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Validity of the Push and Pull Hypothesis for the Explanation of Romanian Migration Flows

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Abstract

The article focuses on the migration phenomenon from Romania to the European Union and considers the key motivations which may have shaped the decision to migrate. The research was based on statistical data provided by Eurostat. The period which has been reviewed was from 1990 to 2010, and key indicators such as gross national product, average wage and unemployment levels were analyzed. We have tried to show the possible correlations between the migration flow and these various indicators, and for these reasons, the theoretical support we have used as a starting point for the analysis was the push and pull theory. The results are presented in an attempt to demonstrate the patterns that have arisen when studying the overall migration flow from Romania to the European Union. At the same time, we have analyzed separate migration flows; from Romania to three main countries - Italy, Spain and Germany. We have demonstrated that the push-pull model is not applicable for the general migration flow from Romania into other European countries, and that the numbers of migrants cannot be explained simply by national economic indicators, whether these indicators refer to the origin country of the migrant, or the destination country of the migration. On the other hand, the push and pull model seems to be partially applicable when analyzing the migration flow into separate, individual countries. The studied cases of Italy and Spain could be seen as successfully given examples in this respect.

Keywords: Migration; Push and Pull Theory; Time Series; Gross National Product; Average Wage; Unemployment.

Introduction

The statistical data compiled indicated that in the year 2010, there were as many as 2,769,400 Romanian migrants living and working in countries other than Romania within the European Union. This figure represented approximately 13.1 percent of the total population of Romania living outside their country of origin. Unofficial sources however regularly state that the real figures of Romanian immigrants living in the EU could actually exceed 3 million. This makes Romania the EU country with the most immigrants, followed by Poland with 1.6 million, Italy with 1.3 million and Portugal with 1.5 million.

The case of Romania is symptomatic for the European Union as it is today, adding a "new" mobile Europe to the "old" continent. After the last two enlargements of the EU, 2004 and 2007, labor migration became an important subject not only to politics, but also to the mass-media. Romania has evolved into one of the countries with a very large number of immigrants. In the present paper we study migration flows originating from Romania, as an example of

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intraeuropean migrations. We will follow and analyze the differences in pre-enlargement and post-enlargement migration flows. Using Romania as a case study has a number of advantages. First of all, for Romania there is as good as no historical precedent to the migration flows that started in 1990. Another advantage in analyzing the Romanian case is the large number of migrants that migrated to a small number of destination countries. Having very large numbers of migrants from Romania to Italy and Spain will allow for mathematical models that would not have the same relevance if migration patterns would have been less concentrated. Finally, for the test of push and pull models with economic variables we needed to eliminate competitive reasons to migrate having a political character. Thus a country of origin had to be chosen that has an open, democratic political system and no major human right violations.

The current situation where we see such a huge number of Romanians immigrating to other EU countries and further afield is exceptional in Romanian history, as traditionally, Romania has never been a country which has a strong leaning towards international migration. Until the 1990s, the levels of Romanian migration have been insignificant, to say the least, and this relatively high level of migration was only reached with the onset of the 1990s and over the past twenty or so years. Prior to 1989, migration existed at the very lowest levels. Of course, there existed a degree of political and ethnic migration, and on a smaller scale there also existed temporary migration for the purposes of studying or working abroad. This latter kind of migration was based only on inter-governmental agreements between Romania and the governments of other countries, but in both situations the actual number of migrants remained very low.

The only truly significant levels of migration flow from Romania before 1990 were in the XIX century, when migration levels were peaking due to the high amount of emigration from the Transylvania area (former province of Austro-Hungarian Empire until 1918) to North America. This sort of migration was part of the migration phenomenon which saw about 4.5 million people from the Austro-Hungarian Empire immigrate to North America (USA and Canada) from 1875 to 1914. Akos Egyed (1970) says in that period, about 250,000 people left Transylvania for the new world (It must keep in mind that the total population of the province was about 4.8 million people).

It goes without saying that the situation for Romanians in general has shifted significantly since 1990. This can be partly explained due to the geopolitical and social context created by the fall of the Berlin Wall, which significantly shaped migration figures and practices by opening the possibility of movement of people mainly from Eastern Europe to Western Europe. The phenomenon, somewhat timid at first due to quite restrictive legislative conditions, was accelerated by the enlargement of the European Union, and by the advent of labour market liberalization for its citizens. Due to the new realities of everyday life and socio-political shifts, Romania transformed from a country which, for a long time, had not been a significant source of migration, into an important provider of immigrants in Europe. Gradually, the Romanian's level of migration has increased, and in time this has developed into something which has become an important social phenomenon. The main motivations of migration have transformed from ethnic and political ones, which was mostly the case at the beginning of the 1990s (Diminescu, 2004), to migration due to economic reasons. During the beginning stages of the swelling of migration levels, it was more common for migration to come about for family reunification, and ethnic migration (Hungarians migrating to Hungary, Germans migrating to Germany, etc.) was typical, but meanwhile, as research made by Open Society Foundation shows, the migration for work (employment) quickly became the main driving factor for migration (Sandu, 2006).

