Finding Home in Exile:
Empirical Perspectives on Migration

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Abstract

I collect data for two cross-sections for over 200 countries to study the determinants of migration on 2005 and 2015. Through ordinary least squares regression, I am able to provide a global overview on how international migrant stocks respond to different variables, finding that GDP per capita, perceptions of corruption control and democracy are important determinants of migration. Further, countries in the Middle East and Northern Africa region show a significant positive difference in migrant stocks compared to the rest of the world. Democracy shows a consistent and significant negative relationship with migrant stocks. The results show how some governments may restrict entry to migrants to protect local labor markets or exploit anti-migration sentiments, but further research should be done to validate this finding.

Keywords:

International Migration, Geographic Labor Mobility, Immigrant Workers, Cross-Sectional Models.

1 Introduction

There has been historical evidence that migration has taken place since the earliest moments of history and since the 1970s the economics of international migration has become an important field in the discipline, using the modern economics tool kit to uncover relationships between migration, public policy, war, sociological factors, among others (Chiswick & Miller, 2015). The economic theory of migration has based itself on the classic models of Borjas (1987) and Borjas (1999), which model immigration in a microeconomic context, where the immigration decision is motivated by wage differentials, and immigrants are labor inputs to the production function of the firm. Since then, the field has advanced greatly, both theoretically and empirically. In this paper, I will contribute through an empirical study by evaluating modern economic theory on migration and identifying the determinants of migration through ordinary least squares estimation on cross-sectional country-level data.

Unlike other studies, I analyze factors which are available at the national level, rather than focusing on specific regions or intranational migration. This means that the results from the paper, while not exactly separable for origin and destination countries, are relevant to a world overview, which few other studies have been able to do. I use country-level data for 2005 and 2015 for my cross-sectional models, to compare migration determinants before and during the European refugee crisis of 2015. I find that GDP per capita, perceptions of corruption control and democracy are important determinants of migration, and that the Middle East and Northern Africa region shows a significant positive difference in migrant stocks compared to the rest of the world. Democracy shows a consistent and significant negative relationship with migrant stocks, which may portray how modern democracies have driven immigration policy through time.

The relevance of this paper's purpose can be supported by considering the overall importance of migration for issues of economic importance. While some evidence on the effect of immigration on the labor market is mixed (Dustmann et al., 2016), the existence of numerous papers showing the effects of immigration on native and competing immigrant wages (Borjas, 1987, 2003; Card, 2001), employment (Card, 1990) and poverty (Murrugarra et al., 2011) emphasize that thoroughly understanding the way that migration is determined, it is important to formulate effective policies at the national level. Further, understanding migration not only helps for a better comprehension of the labor market, but also other relevant policy fields such as gender roles, inflation, etc. In the actual context, understanding migration can become increasingly influential as the economic fallout of COVID-19 and geopolitical tensions like the 2015 European refugee crisis or the 2022 invasion of Ukraine may challenge governments and societies to act on migratory crises as explained by World Economic Forum (2022).

The rest of the paper proceeds as follows. The following section provides a literature review on migration. Section 3 presents the data and empirical strategy. Section 4 discusses the results. Section 5 presents the conclusions and some considerations for public policy and future research.

2 Literature Review

The present study focuses on international migration, which is fundamentally different from internal migration, but rather the institutional and regulatory background. Nevertheless, classic models (Borjas, 1999)

are still relevant to understand modern migration mechanisms, as according to Bodvarsson et al. (2015) "[migration] is driven by spatial differences in the net returns to factor supply and is a response to labor market disequilibrium" (p. 44), which ultimately respond to microeconomic frameworks (Borjas, 1987, 1999). Nonetheless, it is important to consider that, especially in contexts of refugee crises such as the European 2015 crisis, rational decision-making will respond more to immediate survival rather than mere wage differentials, which is something that should be accounted for in empirical models.

The empirical work on the determinants of migration has considered both economic and non-economic covariates to get a more profound understanding of migrant flows and the policies that could be applied to foster its sustainability. Mayda (2010) studied migration determinants for fourteen OECD countries between 1980 and 1995. She found that geography and demographic factors, such as distance and the share of young population at origin, are the most significant non-economic determinants for migration. Wesselbaum (2018) reaches similar conclusions by analyzing the same group of countries over a larger time span. Proxies for education and health systems, like years of schooling and life expectancy, are found to be significant. The study added human capital, and it is discovered that higher values can make countries less attractive for under-skilled migrants. Higher average human capital implies larger gaps between natives and migrants, consequently increasing the difficulty for them to find a job.

