

Immigration in Cyprus: An Analysis of the Determinants

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Abstract

Understanding international migration trends is of great relevance for policy making. Migration affects the labour market, competitiveness, and growth of a country. It has social, as well as economic repercussions. This is especially true for a small, open economy like Cyprus. Thus, the ability of a country to correctly understand and predict migrant flows from other countries serves as a valuable tool for the design and implementation of economic and social policies. The purpose of this paper is to analyze the factors, economic and non-economic, that drive international migration flows towards Cyprus. For this purpose, we follow an econometric approach, using a newly constructed dataset of 52 “sending” countries, covering the period 1998-2006. Our results show that not only economic, but other factors as well, may influence a person’s decision to migrate. Income levels and income gaps appear to be a significant driving force of migration towards Cyprus. The same cannot be said, however, about labour market conditions. In addition, non economic factors such as a common spoken language between “sending” countries and Cyprus, the distance between them and “network effects” generated from the stock of migrants in Cyprus, are among the major factors influencing a person’s decision to migrate. Interestingly, however, we do not find a similar link between migration and political factors, nor between migration and climatic conditions.

Keywords: immigration in Cyprus, determinants of migration, migration flows.

1. Introduction

Understanding international migration trends is of great relevance for policy making. Migration affects the labour market, competitiveness, and growth of a country. It has social, as well as economic repercussions. This is especially true for a small, open economy like Cyprus. Thus, the ability of a country to correctly understand and predict migrant flows from other countries serves as a valuable tool for the design and implementation of economic and social policies.

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Migrant flows, in and out of a country, may generate both benefits, as well as costs. For a destination country, an unanticipated inflow of foreign workers, would – to some extent – eventually lead to an alteration in the composition and the size of the country’s labour market and undoubtedly affect both the wages and the employment opportunities in that country. Domestic – mainly low-skilled – workers may be faced with increased competition generated from a growing number of low-skilled immigrant workers willing to work away from their home countries for considerably low wages. In addition, there are implications for the provision and in some cases the quality, of public goods. On the other hand, lower wages may lead to lower production costs, and ultimately to lower prices for domestic products and services. Indeed, there is ample evidence for both Cyprus (Christofides et al., 2007) and other countries (see for example Friedberg and Hunt, 1995; De New and Zimmermann, 1994; Borjas, 2003; Aydemir and Borjas, 2007; and references therein) that migration affects the wage and income distribution.

At the same time, “sending” countries gain remittances – money sent back home by migrants – which is a substantial source of income, and a key factor contributing to economic growth in these countries. According to World Bank estimates, countries’ remittances may constitute up to one third of their GDP in some cases. In 2005, the total value of remittances was estimated to be over 230 billion US dollars¹. However, this does not come without a cost. An important downside to migration – mostly common in developing countries – is a phenomenon commonly referred to as “brain drain”. Often, the talented or well-educated individuals in developing countries migrate in search of better work (or other) opportunities abroad. Consequently, these countries sustain a severe depletion of human capital and a loss of growth potential in the long run.

The above, present a short, non-exhaustive, summary of how migration may affect the “sending” and “receiving” countries. What must be noted, however, is that international migrant flows can have important economic effects for both ends and, because of this, it is important for any country to analyse and foresee these flows.

Net migration flows have increased dramatically over the past two decades, both internationally but more importantly in Cyprus. Cyprus has experienced the classic two migration waves in its recent history. The first was associated with large-scale emigration of Cypriots abroad in the early

¹ Source: World Bank website for Payment Systems and Remittances.

twentieth century in search of jobs and better standards of living; and later between 1960 and 1975, especially following the Turkish invasion of the island in 1974, to countries such as the UK, the USA and Australia. In the past 20 years, however, these trends have been reversed and a strong wave of net inward migration took place, first before Cyprus's accession in the EU, owing to the gradual liberalization of the labour markets in the 1990s, and then subsequently following EU accession. The stylized facts presented in the paper show that not only relatively poorer countries, such as Sri Lanka, the Philippines, Bulgaria or Romania, are important sources of inward migration in Cyprus. Other, more prosperous countries, such as Greece, the UK and Russia, have also been important sources of inward migration for Cyprus in recent years. Therefore, while economic factors must play an important role in migration flows, other factors must also be present. The paper examines immigration flows, and focuses on these characteristics, economic and non-economic, which drive the dynamics of inward migration in Cyprus.

This study focuses on three areas. Firstly, it presents the key stylized facts regarding migration trends in, and out of, Cyprus. Second, it reviews empirical studies analyzing the determinants of migration flows. These determinants are often used as a basis for predicting flows across countries. Thirdly, it empirically investigates the factors influencing migration, focusing on Cyprus as a case study.

The remainder of this paper is organized as follows: the next section presents an overview of migration movements in and out of Cyprus for the last decade or so, Section 3 reviews the literature dealing with migration forecasting, Section 4 describes the data used in this study and section 5 presents the results obtained. Section 6 concludes the paper.

2. Migration in Cyprus: facts and figures

Without a doubt, international migration flows tend to be relatively unstable over the passage of time. The volume, the origin and the direction of migrant populations can vary significantly in the short and long run. In the case of Cyprus, net migration has been positive since the early 1980's. Net migration is defined as the difference between in-migration (or immigration - people from abroad who come to live in Cyprus) and out-migration (or emigration - people from Cyprus moving abroad) (CYSTAT, Demographic Report 2008). Table 1 presents the total migration

movements in and out of Cyprus for the time period 2000-2008 as calculated by the Statistical Service of the Republic of Cyprus and the authors (years 2000 and 2001).² Table 1 also presents data for the net migration rate for the referred period. Net migration rate is net migration expressed as a rate per 1000 mid-year population (CYSTAT, Demographic Report 2008). Data for net migration for the period 1980-2008 is also plotted in Figure 1. It is evident from Figure 1 that Cyprus has experienced strong positive net migration flows since 1983. Especially in 1994, net migration reached an unprecedented 15,724 (4.43% of labour force). It is also worth noting the remarkable levels of net migration during the years 2003 to 2007. One would attribute a fair amount of this rise to Cyprus's entry in the European Union, in 2004.