According to Eurostat, between the years 1990 and 2010, the migration flows from Romania to the European Union's other countries were ranging from 30,092 in 1997 (the lowest level) to 555,797 in 2007 (the highest level). These trends are shown in the chart below:
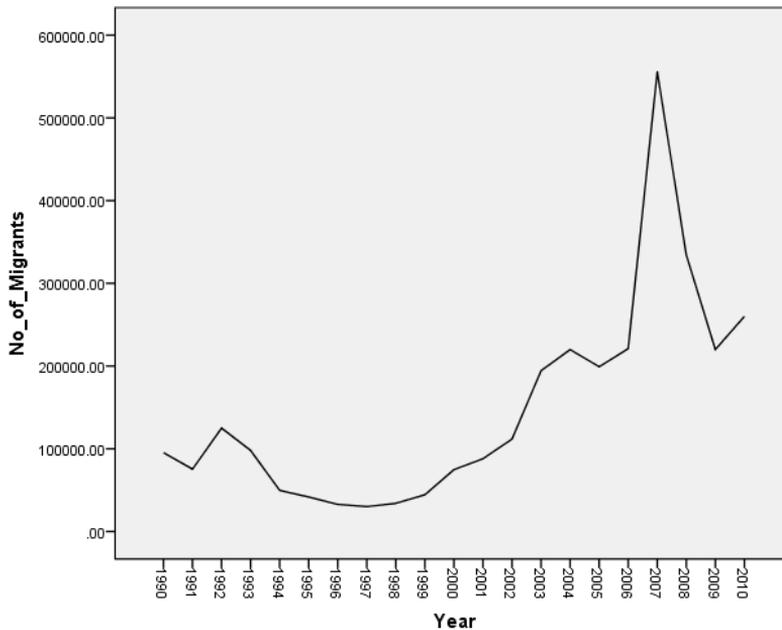
Figure 1: *The migration phenomenon Romania during 1990 - 2010*

As we can see, the levels of migration were considerably more consistent in the early '90s, (when the reasons for migration were most commonly ethnic and politic ones) and afterwards, we encounter a slump in migration levels in the period from 1993 to 1997. It then returns to a steady incline, and, after 2003, the phenomenon becomes more widespread, with levels in 2007 (the moment when Romania joined to EU) beginning to register a peak of more than 500,000 (Eurostat, 2011) emigrants to EU countries due to the widespread aspirations associated with employment migration.

Because in the past two decades it has been steadily providing this high number of migrants, Romania has become an important provider of immigrant workers for European Union; As such it is perhaps not surprising to learn that Romanian people make up the majority of economic migrants in countries such as Italy or Spain.

It is important to emphasize that, until now, Europe had no important internal migration flows. Europe has been either a source of migration, or a destination of migration mainly for migrants coming from outside the continent. Nevertheless, when we begin studying and regarding the intra-European migration flows, we must consider a few exceptions to this trend, such as the migration during the cold war from the socialist side (Eastern Europe) to Western Europe. It must be stated, however, that those migration flows were of a level which could be said to be relatively insignificant, and the small peak in migration figures were rather the result of departures with the approval of the state, mainly for dissidents, opposites of the political regime, or due to illegal departures: people fleeing over the borders.

Therefore, at the moment, the continuous trends we see within the intra-European migration flows demonstrate an important phenomenon of current social realities.

Literature Review and Theoretical Framework

In regards to migration theories, the common approaches are generally primarily focused on the causes of this phenomenon, or on its effects, be they economic, social, or demographic shifts. These approaches often consider both the country or area of origin, and the destination area as key factors to be studied.

One of the first explanations for migration was provided by Ravenstein (1885) in his work *Laws of Migration*. Ravenstein compiled data from British censuses dating from 1871 and

1881, and, based on them, he computed the volume of migration and thus provided 10 assumptions which he considered to explain the generalities and trends of migration phenomenon.

Another explanatory model of migration is known as the gravitational type (Zipf, 1946; Anderson, 1955; Rodrigue, Comtois & Slack,2009). According to this theory, migration flows are generated by the distance and the volume of the population from the destination area and in turn from the origin area. In other words, the gravitational model takes into account the link between the volume of population in the two areas and the distance between them.

The most influential approach which attempts to explain migration phenomena is the neoclassical economic theory. Lewis (1954), one of the developers of this theory, hypothesizes that the wage differences between the two economies - one characterized by a surplus of labor force (unemployment) and the other characterized by a surplus of capital - have an important hand in shaping the migration phenomenon. Migration is a phenomenon characterized by a fundamental imbalance between the demands of the labor force, and the available supply for the labor force (Todaro, 1980, p. 362). The migrant is pulled by the attractive 'bright lights' - the force of a new destination which arises when the expected income is bigger than the actual income (Massey et al., 1998, p. 174). The majority of migrants, as one might expect, originate from countries with a low capital and a low level of employment, along with a high number of unemployed people who would otherwise make up the labor force.

As a critical response to neoclassical migration theory, in the '80s, was developed the new economics of labor migration theory (Stark & Bloom, 1985). According to this theory, it is often the whole family which makes the decision to migrate. Such a group decision ultimately lowers the economic migration risks, since the whole family can come together to cover migration costs, and thus support each other until they become established and settled at their destination (Stark & Bloom, 1985, p. 175).