Differences between the culture at origin and at destination may affect migrant flows significantly. It would be expected that migrants choose destination countries with a culture like their own, or at least a country with a higher level of cultural diversity. The latter could be perceived as more likely to receive migrants and offer opportunities, encouraging harmonious cultural integration. Cameron et al. (2012) studies migration experimentally, analyzing how migrants' preferences and behaviors change over time when living in a country different from their own. They suggest that "exposure to Western education has a significant impact on social preferences, preferences for competition, and risk attitudes" (p.24). Additionally, they found that the best approach for cultural integration is through education.

Wang et al. (2016) found that the average cultural distance in a country is crucial for migrants, being three times more valuable than geographical proximity. The higher it is, the more attractive for younger migrants. Caragliu et al. (2012) discovered that while migrants will be more attracted to more culturally diverse countries, the distance from the home culture to the foreign is negatively related to the migration decision. This does not mean that cultural diversity reduces the attractiveness of a country to immigrants, it is the nature of the cultural diversity that influences the decision. Cultural or ethnic diversity may foster immigration given that the transition from one culture to another may be difficult, and with higher diversity, it is likely that this transition is smoother since destination country inhabitants are more likely to accept migrants.

Democracy may also influence a migrant's decision. Little research has explored this factor, however, Azad (2020) finds a positive relationship between democracy, which is later found in other studies. Likewise, Prada (2020) determined that democracy seems to be positively correlated with migration for a European Union analysis before Brexit. This suggests that for any origin or migration situation, it is essential for migrants to feel that their "rights and freedoms are respected" (p.477). It is encouraged by this author that researchers add corruption and economic freedom in the future, advice which I follow in this paper. Democracies are often related to higher freedom of speech and higher respect for property

rights, which can add to the overall safety of potential migrants. Additionally, an empirical approach considering national corruption perceptions was taken by Dimant et al. (2013), which shows that high corruption drives skilled migration away. Lower corruption will likely be attractive to the potential migrant, as it has been proven that higher corruption is negatively related to economic development (Shleifer & Vishny, 1993). Gravity models have seen widespread use for understanding migration, which was traditionally used for international trade but now sees applications in several fields apart from trade and migration, including foreign direct investment and portfolio investment (Anderson, 2011). International migration gravity models rely on bilateral data and focus on the premise that larger countries which are closer to each other will attract greater migration and have recently advanced in both theoretical and econometric sophistication (Beine et al., 2016). The effects of migration network, and how they can affect long-term migration flows, are better studied using these types of models, such as by Bertoli and Fernández-Huertas Moraga (2013). A key implication from migration networks is that migrant stocks are not just affected by attractiveness factors, but also by alternative destinations. However, as pointed out by Beine et al. (2016), gravity models still suffer from endogeneity concerns, and bilateral data often restricts results to a subset of countries rather than offering a global overview.

3 Methodology

3.1 Data

I construct cross-sectional datasets for 2005 and 2015, with 212 and 215 observations at the country level, respectively. These were countries which had at least one non-missing value for any of the variables which I included for the study. All variables were observed in the mentioned years, except for the Historical Index of Ethnic Fractionalization used in the 2015 cross-section, which was observed for 2013. Table 1 below shows descriptive statistics.

The main data source for my analysis was the World Bank Open Data Bank. The international migrant stock, GDP per capita (also referred to as income per capita), government expenditure, region dummies, unemployment, days required to start a business and government final consumption expenditure were recovered from the World Development Indicators. The international migrant stock is taken as the primary variable of interest: it is the percentage of people that were born in a different country than in which they live, including refugees (World Bank Group, 2020). The inclusion of refugees limits my analysis since refugees may act fundamentally different to the "rational immigrant" acting primarily due to wage differentials. Ultimately, it would be expected that more desirable destinies for migrants have larger migrant stocks, which is why I consider positive regression coefficients to be evidence for important determinants of migration, however, the effect of migration networks might drive migrant flows in a way that cross-sectional models might not capture accurately.

Control of corruption is retrieved from the World Bank's World Governance Indicators. This value is measured in standard deviations, where higher values are associated with better outcomes in terms of governance (Kaufmann et al., 2010). Further, I include the democracy index, a continuous variable where positive values imply a higher degree of democratic rule inside a country. The measurement scale goes from -10 (full autocracy) to 10 (full democracy) (V-Dem Institute, 2018).