TABLE 1
Migration movements 2000-2008

Year	Total Immigrants	Total Emigrants	Net Migration	Net Migration Rate
2000	12764	8804 ¹	+3960	+5,7
2001	17485	12835 ¹	+4650	+6,6
2002	14370	7485	+6885	+9,7
2003	16779	4437	+12342	+17,1
2004	22003	6279	+15724	+21,3
2005	24419	10003	+14416	+19,0
2006	15545	6874	+8671	+11,2
2007	19142	11752	+7390	+9,4
2008	14095	10500	+3595	+4,5

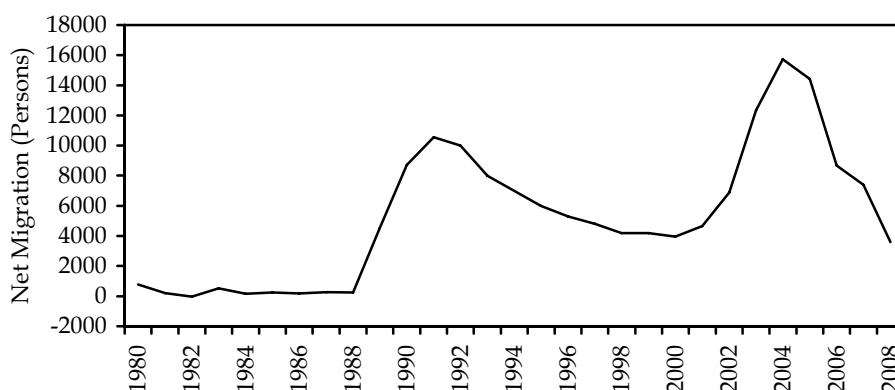
Note: ¹Authors' calculations.

Sources: Cyprus Statistical Service, Demographic Report 2008 and authors' calculations.

² Please note that for the years 2000 and 2001 the data for total emigrants presented in the table come from the author's calculations as such data is not available for the years before 2002.

FIGURE 1

Net migration in Cyprus for the time period 1980-2008



Source: Cyprus Statistical Service, Demographic Report 2008.

Tables 2 and 3 present the top 10 “sending” countries to Cyprus from all over the world (Table 2) and the European Union (Table 3). As can be seen from Table 2, Greece, the United Kingdom, Sri Lanka and Russia, are traditionally among the top five “sending” countries. Among these, Greece has the strongest migration links to Cyprus and this fact can be attributed to the strong cultural and language bonds between the two countries. With regard to the EU member states presented in Table 3, in addition to the aforementioned Greece and the UK, the two other important “sending” countries throughout the years are Bulgaria and Romania.

TABLE 2

Long-term immigration to Cyprus by country of residence

2000		2003		2005		2008 ¹	
Country	Immigrants	Country	Immigrants	Country	Immigrants	Country	Immigrants
Greece	3130	Greece	4971	UK	5235	Greece	1861
UK	2070	UK	2870	Greece	5015	Romania	1197
Russia	913	Russia	1908	Poland	1625	Philippines	1191
Sri Lanka	713	Sri Lanka	654	Sri Lanka	1278	UK	1170
USA	434	Philippines	515	Russia	1257	Bulgaria	798
Bulgaria	418	Bulgaria	436	Slovak Rep	1124	Sri Lanka	554
Ukraine	354	S. Africa	426	Philippines	918	Poland	504
China	306	Syria	366	Romania	614	Russia	339
Philippines	289	China	359	Germany	525	Germany	246
India	272	USA	292	USA	474	France	219

Note: ¹ The data for 2008 should be viewed as provisional due to the fact that the corresponding survey for collecting the data for that year has a considerable amount of not-stated information (that is immigrants whose country of residence is not specified), specifically, 3179.

Source: Cyprus Statistical Service. Demographic Reports 2003 to 2008.

TABLE 3

Long-term immigration to Cyprus from the EU (country of residence)

2000		2003		2005		2008 ¹	
Country	Immigrants	Country	Immigrants	Country	Immigrants	Country	Immigrants
Greece	3130	Greece	4971	UK	5235	Greece	1861
UK	2070	UK	2870	Greece	5015	Romania	1197
Bulgaria	418	Bulgaria	436	Poland	1625	UK	1170
Romania	271	Romania	243	Slovak Rep	1124	Bulgaria	798
Austria	157	Germany	195	Romania	614	Poland	504
Germany	115	Hungary	125	Germany	525	Germany	246
Czech Rep	103	Poland	123	Bulgaria	436	France	219
Poland	55	France	99	Hungary	354	Slovak Rep.	160
France	46	Czech Rep	79	Latvia	247	Estonia	98
Ireland	41	Netherlands	65	Czech Rep	229	Czech Rep	77

Note: ¹ The data for 2008 should be viewed as provisional due to the fact that the corresponding survey for collecting the data for that year has a considerable amount of not-stated information (that is immigrants whose country of residence is not specified), specifically 3179.

Source: Cyprus Statistical Service. Demographic Reports 2003 to 2008.

Table 4 shows a breakdown of emigration movements from Cyprus for the years 2000, 2003, 2005 and 2008.³ Emigration, according to the definition used by the Cyprus Statistical Service, includes individuals who have resided in Cyprus for at least a year and leave the country for a new destination. The highest emigration flows are towards Greece, Sri Lanka, and the Philippines, which is probably partly explained by the high immigration flows from these countries towards Cyprus in the past few years.

³ The data for 2000 do not come from the Statistical Service of the Republic of Cyprus. They are calculations of the authors based on the aggregate data available for emigration from Cyprus. The procedure which was followed was based on assigning weights to each country based on the detailed data available for the following years (from 2002 onwards there are data for emigration by country of destination) and then distributing the total number of emigrants for the year 2000 to our sample countries by applying the previously constructed weights.

TABLE 4
Emigration from Cyprus by country of next residence

2000 ¹		2003		2005		2008 ²	
Country	Emigrants	Country	Emigrants	Country	Emigrants	Country	Emigrants
Greece	1673	Sri Lanka	725	Sri Lanka	2821	Sri Lanka	3131
Sri Lanka	1064	Greece	604	Philippines	1582	Philippines	2101
UK	880	Ukraine	423	Greece	656	India	603
Philippines	616	Bulgaria	369	India	646	Greece	375
Bulgaria	528	Philippines	325	China	602	Romania	352
Romania	484	UK	261	Bulgaria	559	Canada	345
Ukraine	440	Romania	239	UK	371	UK	311
China	282	India	161	Syria	271	China	224
Russia	267	Russia	131	Pakistan	251	Bangladesh	224
India	185	Syria	82	Romania	246	Russia	166

Note: ¹ The data for the year 2000 represent the authors' calculations.

² The data for 2008 should be viewed as provisional due to the fact that the corresponding survey for collecting the data for that year has a considerable amount of not-stated information (that is emigrants whose country of next residence is not specified), specifically 932.

Sources: Cyprus Statistical Service Demographic Reports 2005 and 2008, and authors' calculations.

3. Studies analysing international cross-country flows: a short literature review

Analyzing the determinants of migration and predicting future flows is a difficult task, involving a great degree of uncertainty. As Bijak (2006) explains, international migration is a multi-dimensional phenomenon, whose modeling and forecasting entails methods that relate to demography, economics, geography, statistics, sociology, political science and many other areas. That said, it is still important to analyze the determinants of migration flows and, in some cases, to try to predict international migration flows. Indeed, a great deal of effort has gone into this research area and also in improving existing forecasting methods for this purpose.