Yet another theory which invokes economic causes in explaining migration phenomena is the dual labor market theory. Doeringer & Piore (1971) are the key promoters behind this theory. According to them, in economically developed societies, we often see a segmentation of the labor market. The labor market segmentation is part of migratory process (Castle & Miller, 2009, p. 253). On one hand, we have a segment of the labor market which provides stable and well paid jobs for those who have a high level of qualifications, or who have valued and well developed skills applicable to a particular role. On the other, we see a segment which calls for unskilled or unqualified workers, and this segment is generally shunned by the local or native population (Piore, 1979).

Despite the variety of theories which try to explain migration phenomena, it is acknowledged that each of them ultimately suffers from a great deal of limitations. It is very obvious, regardless of the kind of theories which are used to explain the migration phenomenon, that there are two important types of factors that have been considered in a series of theories on migration: push factors and pull factors. Everett S Lee (1966) has drawn such a model which considers the following factors regarding migration: factors associated with the origin area, factors associated with the destination area, difficulties between the origin area and destination area (intervening factors) and the specificities of the group with the risks of migration (personal factors).

Therefore, the factors invoked by the neoclassical economic theory, the factors invoked by the dual labor market theory, even the factors invoked by the gravitational theory, are, finally, what we can call push and pull factors. Moreover, even Ravenstein in *Laws of Migration* (despite being criticized by Castles & Miller (2009, p. 22) because his model is "too individualist and ahistorical") shows that the "migratory currents" are generated by a lot of push and pull factors (the terms used by Ravenstain was migratory currents, instead of the migration flows more commonly used today).

However, regardless of which theory we use to explain migration phenomena, at least two conditions are necessary and must be considered: firstly, as Martin (2003, p. 10) says, on the one hand we need the 'pull' factors - that is, we need to know the demand and the availability of destination area to receive migrants. On the other hand, we need the 'push' factors. Between them are network factors which link origin and destination.

In other words, pull factors are the reasons which determine a person or a group to choose a certain destination, and the push factors are the reasons which determine or encourage a person or a group to make the decision to migrate in the first place.

We will use this model to attempt to evaluate the impact of economic push and pull factors regarding the migration phenomenon from Romania to the European Union between 1990 and 2010.

The factors that we have analyzed included the following: gross domestic product per capita, unemployment and average gross earnings. We have tried to identify how each of these factors work as push factors (in Romania) and pull factors (in destination countries). In our opinion, a low level of gross domestic product per capita and average gross earnings, combined with a high level of unemployment could be reasons which encourage people to leave Romania (in other words, push factors), and a high level of gross domestic product per capita and average gross earnings combined with a low level of unemployment could be reasons for choosing a certain destination area (pull factors).

Data and methods

In our intention to analyze the validity of the push-pull hypothesis regarding Romanian migration into the countries of the European Union, we have used data originating from the European Agency for Statistics – Eurostat. We have studied the Eurostat web site (http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes) and gathered relevant data on migration, unemployment, per capita GDP, average income and overall population of our case countries.

As dependent variable, we used the migration flow from Romania to three destination country: Germany, Italy and Spain. As independent variables we used gross domestic product per capita (GDP) as a proxy for general economic conditions, average income as a proxy for wealth of population and unemployment as a proxy for labor market conditions (at the origin as well as destination). Additionally, we considered the population as a proxy for the size of destination country and we computed a relative unemployment value (unemployment rate relative to the total population). For a more accurate analysis, we also considered in our model the difference in GDP per capita and the differences in the unemployment rate between origin country and destination country.

According to the Eurostat methodology, "Immigration" denotes the action by which a person establishes his or her usual residence in the territory of a Member State for a period that is, or is expected to be, of at least 12 months, having previously been usually resident in another Member State or a third country" while "Emigration" denotes the action by which a person, having previously been usually resident in the territory of a Member State, ceases to have his or her usual residence in that Member State for a period that is, or is expected to be, of at least 12 months" (Eurostat, 2010). Eurostat data is intended to represent "flow into/out of the reporting country during the reference year" (ibidem). This is generally problematic as a large part of migration happens without involving immediate bureaucratic acts in the country of chosen residence as in the country left. Especially since the free movement of Romanian citizens after 2002, migrating to another country in the EU was often a decision taken after living for a specific period there. Data from the Eurostat sources tries to estimate the flows during the reference year by using different sources. "Depending on the methodology of the reporting country, data sources are administrative records or national statistical surveys. For some datasets statistical estimation methods are applied. Most of the countries use administrative sources for compilation of migration data (population register, register of foreigners, database on issued residence permits etc.)".

This complex methodology allows for the construction of time series, and as such, the ability to use an advanced modeling methodology that we will introduce in the following passages. In our data collection we have concentrated on the immigrant flow which originated from Romania during the period between 1990 and 2010. We could collect the data which gives us the number of migrants from Romania to each of the European countries for each of

the years of our time-span. According to the Eurostat sources, data on Romanian migrants originate from population registers. We have used these variables and set them in relation to economic variables also compiled for all our case study years and for all European countries from the same source. As such all the data of our statistical models is official Eurostat data.