Table 1: Descriptive statistics

Year	Variable	Unique (#)	Missing (%)	Mean	Std. Dev	Min	Median	Max
2005	International Migrant Stock (% of population)	212	2	11.187	15.872	0.052	4.184	77.191
	GDP per Capita (2017 PPP $)	189	13	18,513.444	21,187.107	754.664	10,183.738	108,632.360
	Unemployment	186	13	8.311	6.132	0.591	7.120	37.320
	Days Required to Start a Business	103	25	50.632	64.520	3.000	36.700	697.000
	Control of Corruption	191	8	-0.031	1.002	-1.683	-0.276	2.315
	Democracy Index	21	26	3.591	6,489	-10.000	6.000	10.000
	Historical Index of Ethnic Fractionalization	126	39	45.922	25.664	1.600	44.850	88.900
	General Current Government Expenditure (% of GDP)	169	22	16.346	7.827	2.736	15.566	61.682
	Middle East and North Africa	2	0	0.097	0.297	-	-	1.000
2015	International Migrant Stock (% of population)	215	1	12.017	16.834	0.071	4.367	88.404
	GDP per Capita (2017 PPP $)	194	11	20,821.811	21,613.017	825.206	12,605.140	120,294.896
	Unemployment	187	14	7.900	5.875	0.170	6.357	27.694
	Days Required to Start a Business	96	13	23.465	27.265	0.500	14.000	187.000
	Control of Corruption	200	6	-0.030	0.999	-1.766	-0.277	2.276
	Democracy Index	22	26	4.248	6.135	-10.000	7.000	10.000
	Historical Index of Ethnic Fractionalization	141	31	45.915	25.120	1.900	45.300	88.900
	General Current Government Expenditure (% of GDP)	175	20	17.146	8.104	4.579	16.291	62.585
	Middle East and North Africa	2	0	0.097	0.296	-	-	1.000

Note: Descriptive statistics for the cross-sections used in the empirical models. Data for the Historical Index of Ethnical Fractionalization in 2015 is observed in 2013 but inputted in 2015 models.

The Historical Index of Ethnic Fractionalization variable was obtained from the Harvard Dataverse, and it indicates the probability of two randomly drawn individuals within a country that are not from the same ethnic group (Drazanova, 2019). This variable was transformed to percentage points, so that a 1-unit increase means a one percent point increase in the probability of drawing two people from different origins.

Additionally, a group of dummy variables were used to include migration policy positions of countries. This variable represents a country's intention to maintain, raise or lower current levels of migration. It was obtained from "International Migration Policies" (2017), and it was only observed for 2015. The distribution of the variable across the levels is as follows: maintain migration levels: 51.7%, lower migration levels: 11.5%, raise migration levels: 10.6%, missing values: 26%.

I also included another dummy for the countries that are in the Middle East and North Africa (MENA) region, as defined by the World Bank. The countries included are Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Tunisia, United Arab Emirates, West Bank and Gaza, and Yemen.

Further, for certain models, I include a restricted sample of western hemisphere countries. This includes Albania, American Samoa, Andorra, Antigua and Barbuda, Argentina, Aruba, Australia, Austria, The Barbados, Belarus, Belgium, Belize, Bermuda, Bolivia, Bosnia and Herzegovina, Brazil, British Virgin Islands, Bulgaria, Canada, Cayman Islands, Channel Islands, Chile, Colombia, Costa Rica, Croatia, Cuba, Curacao, Cyprus, Czech Republic, Denmark, Dominica, Dominican Republic, Ecuador, El Salvador, Estonia, Faroe Islands, Finland, France, Germany, Gibraltar, Greece, Greenland, Grenada, Guatemala, Guyana, Haiti, Honduras, Hungary, Iceland, Ireland, Isle of Man, Italy, Jamaica, Kosovo, Latvia, Liechtenstein, Lithuania, Luxembourg, Marshall Islands, Mexico, Micronesia Fed. Sts., Moldova, Monaco, Montenegro, Netherlands, New Caledonia, New Zealand, Nicaragua, North Macedonia, Northern Mariana Islands, Norway, Panama, Paraguay, Peru, Poland, Portugal, Puerto Rico, Romania, San Marino, Serbia, Sint Maarten (Dutch part), Slovak Republic, Slovenia, Solomon Islands, Spain, St. Kitts and Nevis, St. Lucia, St. Martin (French part), St. Vincent and the Grenadines, Suriname, Sweden, Switzerland, Trinidad and Tobago, Turkey, Turks and Caicos Islands, Ukraine, United Kingdom, United States, Uruguay, Venezuela, RB, Virgin Islands (U.S.).

