the estimation sample). For identification of equation (2), we use the diplomatic exchange which is the diplomatic representation of each country of destination of Egyptian migrants in Egypt at time of migration. It is a dummy variable equal zero if there is no evidence of diplomatic exchange and is equal one if there is evidence of diplomatic exchange at the level of chargé d'affaires, minister, ambassador or other. The model deals with the conditionality/selectivity of equation (2). Robust standard errors in parentheses are clustered at the governorate level. *** p<0.01, ** p<0.05, * p<0.1.

Table 8: The Effect of Return Migrants' Legal Status on Various Outcomes Overseas and After Return

VARIABLES	(1) Log monthly wages abroad	(2) Log monthly savings abroad	(3) Occupation abroad	(4) Migration duration	(5) Current occupation
Illegal status	-0.344***	-0.229**	-0.360**	-0.477*	-0.118
	[0.093]	[0.087]	[0.144]	[0.254]	[0.117]
Age	-0.069**	0.012	-0.185**	0.396***	-0.035
	[0.025]	[0.047]	[0.079]	[0.127]	[0.059]
Age squared	0.001**	-0.000	0.003**	-0.002	0.000
	[0.000]	[0.001]	[0.001]	[0.002]	[0.001]
No education	-0.507***	-0.774***	-2.906***	-0.585	3.843***
	[0.149]	[0.162]	[0.316]	[0.576]	[0.299]
Primary or preparatory	-0.467**	-0.352	-3.064***	-0.216	3.310***
	[0.168]	[0.208]	[0.294]	[0.606]	[0.262]
Secondary	-0.417***	-0.435***	-2.353***	0.204	2.157***
	[0.100]	[0.114]	[0.264]	[0.574]	[0.176]
Rural	-0.128	-0.155	-0.334**	-0.080	-0.048
	[0.101]	[0.144]	[0.140]	[0.257]	[0.102]
Job tenure	-0.021	0.009	0.031	-0.169**	-0.017
	[0.012]	[0.018]	[0.036]	[0.060]	[0.023]
Job tenure squared	0.000	-0.000	-0.002	-0.001	-0.000
	[0.000]	[0.000]	[0.001]	[0.002]	[0.001]
Work experience	0.021**	0.006	0.068**	0.036	-0.051
	[0.010]	[0.020]	[0.027]	[0.052]	[0.041]
Work experience squared	-0.000*	-0.000	-0.001**	-0.000	0.001
	[0.000]	[0.000]	[0.001]	[0.001]	[0.001]
Work contract	0.045	0.191	0.946***	-0.229	-0.477
	[0.166]	[0.176]	[0.239]	[0.379]	[0.455]
Job activity dummies	YES	YES	YES	YES	YES
Sector of employment dummies	YES	YES	YES	YES	YES
Observations	717	451	686	716	717
R-squared	0.166	0.131	0.393	0.170	0.576

Notes. Coefficient estimates are reported for OLS regression model. Regressions include a full set of controls. The dependent variable in column (1) is the logarithm of average monthly wages during the first migration episode in Egyptian Pounds. The dependent variable in column (2) is the logarithm of the average monthly savings during the first migration episode and is expressed in Egyptian pounds. The dependent variable in column (3) is the occupational rankings for the job abroad, during the first migration episode according to the ISCO-88 one digit classification. The greater the ranking, the higher is the occupation classified in the occupational ladder. The dependent variable in column (4) is the migration duration, computed as the difference between the year of first migration and the year of final return. The dependent variable in column (5) is the occupational rankings for the current job, according to the ISCO-88 one-digit classification. Robust standard errors in parentheses are clustered at the governorate level. *** p<0.01, ** p<0.05, * p<0.1

Table 9: Robustness Checks Using Diplomatic Exchange at Destination

VARIABLES	(1) Returnee	(2) Illegal	(3) Log hourly wage
Age	0.015***	-0.098***	-0.030
	[0.002]	[0.032]	[0.038]
Age squared	-0.000***	0.001***	0.000
	[0.000]	[0.000]	[0.001]
No education	0.005	0.566***	-0.526***
	[0.005]	[0.155]	[0.129]
Primary or preparatory	0.014***	0.384**	-0.588***
	[0.004]	[0.154]	[0.134]
Secondary	0.013***	0.382***	-0.250**
	[0.004]	[0.113]	[0.102]
Rural	0.004	0.148	-0.082
	[0.003]	[0.104]	[0.075]
Job tenure			0.012
			[0.008]
Job tenure squared			-0.000
			[0.000]
Work experience			0.019
			[0.012]
Work experience squared			-0.000
			[0.000]
Work contract			-0.072
			[0.124]
Oil prices	0.016***		
	[0.000]		
Diplomatic exchange		-0.186***	
		[0.060]	
Illegal status			-0.075*
			[0.045]
Economic activity dummies	NO	NO	YES
Sector of employment dummies	NO	NO	YES
Observations	8,752	8,752	8,752
lnsig_1		-2.070***	
		[0.053]	
lnsig_3		-0.460***	
		[0.055]	
atanhrho_12		0.016	
		[0.017]	
atanhrho_13		0.010	
		[0.025]	
atanhrho_23		-0.002	
		[0.000]	