The two studied decades have known different migration waves, starting with the ethnically determined migration of the German population in Romania in the early 1990s, and continuing with work force migrations to Italy and Spain in the later years. The accession of Romania to the EU in 2007 was an essential moment in shaping migration patterns and was taken into consideration in all models. Still, the effects of EU accession should not have been as radical, as accession was preceded by other steps of integration. The most important of these steps occurred in 2002 when Romanian citizens were not requested anymore to present a visa on entry in the Schengen aria. The 2002 suspension of visa requirements can be seen in the Figure 1 as a change in migration trends.

Another phenomenon which influenced the dynamic of migration flows needs to be accounted for. A few European countries have implemented regularization programs during the last years, legalizing the status of illegal aliens living in their countries. Below table indicates the moments when the assessed countries have implemented these measures.

Table 1: *Regularization programs*

Country	Program Year	Targeted Population
Germany	1996	Asylum seekers who entered before 1990 and had more than 8 years residency
	1999	Rejected asylum seekers who entered before 1993
	2006	Long-term tolerated persons
Italy	1990	Unauthorized Migrants (workers and students)
	1995–1996	Unauthorized migrants (workers and students)
	1998	Unauthorized migrants
	2002	Unauthorized migrants caretakers and domestic workers)
	2006	Unauthorized migrants
Spain	1991	Unauthorized migrants (workers and family members)
	1996	Unauthorized migrants (workers and family members)
	2000	Unauthorized migrants
	2001	Unauthorized migrants
	2005	Unauthorized migrants

As there are quite a few such regularization programs, and data does not allow the separation of the beneficiaries according to country of origin, we did not consider these values in our models. Nevertheless, we are aware that such political decisions are essential for the overall description of the phenomenon.

We have made special models to analyze major migration flows from Romania to Germany, Italy and Spain. According to Eurostat data all these country statistics are based on population registers and are reliable to reflect official registration of foreigners in the respective countries.

Methodology

Using time-series often raises problems, but it also offers opportunities, the most important of these being the possibility to test causality with what is currently the most advanced form of conceptualization, Granger causality (Granger, 1969). Causality has proven a difficult issue to model and has attracted over the years a series of philosophical, sociological and economic analyses without yet reaching a methodology which is able to offer tests or models that can cover all the elements of the common understanding of the term. A simple consideration regarding the temporal asymmetry of causality can nevertheless be taken as a starting point for

further considerations. The simple truism that the cause cannot take place after the effect is the starting point of this approach. If we could prove that event A has taken place after event B, A cannot be a causal factor for B. Still, this will not bring much of any worth, as in sociological analysis we are rarely interested in singular events. Most of our research deals with time series data, and modeling the development of a process. Let us consider two such time series, representing social or even economic variables. More often than not, these variables are aggregates of individual events. Taking just a few examples, GDP is an aggregate of individual income values, stock market indexes are aggregates of individual stock values, etc. Each of these values is in fact a result of different individual events, both longitudinally as a development in time as well as transversally as an aggregate of individual decisions. If we consider that time series A is formed by events A_i and time series B by individual events B_i, where i indicate the time: the causation of B by A will mean that the probability $P(B_i|A_{i-k}) \neq P(B_i)$ for some value k. In other words, this means that the probability of the value of B_i is different if A_{i-k} has taken place. Or to use the terms of von Wright "it is not the universal coincidence of two phenomena X and Y that is the determinant factor for a causal relationship, but the fact that a change can be produced or inhibited in Y if a change takes place (or a change is inhibited) in X" (von Wright, 1974, p. 32, 72ff – cited after Thome, 1988, p. 93).

While this modeling might be simple, we usually have no information that would enable us to estimate these probabilities. Nevertheless if we consider our aggregates in their individual events we can infer further as follows. If A, the possible cause according to a model, takes place: the probability of B changes. Dividing in individual events, each event of type A changes the probability of an event of type B, thus more events of type A would lead to a greater change in the overall probability of appearance of events of the type B. Even easier formulated, if the aggregate A changes more, the aggregate B should change more. Formulated reversely, if the changes in aggregate B are independent from the changes in aggregate A, A can be assumed not to be a cause for B. This logic lies in the general concept of testing known as Granger causality (Granger, 1969; 1980; 1988).

Taken all the above mentioned into consideration, we will start our analysis with time series diagnoses tests such as unit-root tests and tests of trend-stationarity and cointegration as well as an analysis of seasonality. We will also do simple regression models to determine the overall directions and strength of the relationships. We will follow these with VAR regressions and Granger causality tests.

Our overall methodology is constructed in the following steps:
1. We will analyze the relationship between numbers of migrants and the overall economic conditions at origin and destination in order to test the push – pull hypothesis.
2. We will analyze individual migration flows separated according to destination country.

For each of these steps we will use the following outline of procedures:
1. We first construct simple correlations to analyze the strength and the direction of the relationship between variables.
2. We then construct regression models for the relationships. We use panel regressions and VAR regressions according to the results of diagnosis tests.
3. Finally we analyze the causality of the relationships using Granger tests after VAR models. These tests use a null hypothesis of non-causality. A good, i.e. close to zero, significance can be interpreted as a safe enough refutation of non-causality.

We will start with a graphical representation of migration flows from Romania to European countries. The graph below does not include all countries. We have not represented those countries to which immigration was as good as non-existent. Even so many destinations were of only marginal importance.