Academic researchers, as well as national statistical offices and organizations, continuously attempt to produce reliable estimates of future migration flows. At present, there is a broad variety of approaches related to this topic. A brief overview of the econometric approach for forecasting

international migration is presented here.⁴ Other available approaches include survey-based methods, both of individuals and experts, (the so-called Delphi method), statistical and mathematical/demographic methods (for a more detailed presentation please see Bijak, 2005).⁵

The econometric procedure is typically a two-step approach (see Dustmann et al, 2003, for example). The first step, involves the estimation of a relationship between a measure of migration and variables describing differences in economic conditions between home and destination countries⁶, as well as variables used as proxies for the non-monetary costs of migrating⁷. In the second step the estimation results are used to project migration flows. Even though the explanatory variables used (and of course model specifications) may vary from one study to another, the methodologies employed are often similar. As Dustmann et. al (2003) point out, the specific category of models addressing emigration from a group of sending countries to a single destination country, are usually constructed around a general base model.

Based on the various econometric approaches some general principles can be drawn concerning modeling and forecasting international migration (some examples of studies addressing this topic include: Dustmann et al., 2003; Hatton, 1995; Fertig, 2001; Bauer and Zimmerman, 1999; Brucker and Silverstovs (2006), Alvarez-Plata et al., 2003; Mitchell and Pain, 2003; Rotte and Vogler, 1998; Clark et al. 2002). Overall, from the empirical work on the issue of analyzing and projecting migration flows, a number of methodological issues emerge. Importantly, having decided upon the choice of migration measure to be used as the dependent variable (which in most cases is the net migration or the immigration flows from a sending country to a destination country divided by the population of the sending

⁴ The information used in this section is to a large extent based on the overview of migration forecasting methods made by Bijak (2005). Also, extensive analysis of migration forecasting methods can be found in Bijak (2006).

⁵ These are presented in more detail in Gregoriou, Kontolemis and Matsi (2010).

⁶ Differences in income per capita between home and destination countries, as well as work opportunities in each country (usually proxied by their respective employment or unemployment rates) are the two principal economic factors influencing international migration.

⁷ The non-monetary costs of migration refer to the various types of social and psychological costs resulting from moving to a new and unfamiliar environment. Examples of such costs include the fear of moving to a foreign country, the difficulties in becoming a member of a new society, the emotional stress of being away from home etc.

country), the next step involves selecting the set of explanatory variables to be included in the estimation process.

The two most commonly used variables in international migration models are those referring to differences in economic conditions between origin and destination countries, the so called "income gap".⁸ The first of these two variables refers to differences in real wages, and it is typically proxied by the differences in per capita income between sending and receiving countries. The second variable reflects differences in employment opportunities or, more generally, labour market conditions and it is proxied by the relative employment (or unemployment) rates. It is possible to include a third variable in the group of variables describing economic differences, namely, a variable describing the differences in income per capita between the country under study and other possible destination countries. This variable is used in a study by Mitchell and Pain (2003), however it is not usually included in most of the studies in the related literature.

It is also important to consider the non-monetary costs a potential migrant will have to face. These may include any social or psychological costs that the migrant may endure after leaving his or her home country. The most common proxy for these types of costs is the stock of existing migrants from the home country in the destination country. This variable is often associated with the term "network effects", meaning that the existence of previous immigrants in a destination country may make the migration process easier for new migrants. One has to consider, however, that there is also a possibility that migrant stocks may have the opposite effect. This would be the case if, for example, the labour market in a destination country has absorbed more than enough migrants and has no further need for more. If that is the case, then, the incentives to migrate to that country may be reduced.

A third group of variables refer to country-specific (and time-invariant) characteristics. These characteristics are often captured by dummy variables that refer to a country's language and geographical proximity. Furthermore, the logarithm of the distance between sending and receiving countries is often included in some models; the idea here is that the closest the two countries are, the more likely it is that a person might migrate from one country to the other. It should be noted that some studies choose to include only country specific intercepts in order to capture country-specific fixed effects.

⁸ It should be noted that some studies use differences, as well as the levels of economic variables. See for example Hatton (1995) and Fertig (2001).

A fourth group of variables used in some of the studies discussed above refers to the existence of migration policies, agreements regarding free movement between countries, and guest worker treaties. Again, for this purpose, dummy variables are employed.

4. Analysis of the main characteristics of “sending” countries

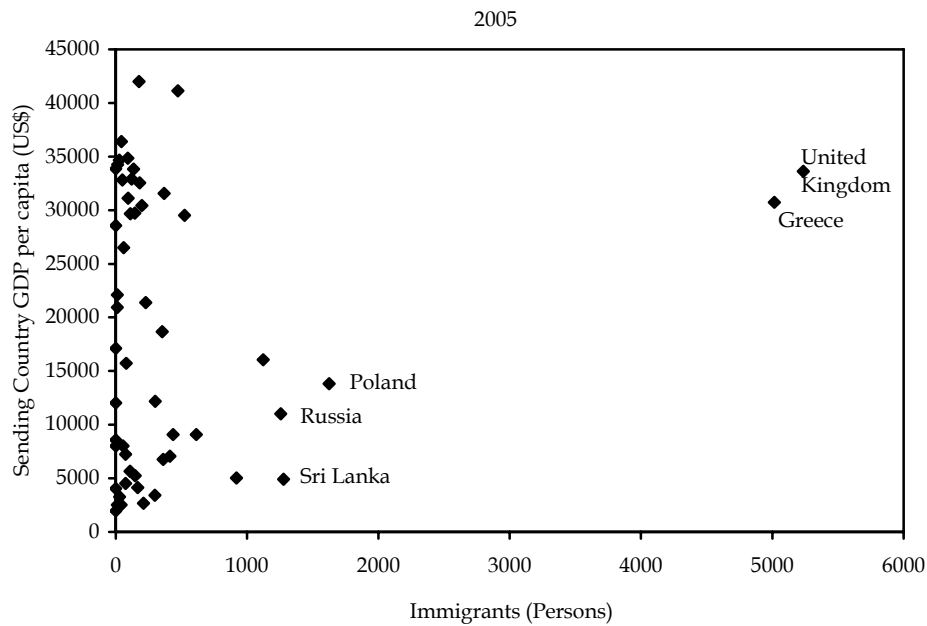
Several economic variables can be relevant for this analysis, as was discussed in the previous section. Economic variables, in particular, are used to capture the economic incentives behind the decision for a person to migrate. The intuition behind this, is that differences in the economic conditions between sending and receiving countries are amongst the major driving factors of cross country immigration. With this in mind, our model makes use of several such variables.