3.2 Empirical strategy

I will estimate linear models through OLS to identify the key determinants of international migrant stocks. I make judgments about the importance of the relationships based on hypothesis testing using the standard two-tailed t-test (where $H_0 : \beta_J = 0$) with heteroskedasticity-robust standard errors[1], and based on judgments about the economic or practical significance of the size of the estimated coefficients. I also consider joint statistical significance for some groups of variables with a heteroskedasticity-robust F test (Wald test).

I discuss the economic significance of the coefficients by comparing their magnitude against the standard deviation of the migrant stock each year, which can be considered a typical change of

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[1]I use the HC1 covariance matrix, which makes my errors comparable to those estimated with the robust command in Stata.

migration. If the coefficient represents a sizeable proportion of such standard deviation, it can be considered an economically significant coefficient and thus evidence for an important determinant of migration. In the case of the democracy index, which is measured in non-standard units, I multiply its estimated coefficient by the standard deviation of democracy index in the sample to have a better idea of a typical movement due to democracy, and then proceed to compare to the standard deviation of the migrant stock.

The models considered complete observations only, meaning that countries which presented missing values in one or more of the variables used in the models were dropped. Regression tables show the number of observations used for each estimation and present heteroskedasticity-robust standard errors below the estimated coefficients. The asterisks in the coefficients are used to show statistical significance based on the mentioned robust two-tailed t-test: three error stars signal significance at the 99% confidence level, two signal 95% confidence and one-star signals 90% confidence. The estimated models are based on the following functional form:

$$IMS_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k + u_i \qquad (1)$$

where IMS_i is the international migrant stock, with $i = 1, 2, \ldots, n$. The x_j are determinants of the international migrant stock, as identified by the analysis, and the β_j are the associated coefficients, where $j = 1, 2, ..., k$.

It is important to consider that the cross-sectional nature of this study, done to maintain the global overview of the paper's results, considerably limits the interpretability of the paper's results due to omitted variable bias and the difficulty to model important factors, such as the effect of migration networks. Models which can employ instrumental variables through two stages least squares regression or panel data that can leverage fixed effects estimation can have a better treatment of the omitted variables that my design does not control.

4 Results

4.1 Main determinants of migrant stocks in 2015

Table 2 shows six models that relate the international migrant stock to various indicators. As mentioned before, people migrate mainly for improving their quality of life, so it is expected that higher GDP countries will attract more migrants, which is confirmed by the estimation results in Model 1. A 1% increase in GDP per capita is associated with an increase of approximately 0.01 percentage points (p.p.) in the international migrant stock. A one percentage point increase in the unemployment rate is related to a 0.37 percentage point decrease in migrant stocks. A larger number of days to open a business means more time required to comply with government-mandated startup procedures, which may hurt growth in the private sector. Its coefficient in Model 1 suggests that countries with less business regulation are preferred, possibly due to migrants seeing less barriers when trying to enter labor markets. A one-day increase in the number of days required to start a business is associated with a decrease of 0.05 percentage points in international migrant stocks. Regarding the economic significance of these determinants, I compare the coefficients to the standard deviation of the international migrant stock in

2015, which is 16.83 percentage points. In this sense, it is GDP per capita which is associated with the largest economic significance to the international migration stock, given that the standard deviation of GDP per capita is large, meaning that there is large variability in GDP.

Model 2 adds political indicators. One is the control of corruption index, as suggested by Prada (2020), where higher values imply less corrupt governments (Kaufmann et al., 2010). Unemployment loses significance in this model and is no longer considered as a determinant in models moving forward. A one unit increase in this indicator is related to 3.54 more points in the migrant stock. The positive sign on the control of corruption covariate proposes less corrupt countries are more attractive to migrants. This coincides with Dimant et al. (2013) and Azad (2020). I also consider the democracy index, where positive values imply more democratic rule. The negative coefficient implies a negative relationship between democracy and migration. Specifically, for each one-unit increase in the democracy index (moving towards a more democratic state), the migrant stocks are expected to decrease by approximately 1.12 percentage points. A one unit increase typically does not happen in the data: the standard deviation of this indicator is 6.13 for 2015, which makes the most common movement of international migrant stocks due to democracy $6.13 \times 1.12 = 6.87$. This economic significance is higher than the other variables examined above, which marks democracy as an important determinant.