Figure 2 shows how only three migration flows are individually important: the one towards Germany peaking in the early 1990s and those to Italy and Spain peaking during the second half of the 2000sand especially with Romania's EU accession in 2007. The last two years of the investigated period find an important reduction in migration even to these destinations.
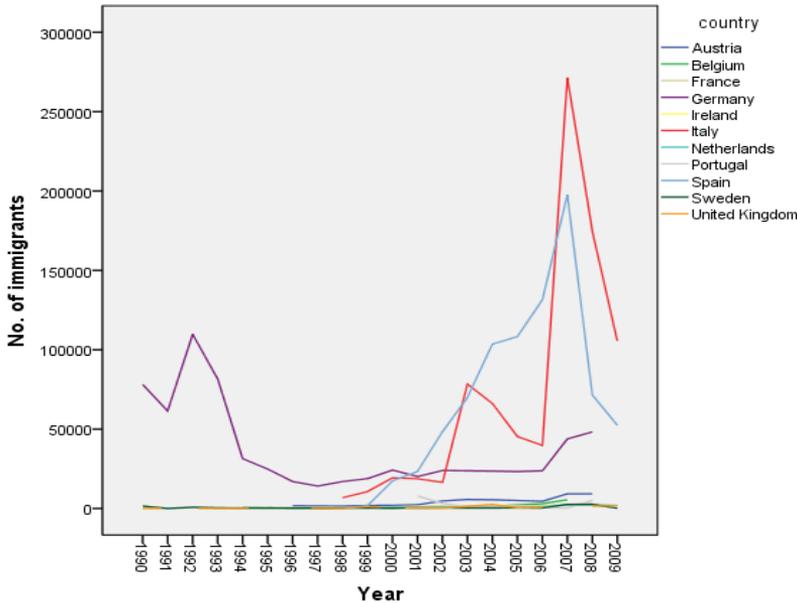
Figure 2: *Number of migrants from Romania to selected Western European countries pro year (1990 - 2010)*

Analysis of migration according to conditions at the destination

Quite surprisingly, an analysis of migration flows according to the conditions at the destinations finds no significant results in a pooled model. Taking all migration flows from Romania to the countries of the European Union during the 1990 – 2010 periods, we find that the size of the flow, as well as the number of persons involved, is independent from the economic conditions at the destination. The simple correlations between the numbers of migrants, per capita GDP, average income and unemployment are all very low. Even more advanced models such as panel regressions and VAR regressions find no relationship. We have tried to model each of the relationships independently as uni-variate regressions as well as groups of variables as multiple regressions and have still come to no results. The immediate hypothesis is that the push-pull model does not work in this case or at least that the "pull" part has no effect. For a simple presentation of results we have decided in including a table of direct Pearson correlations.

Table 2: *Correlation of the numbers of migrants from Romania with conditions at destination*

Variable	Pearson's r with number of migrants before EU accession	Peason's r with number of migrants after EU accession
Per capita GDP	0.0232	-0.1035
Average income	-0.0020	-0.0594
Unemployment	0.3604**	0.4937**
Relative unemployment	0.0794	0.1577
Population	0.3645**	0.5457**

$**\ p < 0.01$

The only correlations that are more or less relevant before EU accession are related to the size of the destination country and have, as such, not much sociological importance. After EU accession the correlation with the unemployment level at destination is moderate, but paradoxically positive, having as such no theoretical relevance. One further step was to consider the differences between the values of economic indicators at origin and destination as motors of migration. Nevertheless, these models did also not lead to the expected results. The simple correlations between numbers of migrants and the difference in GDP is as low as 0,0106 while between numbers of migrants and the

difference in unemployment is 0,1292 for the whole time-series. More complex methods of modeling also brought no supplementary information.

Analysis of migration according to conditions at the origin

We took a further step in trying to analyze the conditions in the country of origin - that is, the conditions in Romania which may encourage people to migrate. While obviously many persons have taken the decision to migrate without being fully aware of the conditions at their destination (being most probably driven by social network mechanisms), the conditions to leave one country are thought to be more immediately understandable. And indeed, we find that the results are somewhat clearer here. As such and as a result of studying the relevant data, we will start by introducing some simple correlations:

Table 3: *Correlation of the numbers of migrants from Romania with conditions at origin*

Variable	Pearson's r with number of migrants before EU accession	Pearsons's r with number of migrants after EU accession
Per capita GDP	0.8115**	0.3121
Per capita GDP minus remittances	0.8263**	0.0826
Average income	0.7973**	-0.3427
Unemployment	-0.5970*	-0.8755
Relative unemployment	-0.5725	-0.8766
Year	0.7301**	-0.9971

* $p < 0.05$; ** $p < 0.01$

Note: None of the correlations for the period after EU accession are significant. This is also dependent on the small number of years taken into consideration.