The PPP adjusted per capita GDP of the sending countries is used as a proxy for the sending country’s income level. In addition, the relative GDP per capita (the ratio of the per capita GDP in Cyprus to the per capita GDP of the sending country) is also included in our model, to capture migration incentives resulting from income differentials between the home and destination country. We assume that a country’s per capita GDP is a reflection of the general level of the wages in the country and thus we expect that a country with high income levels will generally attract (worker) migrants from lower-income countries.⁹ Figure 2 plots the GDP per capita data with the data for long term immigrants in Cyprus for the year 2005. The plot does not show a very clear positive relationship, although one can draw some very tentative initial conclusions when considering the five countries with the highest immigration flows to Cyprus, as shown in the diagram. The UK and Greece stand out, and of course there may be other reasons too, but the fact that they enjoy relatively high per capita GDP levels and can afford the physical move is a relevant factor.

Of course, it should be pointed out that any attempt to draw conclusions for the relationship of these two variables from this figure should be treated with caution, as there are additional variables affecting migration decisions. The econometric analysis which follows can throw a bit more light to this question.

⁹ The data for these variables was collected from the International Monetary Fund, World Economic Outlook Database 2007.

FIGURE 2

Immigration VS sending country GDP per capita

Source: Authors' Calculations from aforementioned data sources.

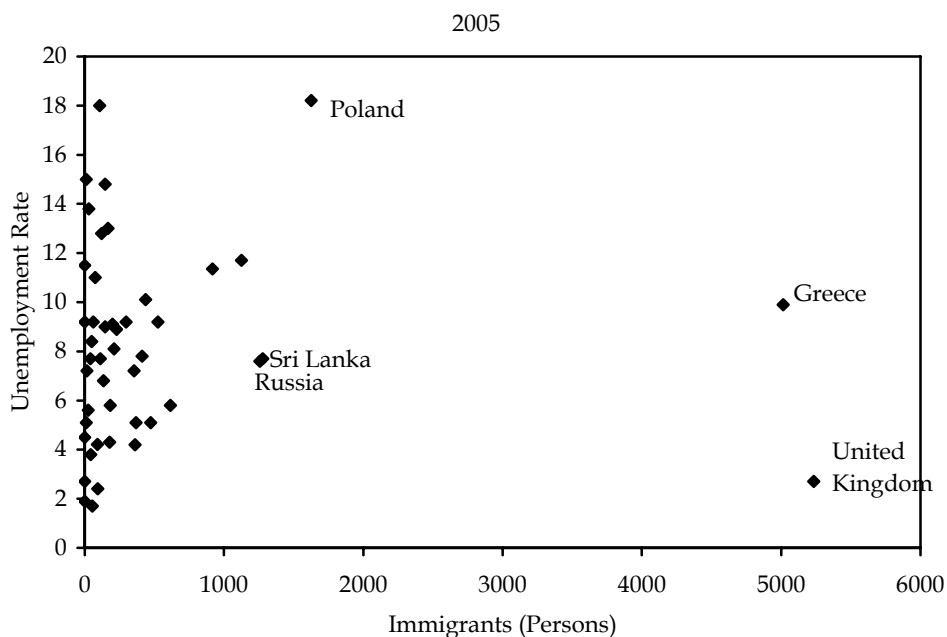
To capture the employment opportunities in our sample countries, we analyze data for the respective levels of unemployment rates and the relative unemployment rates (ratio of unemployment rate in Cyprus to the unemployment rate of the sending country). The intuition behind using these variables is that people tend to migrate from one country to another in search of better working conditions. Based on this assumption, the lower unemployment levels in a certain country will work as a pole of attraction for job seekers from abroad.¹⁰

We should also point out that we view the unemployment data with a degree of caution as we have reasons to question their reliability. Firstly,

¹⁰ Due to the large number of countries in our sample, a single source of data for unemployment rates for all countries proved to be an impossible task. Therefore several sources were considered. The vast majority of the final data was collected from the International Monetary Fund, World Economic Outlook Database 2007. However, the unavailability of data for some country cases caused a problem which we had to solve by using data retrieved from the CIA World Factbook series.

this data is based on the number of registered unemployed individuals in a country. However, it is often the case (mostly in poor countries) that many individuals do not register as unemployed as there are no benefits to receive, and thus the official unemployment rate is significantly lower than the actual one. Secondly, a number of immigrants come to Cyprus only because of pre-arranged employment contracts, thus the link between immigration and unemployment should not be so obvious in practice. Figure 3 plots the data for unemployment with the data for immigration, for the year 2005. The figure shows only a weak association, although this may be for the reasons stated earlier.

FIGURE 3

Immigration VS unemployment rate

Note: Countries with unemployment rates over 25% are excluded from this Figure.

Source: Authors' Calculations from aforementioned data sources.

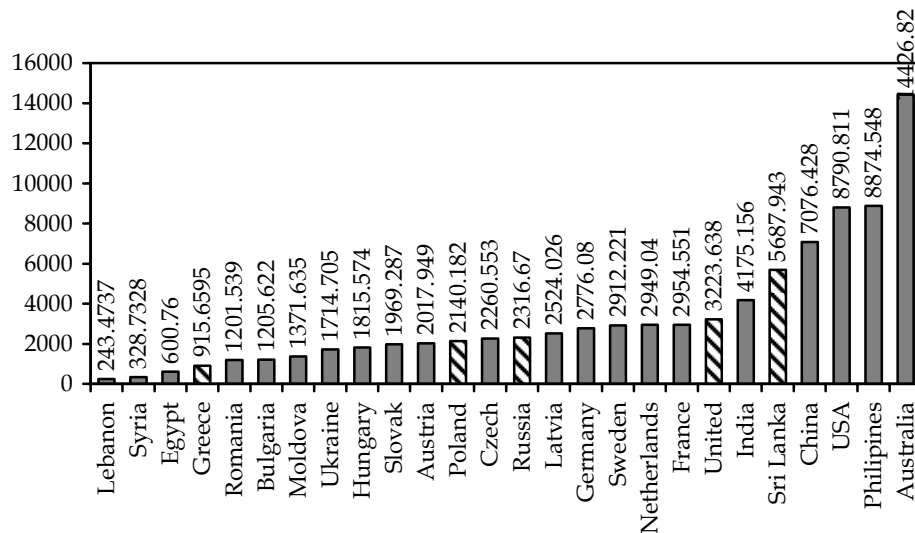
In addition to economic factors, there are many other reasons for a person to migrate. We attempt to capture these reasons with our non-economic variables.

One factor which we assume influences a person's decision to migrate, is the distance between the migrant's home country and the country to which he or she will migrate. For this purpose, we use data for the bilateral distances (in kilometers) between the sending countries and Cyprus. Traditionally, distance is a constraining factor for people considering migrating, both for economic as well as sentimental reasons. That is, migrating to a country far

away from one's homeland means that this person would suffer higher travel/moving costs and, also, will no longer be near his or her friends and relatives. Figure 4 shows the distances of selected countries from Cyprus (in KMs) and Figure 5 displays the distances of all of our (52) sample countries from Cyprus (in KMs).¹¹ In addition, Figure 6 plots the distance data with the immigration data for 2005.