Figure 1: International Migrant Stocks Choropleth Map
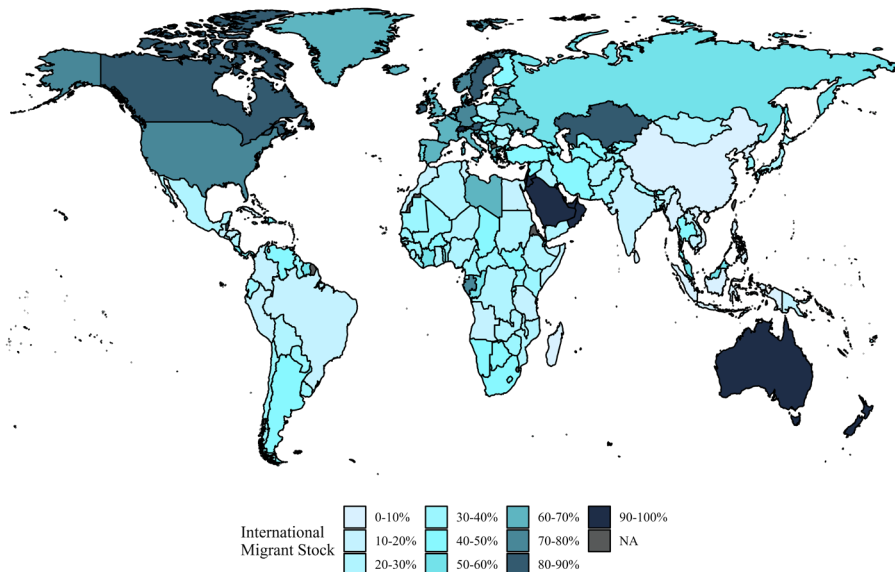
Choropleth map showing the 2015 International Migrant Stock. Data from the World Development Indicators by the World Bank.

Table 2: Main determinants of migrant stocks in 2015

	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-47.162*** (8.110)	-30.467*** (9.265)	-41.892*** (10.905)	-29.384*** (8.613)	-39.272*** (11.966)	-42.452*** (13.830)
Ln GDP per Capita (2017 PPP $)	6.425*** (1.045)	5.184*** (1.162)	6.364*** (1.317)	4.727*** (1.003)	5.236*** (1.201)	5.914*** (1.345)
Unemployment (%)	-0.371** (0.154)	-0.200 (0.146)	-0.217 (0.160)	-0.247* (0.148)	-0.169 (0.147)	-0.079 (0.181)
Days to Start a Business	-0.052*** (0.019)	-0.083*** (0.027)	-0.082*** (0.029)	-0.061** (0.025)	-0.076** (0.032)	-0.071** (0.034)
Control of Corruption		3.536*** (1.249)	3.380*** (1.271)	4.372*** (1.135)	4.392*** (1.162)	4.628*** (1.469)
Democracy Index		-1.196*** (0.277)	-1.136*** (0.278)	-0.811*** (0.199)	-0.942*** (0.208)	-0.918*** (0.189)
Lower Migrant Stocks Plcy.			6.056* (3.500)	1.423 (3.460)	0.708 (3.627)	0.380 (3.619)
Raise Migrant Stocks Plcy.			-5.964** (2.374)	-5.037** (2.066)	-3.208* (1.768)	-2.487 (1.709)
Middle East and North Africa dummy				16.228*** (5.231)	15.643*** (5.226)	17.417*** (6.356)
Historical Index of Ethnic Fractionalization					0.114** (0.048)	0.134** (0.051)
Government Exp. (% of GDP)						-0.336 (0.318)
Observations	172	152	130	130	115	109
Adj. R²	0.319	0.501	0.556	0.632	0.670	0.674

Note: Models that relate the international migrant stock to country-level variables. Heteroskedasticity-robust standard errors with sample correction are reported in parentheses. *p < 0.1; **p < 0.05; ***p < 0.01.

I extend my scope by considering immigration policy and world regions in Model 3. I include a dummy variable on the kind of influence a nation's government has reported to have on immigration policy. These can be policies to maintain, raise or lower current levels of immigrants ("International Migration Policies", 2017). The reference level for the models is maintaining the level of migrations. Countries with policy standings to lower migration are related to having higher levels of international migrant stocks (6.87 p.p. more than the reference level) and countries with policy standings to increase migration are related to lower migration stocks (5.96 less than the reference level). The practical significance is like that of GDP per capita. This finding is consistent with Wesselbaum (2018). One of the underlying economic reasons for this might be the sustainability of each country's retirement system. Countries with low population may seek to increase their employment levels in the short run to fund pensions for retired native workers, who increase as the population growth rate decreases (Abel et al., 2014).