The values in the upper table are, frankly, highly surprising. For the period before EU accession the number of migrants positively and highly correlates with per capita GDP and income, and is also negatively, but again, quite strongly correlated with unemployment numbers. Even if we subtract the value of remittances to Romania, we find that the overall relationship remains positive and strong in its correlation. We have found that the lower the rate of unemployment was, the more migrants left Romania. Alongside this, it is interested to note that the higher the wealth and the higher the average income, still, more migrants left Romania. As such, it is needless to say that these results completely contradict the push-pull hypothesis. While the reasons to migrate may still be economical in nature, overall national indicators seem totally unfit to explain the migration flows. In the years after EU accession the relationships change, still remaining unexplainable in the context of push-pull models. The correlations between per capita GDP values (with and without remittances) and numbers of migrants disappear and the correlations with unemployment indicators remain negative, becoming even higher. The only correlation that fits to some extent the push-pull model is the one between numbers of migrants and average income, but the value of Pearson's r is low.

Here further modeling proved to be beneficial, as all-time series have important trends and these trends are often parallel without seeming immediately causal in their relationships. We will introduce as a final result of our modeling the values of the Granger causality tests on the effects of economic variables on migration.

Table 4: *Significance values of Granger causality tests on migration from Romania*

Variable	Granger test significance on migration before EU accession
Per capita GDP	0.2057
Per capita GDP minus remittances	0.0602
Average income	0.4756
Relative unemployment	0.3406

What we find is that none of the economic indicators have a direct causal effect on migration for the period before EU accession. While the improvement in significance of the Granger test for the "per capita GDP minus remittances" as compared to the simple "per capita GDP" is important, it still does not reach the benchmark 0.05 value considered safe to refute the null hypothesis. For the years after EU accession we find a high collinearity between variables that makes the model irrelevant, which leads to the same conclusion.

The correlations from the first table were spurious and have resulted from a parallelism of trends rather than an interdependence of some form. During the analyzed years (1990 – 2006 and 2007 - 2010) the Romanian per capita GDP has grown, the average income has grown; unemployment values have fluctuated and between these, economical relationships have existed. Indeed we have found causal relationships between these variables, but there has been no testable causality that would necessarily relate the economic indicators to migration. The reasons may well be many, and we will return to these in our conclusions. There are, as such, many things to consider. It might be that the increased income variance has led to migration; it might also be that decisions for migration were taken earlier, and simply the increase in capital was in fact all that was needed to put the decisions into practice. But another hypothesis also arises: it might be that we have here an aggregation fallacy, i.e. the problem is with considering the different migration flows together and that individual flows of migration will conform more or less to the classical push – pull models and the aggregation of the flows is the one that hides the effects

In order to test this alternate hypothesis we have followed by computing the models for three individual migration flows: (1) from Romania to Germany, (2) from Romania to Italy and (3) from Romania to Spain. Here are the results of these computations.

Migration from Romania to Germany

The first important migration flow from Romania after 1990 led to Germany. Motivated at least to some respect by ethnic particularity, this flow was labeled as a "return" of German migrants that had settled in Transylvania as early as the 13th century, and to the Banat during the 18th century. In fact, the migration flow was not limited to ethnic Germans and might have also had many economic reasons. It can generally be considered that the decisions to emigrate from Romania to Germany were mostly taken during the last years of Communism, but many of these could only be put into realistic practice after 1990, as the conditions and possibilities for international migration became more liberal and feasible. Migration to Germany continued also after the first wave, but the numbers of migrants were somewhat lower. In the years after Romania's EU membership the numbers have increased by some extent, but have not yet again reached the same peaks of the early 1990s.

Table 5: *Correlation of the numbers of migrants from Romania to Germany with conditions at destination*

Variable	Pearson's r with number of migrants before EU accession	Pearson's r with number of migrants after EU accession
Per capita GDP[2]	0.8543**	-0.4761
Average income	0.7134**	No data
Unemployment	-0.5953**	-0.5649
Relative unemployment	-0.6114**	-0.5440
Per capita GDP difference	0.5566**	0.1621
Unemployment difference	0.3688	-0.9995

** p < 0.01

Note: None of the correlations for the period after EU accession are significant. This is also dependent on the small number of years taken into consideration.

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[2] We could not compute the "per capita GDP minus remittances" as we the statistical data do not separate remittances according to country of origin.

Germany is currently still under a restrictive policy towards Romanian immigrants who desire to work. Romanian citizens continue to be required a work permit with validity limited to one year. The free access of Romanian citizens on the German labor market will be possible starting with January, 1st 2014. The German regularization programs did not target potential immigrants or illegal workers, but addressed mostly the asylum seekers.

The results before EU accession conform very much to expectations of the push-pull model. Correlations are quite high and have the expected direction. The higher the per capita GDP and the average income in Germany, and the lower unemployment levels are there, the higher the numbers of those who have migrated from Romania to Germany. Even the correlation with the difference in per capita GDP and the difference in unemployment rates are according to model expectations. After EU accession, the correlations have generally lower values and the overall image is less coherent.

Nevertheless, as we have already seen that spurious regressions with the conditions at the origin of migration were present, we will have to continue our calculations in order of getting more reliable results. Indeed computing VAR models and Granger causality tests we find that the relationships of the correlations above have no causal character with only one exception: that of the relative unemployment in Germany. Even if other correlations have higher values, especially those with the per capita GDP which raises to almost 0.9 in the pre-accession period, they are motivated by parallel trends that can be considered independent from each other. Only relative unemployment in Germany has indeed had an effect that can be considered causal. A separation of the two waves of migration to Germany, while only exploratory, leads to the result that this causal effect is limited to the second decade of our investigation period (we have computed separate models for 1990 – 2000 and 2001 – 2010).