Notes. Model 1 is probability of return migration. Model 2 is probability of undocumented migration. Model 3 is a model of log hourly wages upon return. Regressions include a full set of controls. For identification of equation (1), we use the inflation adjusted historical oil prices (in US dollars), that are matched with the year when each individual was aged 25 years old (the average age for males at first migration for the estimation sample). For identification of equation (2), we use the diplomatic exchange which is the diplomatic representation of Egypt in each of the countries of destination of Egyptian migrants at time of migration. It is a dummy variable equal zero if there is no evidence of diplomatic exchange and is equal one if there is evidence of diplomatic exchange at the level of chargé d'affaires, minister, ambassador or other. The model deals with the conditionality/selectivity of equation (2). Robust standard errors in parentheses are clustered at the governorate level. *** p<0.01, ** p<0.05, * p<0.1

Table 10: Robustness Checks Using Diplomatic Exchange at Both Sending and Receiving Countries

VARIABLES	(1) Returnee	(2) Illegal	(3) Log hourly wage
Age	0.015***	-0.097***	-0.030
	[0.002]	[0.032]	[0.038]
Age squared	-0.000***	0.001***	0.000
	[0.000]	[0.000]	[0.001]
No education	0.005	0.570***	-0.526***
	[0.005]	[0.156]	[0.129]
Primary or preparatory	0.014***	0.387**	-0.588***
	[0.004]	[0.154]	[0.134]
Secondary	0.013***	0.385***	-0.250**
	[0.004]	[0.112]	[0.102]
Rural	0.004	0.147	-0.082
	[0.003]	[0.104]	[0.075]
Job tenure			0.012
			[0.008]
Job tenure squared			-0.000
			[0.000]
Work experience			0.019
			[0.012]
Work experience squared			-0.000
			[0.000]
Work contract			-0.072
			[0.124]
Oil prices	0.016***		
	[0.000]		
Diplomatic exchange		-0.182***	
		[0.050]	
Illegal status			-0.075*
			[0.045]
Job activity dummies	NO	NO	YES
Sector of employment dummies	NO	NO	YES
Observations	8,752	8,752	8,752
lnsig_1		-2.070***	
		[0.053]	
lnsig_3		-0.460***	
		[0.055]	
atanhrho_12		0.016	
		[0.017]	
atanhrho_13		0.010	
		[0.025]	
atanhrho_23		-0.003	
		[0.000]	

Notes. Model 1 is probability of return migration. Model 2 is probability of undocumented migration. Model 3 is a model of log hourly wages upon return. Regressions include a full set of controls. For identification of equation (1), we use the inflation adjusted historical oil prices (in US dollars), that are matched with the year when each individual was aged 25 years old (the average age for males at first migration for the estimation sample). For identification of equation (2), we use diplomatic exchange between Egypt and the countries of destination of Egyptian migrants at time of migration. It is a dummy variable equal zero if there is no evidence of diplomatic exchange neither in Egypt, nor in the country of destination and is equal one if there is evidence of diplomatic exchange either in Egypt or in the country of destination at the level of chargé d'affaires, minister, ambassador or other. The model deals with the conditionality/selectivity of equation (2). Robust standard errors in parentheses are clustered at the governorate level. *** p<0.01, ** p<0.05, * p<0.1

Annex:

Table A1: Occupational Rankings for the ISCO-88 1-digit Occupations

Rank	Category name	Index value	
		(1)	**(2)**
1	Skilled agricultural and fishery workers	0.166	2.015
2	Elementary Occupations	0.170	2.130
3	Crafts and related trades workers	0.196	2.171
4	Plant and Machine Operators and assemblers	0.210	2.406
5	Service workers and shop and market sales workers	0.239	2.658
6	Clerks	0.360	3.936
7	Technicians and associate Professionals	0.380	4.043
8	Legislators, Senior Officials and managers	0.528	5.477
9	Professionals	0.605	6.077

Notes. To compute occupational indices, we regress the log of hourly wage on column (1), the hourly wage in column (2), on the number of years of schooling and its squared term, the work experience and its squared term, controlling for marital status, geographical regions and the number of years in the current job and its squared term for our estimation sample of returnees. Occupational indices are computed as following: first we multiply the estimated coefficients on the number of years of schooling and its squared term and the number of years of work experience and its squared term, obtained from the wage regression, by the levels for each individual. Second, we sum the resulting products and they are averaged at the ISCO88 1-digit occupation to obtain our occupational rankings. Military occupations are eliminated.