Due to high levels of migration in the Middle East and North Africa (MENA) region, I added a dummy variable for this region (as defined by the World Bank) in Model 4. A country in MENA has a positive and statistically significant difference in migrant stocks (16.22 p.p. more than non-MENA countries), which can also be inferred from Figure 1. This effect turns out to be of the largest economic significance of all the ones that have been seen so far. The ongoing conflicts in 2015 that this region presented may have caused this, as the decision of immigration, while motivated by economic reasoning, is also motivated by immediate survival reasons. This suggests that high migration inside the region may be partly due to refugee crises. Here, democracy appears to be just as important as before but its magnitude decreases, which may suggest that the negative sign in the democracy variable is related to reasons native to certain geographical sites. This is further explored in the next subsection. The lower migrant stocks policy dummy is no longer significant once the region dummy is accounted for, so these policy dummies are dropped for models in the next subsection.

Model 5 adds the Historical Index of Ethnic Fractionalization for 2013. The positive coefficient indicates that, on average, a one-unit increase in ethnic diversity is associated with a 0.114 percentage point increase in international migrant stocks. The effect, while intuitive, has little economic significance, but is kept in the interest of avoiding omitted variables for further models.

Model 6 of Table 2 includes government expenditure. I include this variable to examine the potential attractiveness of countries which offer migrants a higher degree of government services. However, it shows no statistical significance, and due to a low economic significance, this is likely due to its effects already being captured by another variable, such as democracy, rather than a lack of statistical precision in the estimation.

Model 6 shows that the effect of economic freedom proves to be important for the models, as significance is kept as well as its sign. According to Holcombe and Boudreaux (2015), it is critical to keep this covariate included in the model, as they find that corruption is associated with the amount of regulation in the country. If this is so, possible bias related to corruption when accounting for the days to start a business are corrected. Including both these variables might also be essential to estimate the effect of democracy more accurately (Prada, 2020).

4.2 Adjusted models and restricted samples

Table 3 covers models which aim to further explore migration with the identified determinants with interaction models and restricted sample sizes. Model 7 features an interaction between democracy and the MENA dummy, which would allow the effect of democracy to be different for countries in that region. The negative association remains, however, an interesting relationship emerged. This adjustment allows me to find that, for MENA countries, the economic significance of the democracy and migration relationship is large. The standard deviation for the democracy index for MENA countries is 6.23, making the economic significance around 12.27, which is a value near to the international migrant stock standard deviation for the full sample. On the other hand, there is less economic significance for the same association for non-MENA countries relative to models in Table 2. The standard deviation for the democracy index for non-MENA countries is 5.54, making a common change in migration due to democracy about -3.65.

Model 8 adds an interaction of democracy with GDP per capita, allowing higher income countries to differ in their democracy effect in migration. The interaction term of democracy and MENA loses statistical significance, suggesting that there is not a special effect of democracy for MENA countries once accounting for an interaction effect of GDP per capita and democracy. GDP, democracy, and their interaction terms are jointly statistically significant using a Wald test. At the median level of GDP per capita in 2015 ($12,605.14, which in log form is 9.44), the partial effect of a one unit increase on the democracy score is -0.78, which is still statistically significant and economically significant (a common change being -4.86). Model 9 estimates a specification without countries inside the MENA region. Now, the partial effect of democracy depends solely on GDP. Democracy terms are jointly significant, with the same signs as before. At the median level of income on the dataset, the partial effect of a one-unit increase on the democracy score is now -0.37, with common changes being -2.046. Leaving out the MENA countries considerably reduces the economic significance of the effect of democracy on the migrant stocks. Other determinants hold the same signs.

Model 10 considers only countries in the western hemisphere. In this new sample, all variables, except ethnic diversity and GDP per capita, keep their sign and significance. The standard error on the ethnic diversity coefficient increases for this reduced sample, which would be expected as it is more difficult to estimate with low variability in the regressors. Terms involving democracy are jointly significant, but now show an interesting relationship: countries which are democratic in the western hemisphere will only have a positive relationship with migration if they have relatively high GDP per capita (GDP per capita around the 58th percentile of western countries and up, which is $28,325.56). However, most countries still experience a negative effect of democracy on GDP per capita, which at the median level of GDP per capita (around $25.867.38 thousand) is -0.08, which makes a common -3.33. The economic significance of the association is like others seen in other models.

4.3 The international migrant stock in 2005

Due to the limitation of the previous analyses because of the 2015 European refugee crisis, I explore the democracy variable and its importance for 2005, 10 years before, in Table 4 below. Models replicate Table 3 above but using the World Bank's international migrant stock for 2005.