FIGURE 4

Selected distances from Cyprus (in KMs)



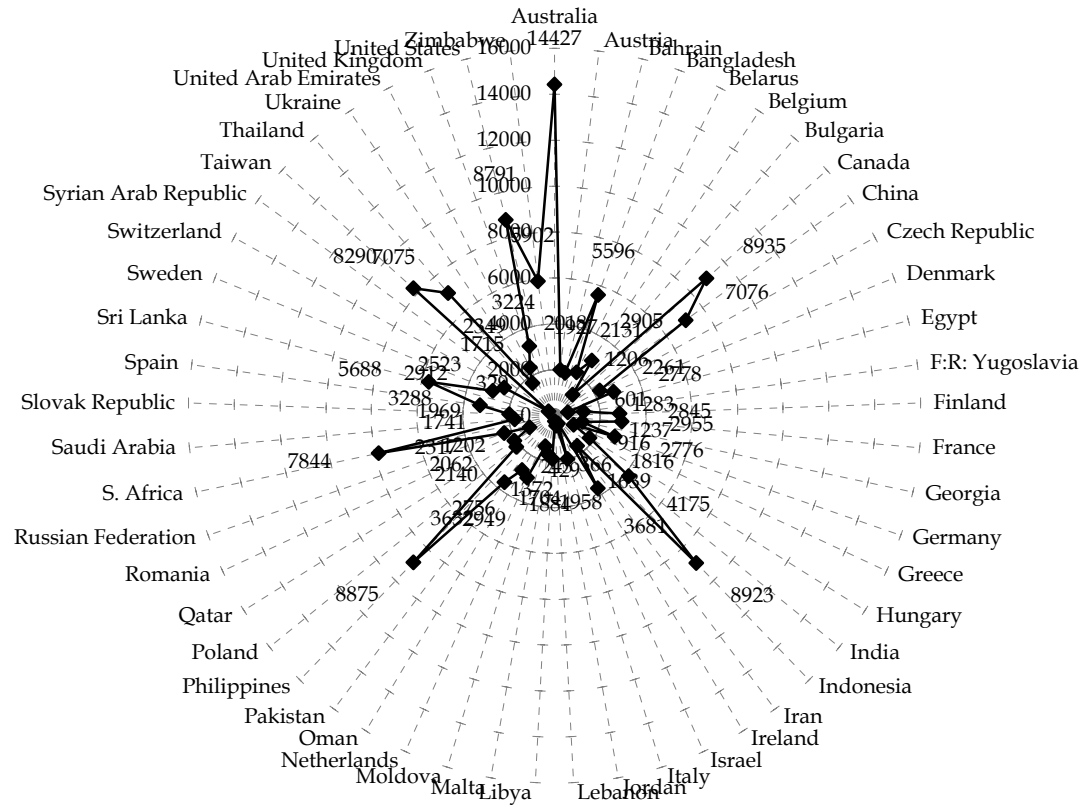
Note: The striped bars correspond to the countries with the highest immigration activity towards Cyprus.

Source: Centre d'Etudes Prospectives et d'Informations Internationales (CEPII).

Figures 4-6 show that the countries with the greatest number of immigrants to Cyprus are rather evenly spread along the distance distribution, thus a more careful analysis is needed to ascertain the effects of distance on migration. An interesting question though is why Cyprus does not have more immigrants from neighboring, relatively poor, countries such as Egypt, Lebanon and Syria. Perhaps other non-monetary costs play a role.

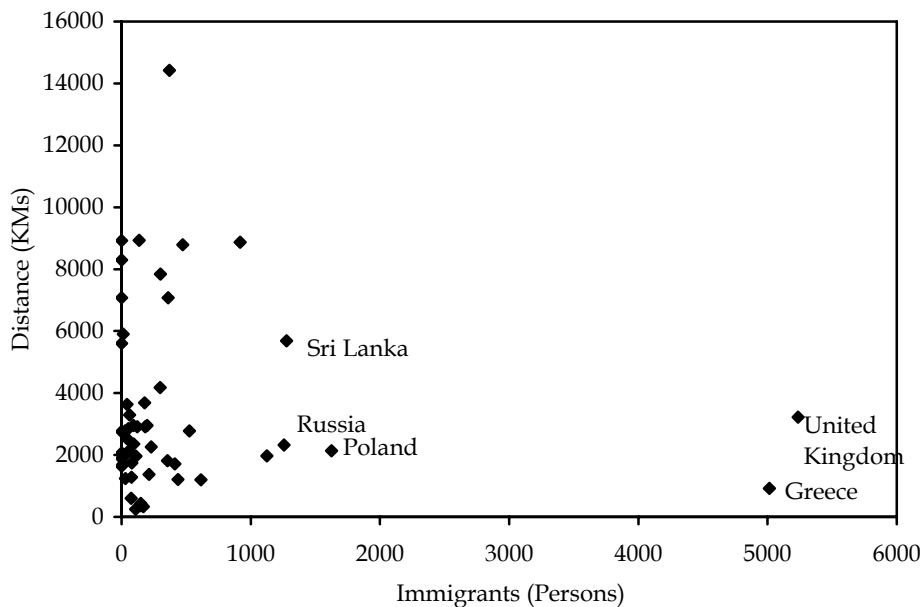
¹¹ The data for the distance variable comes from the CEPII (Centre d'Etudes Prospectives et d'Informations Internationales) Research Centre distances database.

FIGURE 5
Distances from Cyprus – All sample countries (in KMs)



Source: Centre d'Etudes Prospectives et d'Informations Internationales (CEPII).

FIGURE 6
Immigration VS distance
2005



Source: Authors' Calculations from aforementioned data sources.

From the same database, we also use data for another non-economic variable, and more specifically, a variable, indicating whether there is a common spoken language between a migrant's home country and Cyprus. For the case of Cyprus, we consider Greek, Turkish and English to be spoken languages because English, although not one of Cyprus's official languages, is widely spoken in many areas where foreigners reside and work.