Migration from Romania to Italy

Italy was one of the few countries to partially open the labor market for Romanian immigrants immediately after Romania joined the EU in 2007. Thus, this particular country presented itself as a preferred country to immigrate to, both due to the cultural compatibility and the higher number of fields of activity which were opened to Romanian migrants to work in. These included agriculture, tourism and the complementary services, housekeeping and cleaning services, constructions, engineering, management and white-collar professions, as well as seasonal work. Furthermore, Italy implemented significant regularization programs between 1990 and 2010 as shown in Table 1. Nevertheless, the general labor restrictions for the Romanian immigrants have been suspended only in January 2012.

As our Figure 2 also shows, migration from Romania to Italy started in 1998 and has risen in consecutive waves to reach a peak in 2007. This was the most important wave of migration from Romania to any of the European countries and has had no other reasons beyond the economical ones (besides the preference given to Latin countries by ethnic Romanians). As such, we have expected to find here the clearest example of a push-pull explanation.

Table 6: *Correlation of the numbers of migrants from Romania to Italy with conditions at destination*

Variable	Pearson's r with number of migrants before EU accession	Pearson's r with number of migrants after EU accession
Per capita GDP	0.6965*	0.6890
Unemployment	-0.6654	-0.9814
Relative unemployment	-0.6655	-0.9797
Per capita GDP difference	0.7578*	0.9104
Unemployment difference	0.7357*	0.7525

* $p < 0.05$; ** $p < 0.01$

Note: None of the correlations for the period after EU accession are significant. This is also dependent on the small number of years taken into consideration.

And indeed, the results are as expected. The higher the per capita GDP was in Italy and the lower unemployment was there, the more people migrated from Romania. The effect of the difference in per capita GDP was also the expected one. The higher the differences in per capita GDP and unemployment were, the higher was the number of migrants.[3] Our more advanced causality models also find that Italian GDP growth during the 2000 decade can be considered causal for migration from Romania, even if the unemployment numbers do not have this direct causal effect.

Migration from Romania to Spain

The migration flow from Romania to Spain started a few years later than the one of that to Italy, but did not have the same wave-like development.

From a legal point of view, Spain had a permissive policy towards Romanian immigrants. Thus, immediately after EU accession in 2007, any Romanian immigrant who wished to work in Spain was allowed to do so, without needing a work permit. There were, however, other transitional measures implemented, such as work authorization issued by the Spanish authorities. All these restrictions have been suspended in 2009. The number of migrants traveling from Romania to Spain has increased constantly year by year until the present end of the flow. This period of growth lasted from 2001 to 2007 and can easily be seen on Figure 2.

We should also mention that Spain resumed work restrictions for the Romanian immigrants in 2011 due to the already installed crisis and the high unemployment rate. These restrictions apply to all economic sectors. Romanian immigrants who were already active on the Spanish labor market at that point were not affected, however. Similar to Italy, Spain implemented five regularization programs mainly addressed to illegal immigrants, be it workers or their families. As in the case of migration to Italy, migration to Spain had only economic reasons and should thus conform to expected push-pull models.

Table 7: *Correlation of the numbers of migrants from Romania to Spain with conditions at destination*

Variable	Pearson's r with number of migrants before EU accession	Pearson's r with number of migrants after EU accession
Per capita GDP	0.9728**	0.2337
Unemployment	-0.3813	-0.8160
Relative unemployment	-0.6122	-0.8112
Per capita GDP difference	0.9461**	0.9927
Unemployment difference	0.6101	-0.9122

** $p < 0.01$

Note: None of the correlations for the period after EU accession are significant. This is also dependent on the small number of years taken into consideration.

As in the case of migration to Italy the migration flow from Romania to Spain seems to conform to push-pull models. The correlations show that higher per capita GDP in Spain and lower unemployment levels relate to the increased numbers of migrants coming from Romania. It should be noted that while before EU accession the difference in per capita GDP had higher values of correlation, after EU accession the unemployment number were more highly correlated to migration. What is even more convincing in this case is the fact that the differences in per capita GDP as well as the difference in unemployment before EU accession have indeed had a higher impact on the mobility flow than have the values at the destinations themselves. The only variable that does not fit in is the unemployment difference after EU accession. Indeed unemployment numbers have grown in Spain and became lower in Romania after 2007, without this having an immediate impact on the observed numbers of migrants. Advanced models of causality have, at least in the case of this migration flow, the expected results.

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[3] It is interesting to note that this effect can only be shown when the periods before and after accession are taken separately. In a model of the overall time-series no relationship between per capita GDP differences and unemployment differences and migration can be found.

Table 8: *Significance values of Granger causality tests on migration from Romania to Spain*[4]

Variable	Granger test significance on migration
Per capita GDP	0.0007
Average income	0.0000
Unemployment	0.0052
Relative unemployment	0.0054
Per capita GDP difference	0.0000
Unemployment difference	0.3782

Almost all expected economic variables have a causal effect on migration from Romania to Spain, with the exception of the differences in rates of unemployment, a result which is coherent with the correlations before. As the simple correlation shows here the correlation was negative after Romania's EU accession, the higher the difference in unemployment, the lower the numbers of migrants. This is logically coherent as the change in unemployment rates resulted from an improvement of unemployment numbers at origin, and a worsening at destination, leading as such to lower numbers of migrants. Nevertheless, as the Granger causality test shows, this difference cannot be considered causal.