Results show that GDP per capita and control of corruption keep their sign and significance in both years for all models. This means that in 2005, before the European refugee crisis, countries with higher GDP and with less corrupt governments were related to higher migrant stocks. The magnitude, and hence economic significance, of GDP per capita changes marginally between these two years as well. The magnitude of control of corruption is reduced by about half, which means that corruption was not as important in 2005 as it was in 2015. The magnitude of the MENA dummy is smaller than in 2015 and loses significance in Model 12 when considering the interaction between democracy and GDP per capita, which is an interesting finding that may point toward the importance of the refugee crisis in 2015.

Democracy is no longer significant in Model 13 without considering countries in the MENA regions, and in Model 14 when considering only countries in the western hemisphere. It was also determined that, for both 2005 and 2015, redefining the democracy index as a categorical variable does not change the results. This means that the negative relationship does not seem to be related to refugee crises, also considering that there are no significant changes in the coefficient's magnitude. In all models for 2005, terms involving democracy were not jointly statistically significant, except for the democracy and GDP interaction in Models 12 and 13. Ethnic diversity and the economic freedom proxy lose significance for many or all the models that are estimated. Interestingly, ethnic diversity is not significant in all models for 2005, so this suggests that for immigrants that are not refugees of wars, or at least in 2005, it may have not been essential to look for cultural diversity in a country for making it their destination country. This may also represent the evolution of cultural diversity with time, which in 2005 was much lower than what it was in 2015, regardless of the country.

Table 3: Adjusted models and restricted samples

	(7)	(8)	(9)	(10)
Intercept	-28.390*** (9.389)	-43.822*** (12.776)	-17.862* (9.137)	43.719* (22.926)
Ln GDP per Capita (2017 PPP $)	3.808*** (0.943)	5.712*** (1.394)	2.779** (1.116)	-3.620 (2.379)
Days to Start a Business	-0.067** (0.030)	-0.054** (0.027)	-0.041*** (0.014)	-0.090*** (0.032)
Control of Corruption	3.825*** (1.006)	5.129*** (0.986)	4.068*** (1.108)	2.916** (1.125)
Democracy Index	-0.655*** (0.169)	4.377** (1.723)	0.394 (1.522)	-8.437*** (2.763)
Middle East and North Africa dummy	13.209*** (4.652)	9.769** (4.645)		
Historical Index of Ethnic Fractionalization	0.096*** (0.034)	0.078** (0.032)	0.052*** (0.017)	0.046 (0.030)
Democracy Index x Middle East and North Africa	-1.292* (0.670)	-0.507 (0.704)		
Democracy Index x Ln GDP per Capita		-0.547*** (0.192)	-0.099 (0.181)	0.823*** (0.284)
Observations	137	137	120	59
Adj. R^2	0.648	0.686	0.555	0.601
Sample	Full	Full	Without Middle East and North Africa	Western Hemisphere Only

Note: Interaction term models and models with adjusted samples. Heteroskedasticity-robust standard errors with sample correction are reported in parentheses.

Table 4: Interaction term models for year 2005

	(11)	(12)	(13)	(14)
Intercept	-30.648*** (11.026)	-41.967*** (11.612)	-23.725*** (5.991)	13.898 (45.832)
Ln GDP per Capita (2017 PPP $)	4.245*** (1.082)	5.980*** (1.265)	3.832*** (0.757)	-0.500 (4.804)
Days to Start a Business	-0.016 (0.017)	-0.029 (0.018)	-0.027* (0.016)	-0.024 (0.026)
Control of Corruption	2.139** (0.994)	3.733*** (0.966)	2.721*** (0.960)	1.665 (1.329)
Democracy Index	-0.643*** (0.145)	4.213*** (1.319)	1.432 (0.960)	-5.284 (5.389)
Middle East and North Africa dummy	11.157* (5.643)	5.830 (5.345)		
Historical Index of Ethnic Fractionalization	0.057 (0.037)	0.037 (0.030)	0.013 (0.018)	0.044 (0.031)
Democracy Index x Middle East and North Africa	-0.278 (0.746)	0.764 (0.602)		
Democracy Index x Ln GDP per Capita		-0.558*** (0.154)	-0.230* (0.119)	0.495 (0.570)
Observations	109	109	99	50
Adj. R^2	0.582	0.658	0.545	0.478
Sample	Full	Full	Without Middle East and North Africa	Western Hemisphere Only

Note: Interaction term models. Heteroskedasticity-robust standard errors with sample correction are reported in parentheses.