In addition to a common spoken language, there are other social factors that could affect the migration decision, for example a common colonizer or a colonial link.²⁵

We also choose to use a variable that captures the differences in climatic conditions between sending and receiving countries.²⁶ It is somewhat

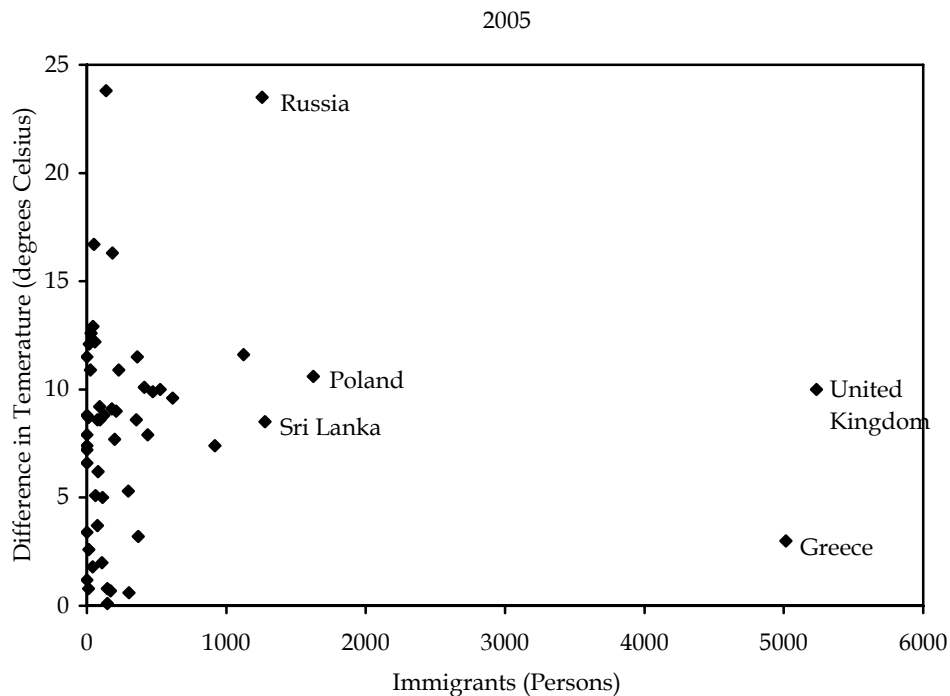
²⁵ This information was retrieved from the same database we used for the distance variable.

²⁶ As a proxy for this we use data for the yearly (twelve month) average temperature of each country in our sample. More specifically, using the average temperature data we calculate the

difficult to predict the effect of this variable on the decision to migrate, as the relationship between climate change and population displacement is not a linear one (IOM 2008). On the one hand, people used to a certain climate in their home country, may be better off migrating to a country with climatic conditions similar to the ones in their home country, and feel reluctant to migrate to a country with a very different climate. Alternatively, given that their country has relatively “bad” weather, they may prefer to migrate to a country with very different climatic conditions than the ones in their home country. Figure 7 plots this data against immigration data for 2005. The plot shows again some mild association that deserves a more thorough investigation.

FIGURE 7

Immigration VS differences in temperature



Source: Authors' Calculations from aforementioned data sources.

(absolute) differences in temperatures between Cyprus and the sending countries. The data for this variable comes from the Climatic Research Unit of the University of East Anglia.

Additionally, we attempt to capture the “friends and family effect” or “network effect”.²⁷ Ideally, this would be done by introducing a variable measuring the year by year stock of immigrants in Cyprus from each sending country. Unfortunately, this sort of detailed data does not exist for Cyprus. The only measure of migrant stocks in Cyprus comes from the 2001 Population Census, published by the Statistical Service of the republic of Cyprus. This publication provides data for foreign residents in Cyprus by citizenship for the year 2001. We use this data to create an index for the level of migrant stock from each sending country.²⁸

To capture the effect of Cyprus’s entry to the European Union in 2004, we use a variable taking the value of zero (0) before that year and the value of one (1) thereafter.

We also consider the possibility that it may be difficult to migrate from one continent to another. Thus, in addition to the distance variable, we also use a set of dummy variables indicating the continent to which each country in our sample belongs to.

To capture the effect of a country’s size on the migration decision we use population data for each country. More specifically, we consider the population density in each country (population of the country divided by its area size) as a possible influence to the migration decision. This variable was calculated using population data from the International Monetary Fund, International Financial Statistics database and area size data from the aforementioned distances database.

Lastly, we consider the effect of the differences in political conditions between sending and receiving countries as a factor influencing migrants. For example, migrants might prefer to move to areas with more political stability, lower crime rates or generally more just social conditions. For this purpose, we employ data from the 2006 World Governance Indicators, calculated by the World Bank Institute (WBI). The latter, are aggregate indicators of six dimensions of governance, measured in units ranging from -2.5 to 2.5. Higher (lower) values correspond to better (worse) governance outcomes. For simplifying purposes in our model, we slightly

²⁷ People are more likely to migrate to a country where other members of their family, friends or more generally people from their own country, already live in.

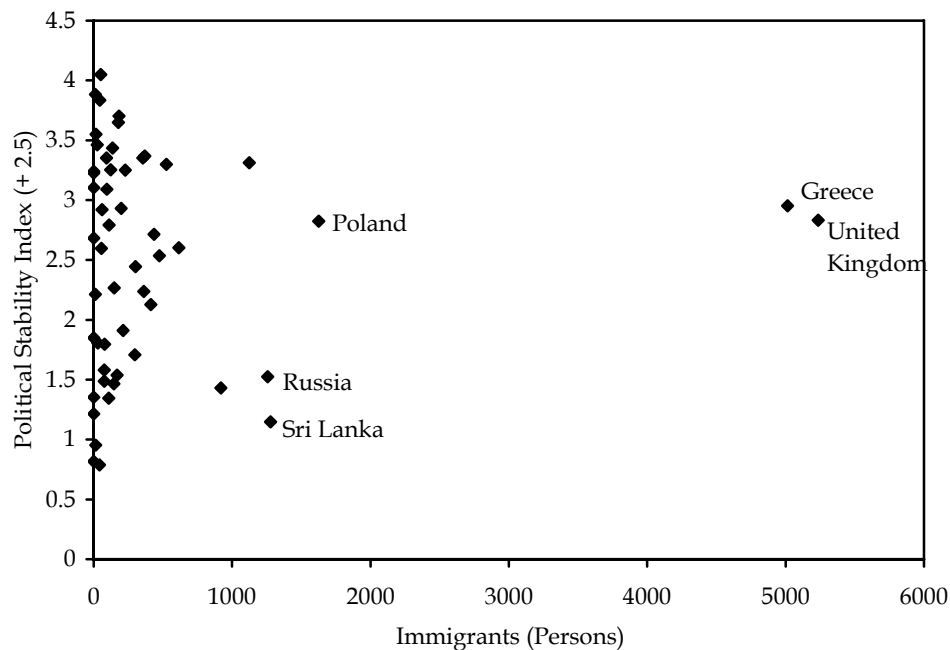
²⁸ This index is a variable ranging from 1 to 5, depending on the number of foreign residents in Cyprus in the year 2001. 1 is assigned to numbers ranging from 0 to 9. 2 is assigned to numbers ranging from 10 to 99. 3 is assigned to numbers ranging from 100 to 999. 4 is assigned to numbers ranging from 1000 to 9999. 5 is assigned to numbers ranging from 10000 to 99999.

modify this by adding 2.5 to the original data so that the values in our sample range from 0 to 5. In addition, because this is a two-year interval dataset, we calculate the values for the missing years as the averages of the years that preceded and followed them. The variables we considered from this dataset are the ones for Political Stability, Voice and Accountability, and the Rule of Law (although only the former is included in our final model). In each case, we calculate the difference of each country's score from Cyprus's score. Figure 8 plots the data for political stability with our immigration data for 2005.