Conclusions and comments

The theories of migration that we have showed above bring the economic factors to the fore as the cause of this phenomenon. These theories assume that individuals rationally evaluate the benefits of migration based on objective factors such as low salaries, high unemployment rate, poor prospects due to a low gross domestic product, and other important decision making pieces of information. Therefore, it could be said that the decision to migrate depends mainly on one or more of these economic factors.

In other words, we have to deal with a lot of push and pull factors. As such, it was expected that an increased flow of emigration would be registered in times of high unemployment (i.e. at a time when the labor market is unable to absorb the available labor force), in times of declining GDP and wages, and more modest flows would be recorded when unemployment is falling, and when GDP and income are on the rise. It was expected that the main destination for Romanian migrants would be characterized by the low unemployment trend, high GDP per capita trend and high income trend. Nevertheless, the computations show that the migration from Romania to the European Union's countries does not follow such a simple push and pull model every time.

Therefore the economic factors such as GDP per capita, gross average wage and unemployment level as a cause for migration, or especially as a motivation concerning the choice of the country of destination is not at all enough to explain the figures that have been compiled. On the other hand, the influence of economic conditions in the destination country doesn't seem to greatly affect the decision to migrate at all. In other words, when concerning the pull part of the theory, the validity in relation to our study is highly questionable.

However, it appears that it was often not the countries with the highest rates of personal income which were chosen by Romanian migrants. The results show that the economic factors are not the main push and pull factors for Romanian migrants. For this reason, the theoretical support used as the starting point for the analysis proved to have a number of limitations in terms of attempting explaining the migration phenomenon. As such, it also does not explain everything at all in regards to how Romanians selected a location in which to migrate to for work. Therefore, it could be said that the reasons for this phenomenon are a combination of sociological and economic motivations.

It is probable that the more relevant explanations are found in the other theories mentioned, those which take into account not only material aspects, but also historical, cultural or linguistic aspects and the myriad connections between the country of origin (Romania) and the

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[4] The number of years after EU accession was too low to compute VAR regressions. We thus decided to calculate this model for the whole time series.

countries of destination. It is most likely a combination of one or many of these aspects or factors which most strongly influences migration waves, in much the same way it strongly influences an individual's decision to emigrate.

It goes without saying that the legal factor is one of them. If the immigration policies of destination countries are poor, difficult or dangerous, immigration into these countries is discouraged and limited. Restrictions / permissiveness of a legal nature have configured in a higher degree the dynamics of the flow of emigration. For example, the number of migrants has increased considerably with Romania's accession to the European Union, and the opening of labor markets to Romanian workers. Italy, Portugal and Spain's experience is also highly relevant in this respect. With the legalization of illegal immigrants held in these countries, there arose massive subsequent immigration flows, which were limited only by the labor market situation (e.g., after 2008, with the outbreak of the European financial crisis).

Following this, there is a factor concerning the social network of the migrant (Ritchey, 1976; Boyd, 1989; Faist, 1997). The migrant network is essentially a set of interpersonal ties that link migrants, former migrants and non-migrants in the country / region of destination and in the country of origin. These networks generally develop through ties of kinship, friendship or simply a common origin or ethnicity.

Cultural differences between countries have also shaped migration. Features such as language, traditions and social norms and values such as family ties have regularly influenced the destinations chosen by migrants. It suffices to note that the largest flows of Romanian migrants were registered in two Latin countries: Italy and Spain. The following are Germany, Hungary and Austria respectively, countries that, historically speaking, have had many ethnics of Romanian origin and have in the past shared much territory. As such, when the freedom to move was granted, many Romanians felt most comfortable moving to these locations.

Given that the analyzed economic indicators were not found to be determinants of migration flows from Romania to the European Union, we admit that a certain degree of subjective choice was frequently used regarding the decision to emigrate, and this especially influenced the choice regarding the country of destination.

The explanation given regarding what is essentially an individual's choice to migrate and the destination they choose does not only subsume to the neoclassical economic theory on migration, but demonstrates that the phenomenon is caused and molded by a complex combination of factors. Obviously, the analyzed economic indicators - gross domestic product per capita, gross average wage and unemployment – have their indisputable place, but among them are also found a number of other factors such as socio-cultural and legislative ones.

As such, there is an immediate and simple conclusion. Overall push-pull models seem not to work to a satisfying degree when it comes to attempting to explain the migration flows from Romania to other European countries. The numbers of migrants cannot simply be explained by national economic indicators, whether these are considered at the origin or the destination of migration. However, if we take a closer look and separate migration flows we may find a different narrative emerging from the data itself. While some flows cannot be explained by simple indicators of a national level, others can. While a migration flow as that from Romania to Germany at the beginning of the 1990s still had its political and ethnic reasons and motivations; the one from Romania to Spain during the 2000s was nevertheless a clear example of a push-pull mechanism.

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