5 Conclusion

In this paper, I collected data for over 200 countries to empirically study the determinants of migration in 2005 and 2015. Through ordinary least squares regression, I am able to provide a global overview on how international migrant stocks respond to different variables, finding that GDP per capita, perceptions of corruption control and democracy are important determinants of migrations.

The empirical models show that GDP per capita is an important determinant for migrant stocks around the world. A 1% increase in GDP per capita is related to 3-7% increases in migrant stocks, all other things equal. This is consistent with both 2005 and 2015. Further, I discover that in western countries there appears to be a "balance" relationship between GDP per capita and democracy, where richer and democratic countries attract the most amounts of migrants.

By following the literature and allowing the perceptions of corruption control to affect democracy, I find that it is a consistently positive factor for migration, meaning that countries with 'cleaner' governments have high migrant inflows, associated with increases in 3 to 6 percentage point increases in migrant stocks, having controlled for other factors.

Economic freedom, while thought to be theoretically important for migration, is only statistically significant for 2015 migration, not so for 2005 migration. It is important to consider that corruption is closely related to economic freedom, according to the literature. Both should be kept together in all models to ensure the zero conditional mean assumption for the corruption coefficient estimation. I also find that there is very high migration in the Middle East and North Africa (MENA), which is difficult to explain with other covariates. MENA countries are associated with 15-16 percentage points more migrant stocks, representing almost one full international migrant stock for both 2005 and 2015. This might be due to the critical humanitarian situations in the region, especially in 2015 with the European refugee crisis, which caused heavy migration between neighboring countries. This migration can be hardly understood with classic economic models of migration, but rather under a framework of migration for survival, which is harder to model with my cross-sectional approach.

Ethnic fractionalization is statistically significant, though not economically significant, in most models with a positive sign for 2015. In 2005, ethnic fractionalization lost statistical significance and is thus not considered an important determinant of migration. Immigration policy variables are not reliable determinants of migration in the models, probably since other political variables as democracy may contain the information they include. The policy dummies, however, suffer from a lack of robustness in the sample, as not enough governments publicly announce their motivation to affect migrant levels.

The democracy index, where higher values imply a higher degree of democratic rule, persistently proves statistical significance (either jointly or individually), yielding a negative sign. This means that countries which are more democratic are associated with lower levels of migration. It also proves a fair degree of economic significance, where common movements of the migrant stock due to democracy are approximately between 3 and 7 percentage points and reaching 12 percentage points for countries in the Middle East and North Africa region. Through interaction terms, the democracy index is found to be positively related to migration in the Middle East and North Africa region but also to countries with a higher income per capita. Removing MENA countries reduces the magnitude of the negative effect. Considering the western hemisphere on its own, democracy is also negatively related with migrant stocks, unless the countries have very high incomes per capita, but this relationship is less statistically reliable for 2005. The analysis then yields that, after controlling for several factors, democracies tend to be negatively

related to migration. This can be understood as a desire of governments to control migrant flows in the interest of protecting local labor markets or exploiting politically profitable sentiments, but further research should try to validate this finding in other periods and with more sophisticated econometric methods.

As mentioned initially, the cross-sectional approach limits many factors that affect migrant flows. To overcome this limitation, the use of proxies for omitted variables may be satisfactory. An instrument for democracy may also be used to cover the possibility of simultaneity between democracy and migrant stocks. Alternatively, an analysis with different dependent variables, such as net migration, might uncover different relationships. Trying to separate migration based on the age of migrants could be very useful, as literature consistently points to its significance, yet once again availability of data becomes an issue. It must also be considered that the international migrant stock has the potential to be a short-term variable. To account for time trends on migration, and perhaps take advantage of exogenous shocks to it, a panel-data approach can be very valuable. Panel data approaches can use fixed effects models to control for factors that remain static across time and geographical regions, which my cross-sectional design does not allow me to do, and thus control for a greater number of omitted variables without the need for more data.

Ultimately, I identify important opportunities for progress in the literature but also interesting relationships between migration and macroeconomic statistics. The importance of the determinants of migration cannot be ignored, not only for countries already taking in high levels of migrants, but also for policymaking on countries that desire to stop the levels of emigration. To stop citizens from leaving countries, governments should ideally make policy to help the country resemble nations that are net migrant in takers. The perceptions of political processes are also important for both migration and economic growth: certainly, reducing corruption helps the efficiency and integrity of the public sector, but also gives the image of a stable country in which its citizens would rather remain. In the road to exhaustive economic wellness and the reduction of income disparity, migration proves to be a critical factor; thus it is crucial to continue research in this area.

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7 References

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