FIGURE 8

Immigration VS political stability (+2.5)

2005



Source: Authors' Calculations from aforementioned data sources.

5. How do all these factors come together? Results from econometric analysis

The econometric approach allows us to examine the relative effect of all these separate possible factors presented earlier. (all details including the methodology and estimation results are included in the Appendix).

With regards to the variables of economic nature, that is, the ones that capture the economic and the working conditions between the sending and receiving country the analysis reveals that the sending country's GDP per capita appears to positively affect the immigration rate in Cyprus, as one would expect, implying that a higher overall income level in a country, makes it easier for its residents to acquire the means to migrate, hence the positive correlation between this variable and migration. The relative GDP also seems to matter, especially when we condition on more variables. None of the other economic variables, particularly unemployment, seem to play any significant role, though this, as explained earlier, may be due to the lack of developed unemployment insurance systems and hence reliable data.

Overall, from the statistical analysis and the results, it appears that these economic variables explain only a very small share of the variation of the immigration rate, implying that there are other factors, possibly of non-economic nature, that can explain the rest of the incentives for migration. Other factors can play a role in the decision to migrate and hence explain the immigration rate. We first consider whether EU accession had any significant effect on immigration in Cyprus. Indeed, several sending countries are new members of the EU and we need to examine whether, when taking all other factors into accounts, EU membership alone is an important characteristic. EU enlargement, and more specifically the accession of Cyprus in the EU, should have increased immigration in Cyprus from other poorer EU countries. Our findings suggest a positive but not strong association between EU membership per se and immigration to Cyprus.

We also assess whether the distance between the migrant's home country and Cyprus plays any significant role. The statistical analysis confirms that this is indeed an important determinant and it is inversely related to immigration in Cyprus which indicates that the incentives for migration are weaker when the distance is bigger. Traditionally, distance is a constraining factor for people considering to migrate, both for economical as well as for sentimental reasons. That is, migrating to a country far away from one's homeland means that this person would suffer higher travel/moving costs and, also, will no longer be near his or her friends and relatives.

As was mentioned before, another important factor is the so called "friends and family effect", or "network effect". People are more likely to migrate to a country where other members of their family, friends or more generally people from their own country, already live in. We find that this is an important variable in our analysis suggesting that the stock of existing migrants is an important determinant of migration flows. A related factor is the language spoken in the country. The results confirm

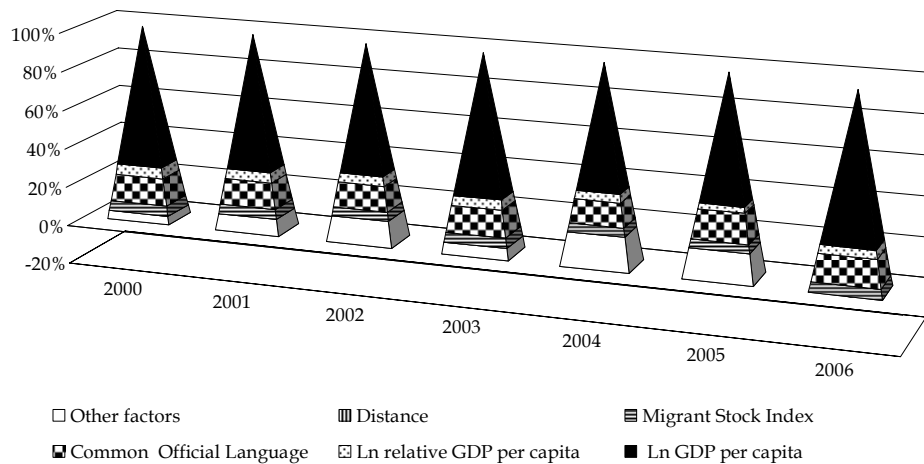
that a common spoken language among the sending and receiving country affects migration towards the receiving country significantly.

Other variables that were considered but were not found to have a significant statistical effect in this analysis are weather conditions (or specifically the difference in weather conditions between the two countries, proxied by the difference in their respective average temperatures), population density, political stability, and crime conditions. Our prior was that these variables, especially weather and crime, would play an important role. The rejection of this hypothesis could be due to the dominance of other factors, or the relatively poor quality of this data, especially for the less developed countries. In any event, it is widely accepted that these factors are to be considered important.

Figure 9 summarizes the most significant (from a statistical viewpoint) results. It plots the relative effect of the main factors that each explanatory variable has on the total immigration share (the dependent variable) in each year. These results are based on the preferred model specification (see Appendix).

FIGURE 9

Main factors affecting inward migration



From this presentation of the results, it is evident that the GDP of the sending country as well as the relative GDP are key determinants of inward migration. The key one though appears to be the GDP of the sending country. This is interesting and explains why migration from countries such as the Philippines and Sri Lanka is higher compared to Egypt for example, which is very near but has a lower GDP (in our database) compared with the other countries. The other significant

variables are the migration stock, the common official language, and the distance variable. Of course there are other variables not captured in these regressions, and these are reflected in the residual of the regression. This 'other factors' varies significantly from year to year: it is very small in 2006 and 2000, relatively small in 2001-2003 and high in 2004-2005. Starting from 2002 but mainly in 2003-2005, Cyprus had a much higher number of immigrants than before, with the peak being in 2004. Indeed, these big inflows of migrants in 2004-2005 were difficult to be explained in full by the explanatory variables in our model.

6. Concluding Remarks

This study has addressed the topic of international migration, with Cyprus as a case study. Cyprus has traditionally been an attracting pole for immigrants from many countries all over the world. This is evident from the positive net-migration figures documented in Cyprus from 1983 onwards. Especially following its accession in the European Union, Cyprus has experienced unprecedented levels of positive net migration, peaking at 15,724 in 2004 (4.43% of labour force). Greece, the United Kingdom, Sri Lanka and Russia, are traditionally among the top five sending countries of immigrants to Cyprus. Focusing on the European Union alone, in addition to the aforementioned Greece and the United Kingdom, Bulgaria and Romania are among the top EU member sending countries.

Thus, not only relatively poorer countries, such as Sri Lanka, the Philippines, Bulgaria or Romania, are important sources of inward migration in Cyprus. Other more prosperous countries such as Greece, the UK or Russia, have also been important sources of inward migration for Cyprus in recent years. Therefore, while economic factors must play an important role in the observed trends, other factors must also be present. This paper examines immigration flows, and focuses on these characteristics, economic and non-economic, which drive the dynamics of inward migration in Cyprus.

Several economic factors are assessed, including income gaps, unemployment conditions etc. The paper finds that these factors are important and certainly influence migration trends. The analysis shows that the relative income gap is an important element of the decision to migrate. Hence, Cyprus, being a relatively prosperous EU member state, is an attracting pole for foreign migration. However, the results also show that income levels in the sending country per se are also important, since the costs of relocating are not insignificant. Labour market conditions, or relative conditions to be more precise, are not found to be very significant,

therefore contradicting the hypothesis that people tend to migrate from one country to another in search of better working conditions. However, the most likely explanation of this is the poor quality of the registered unemployment data in many countries, as well as the fact that the official figures in most cases tend to underestimate unemployment levels due to the absence of any meaningful social protection in many of these countries.

Other non-economic factors, however, are assessed given the country-composition of the migration population. What are these factors? This paper examines a long list of characteristics that can influence the decision to migrate, including political stability, the weather, and the language spoken, the distance between the “candidate” country, “network effects” or perhaps a common colonial background. The results confirm the significance of some of these factors, in particular the common language, the distance and “network effects”.

Interestingly the paper finds no evidence that political factors are a key determinant of immigration flows to Cyprus. Specifically, differences in the degree of political stability are not found to be a significant determinant of migration. In addition, there is no statistical evidence that weather conditions are important, something which is puzzling given the strong presence of UK nationals and the continued inflows from the UK to Cyprus.

Overall, the study confirms some generally-known stylized facts and hypotheses regarding migration in Cyprus. Based on this finding one safe prediction is that, since the income gap will continue to work in favor of Cyprus, especially relatively to very poor countries, immigration flows from these areas will continue to expand in the next 10-20 years. However, flows from the more prosperous countries, especially in the EU such as Romania and Bulgaria, will gradually taper off. The finding of strong network effects, however, also suggests that changes in the composition of immigrants in Cyprus will be very gradual. Overall, however, as the economy continues to expand immigration will continue to be a major engine of growth.

Appendix

Methodology

The empirical model used in this study follows the econometric approach mentioned earlier, and it is mainly based on the models proposed by Mitchell and Pain (2003) and Brucker and Silverstovs (2006). The first step involves the estimation of a relationship between the immigration rate (our measure of migration) and variables describing differences in economic conditions between the sending country (Home, s) and the destination/receiving country (Cyprus, r). As a second step, we include non-economic variables that are used as proxies for the non-monetary costs of migrating.

The dependent variable (Y_t), is the share of immigrants to the sending country's population. We have also experimented with other explanatory variables, like, for example, immigration flows, and the results we obtained were similar. Regarding the choice of the appropriate explanatory variables (economic and non-economic), the approach used is specific to general. We start from a specific (baseline) model which only includes the economic variables and we gradually move to more general (extended) models that also include other non-economic variables.

The baseline model in matrix format takes the following log-linear form:

$$Y_t = \beta_0 + \beta_1 X_t + e_{srt} \quad (1)$$

Where X_t is a 1x4 row vector which summarizes the economic explanatory variables.

X_t = (LN of per capita GDP (PCGDP), LN of relative per Capita GDP (RPCGDP), LN of unemployment Rate (UR), LN of relative unemployment rate (RUR))

$$\left(\frac{\text{immigration}_{srt}}{\text{population}_{st}} \right) = \beta_0 + \beta_1 \ln PCGDP_{st} + \beta_2 \ln \left(\frac{PCGDP_{rt}}{PCGDP_{st}} \right) + \beta_3 \ln UR_{rt} + \beta_4 \ln \left(\frac{UR_{rt}}{UR_{st}} \right) + \varepsilon_{srt} \quad (2)$$

s refers to the sending country (Home) and r to the receiving country (Cyprus) whereas t refers to the year.

The general models build on the baseline model, equations (1) and (2), by adding two more vectors for non-economic explanatory variables. The non-economic explanatory time variant variables can be summarized as the row vector Z_t and the country specific time-invariant variables by W_s .

$$Y_t = \beta_0 + \beta_1 X_t + \beta_2 W_s + \beta_3 Z_t + \varepsilon_{srt} \quad (3)$$

Where

X_t = (LN of per capita GDP (PCGDP), LN of relative per Capita GDP (RPCGDP), LN of unemployment rate (UR), LN of relative unemployment rate (RUR))

W_s = (EU entry (EU), distance (DIS), migrant stock index (MSI), common official language (COML), difference in temperature (DTEMP), continent (CONT), common colony (COMCOL)

Z_t = (population density (PD_{st}), political stability (PS_{st}))

The estimation is conducted using a Generalized Least Squares (GLS) estimation of the equations.

TABLE A1
Estimation Results

	Basic Model	Extended Models								
Ln GDP per capita (s)	4.74***	3.57	3.52	3.45	3.41***	3.41***	3.42***	3.64***	3.59***	3.60***
Ln relative GDP per capita (r/s)	4.04	2.87	2.82	2.50	3.35***	3.33***	3.34***	3.84***	3.75***	3.75***
Ln Unemployment rate (r)	0.20	-0.54	-0.66	-0.85	-1.05	-1.06	-1.08	-0.98	-0.88	-0.87
Ln relative unempl. rate (r/s)	-0.67***	-0.67**	-0.55	-0.36	-0.07	-0.06	-0.05	-0.13	-0.24	-0.25
EU entry		0.51	0.51	0.50	0.54	0.54	0.55	0.61	0.58	0.59
Distance			-0.0003*	-0.0002*	-0.0001*	-0.0001*	-0.0001*	-0.0001**	-0.0001	-0.0001
Migrant Stock Index				2.31*	0.53***	0.55***	0.54***	0.61***	0.51***	0.61***
Common Official Language					31.53***	31.43***	31.47***	33.34***	31.24***	31.19***
Difference in Temperature						-0.02	-0.01	-0.02	-0.04	-0.03
Population Density							0.001	0.0005	0.0005	0.0004
Political Stability + 2.5								0.43	0.22	0.24
Europe Dummy									-0.39	0.67
Africa Dummy									-1.15	-1.05
Asia Dummy									-0.06	-0.26
Oceania Dummy									-0.76	0.64
Common Colony										1.09***
Constant	-46.37***	-33.72	-31.92	-37.74	-33.28	-33.16	-33.25	-37.17***	-36***	-37.02
R ² [overall]	0.014	0.015	0.048	0.175	0.726	0.726	0.727*	0.728	0.732	0.737

Note: ¹ *, ** and *** denotes statistical significance at 1%, 5% and 10% respectively.

² The grey shaded area shows our preferred model specification.

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