

## Why would Romanian migrants from Western Europe return to their country of origin?

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### Abstract

*After conducting a survey among Romanian individuals left abroad, we analyze the particular influences relating to their intentions to return to their country of origin. Using Data Mining classifiers, Lasso variable selection procedures and binary logistic regressions for data collected in 2018 in several Western European countries, we have found that what matters the most for their intentions to return is the plan for starting a business in Romania in the near future. This is very useful for articulating appropriate policies. Other variables corresponding to the attachment to Romania, adaptation to the current foreign country, including the perception regarding the local discrimination, economic reasons and voting behaviour could manifest particular influences on their intentions to return. It has turned out that Romanians gone abroad to Latin countries from Western Europe, who plan to start a business at home are more likely to return to Romania than the ones gone in non-Latin countries.*

**Keywords:** migrants, return intentions, Data Mining classifiers, Lasso variable selection procedures, binary logistic regressions, marginal effects

### Introduction

The international migration phenomenon is one which received special attention due to the consequences for both destination and origin countries. In the case of host countries, the migration of labour force influences local economies. In the case of countries of origin, besides the numerous negative effects (ageing population, decrease of labour force, demographic decline, all due to families with children raised abroad etc.), several positive ones are based on the investment in new businesses (Dustmann and Kirchkamp, 2002, pp. 351-372; Mesnard, 2004, pp. 242-262; McCormick and Wahba, 2001, pp. 164-178), improved human capital (Mayr and Peri, 2009, pp. 1-52;

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Dustmann, Fadlon and Weiss, 2011, pp. 58-67), a boost in productivity (Mereuță, 2013) or low unemployment in economy (Hinks and Davies, 2016).

The need to analyze this phenomenon is based on recent statistics (McAuliffe and Ruhs, 2018), according to which more than 3 million Romanians are currently living and legally working abroad, generating a decrease of active population which cannot be compensated by inflows of migrants from other countries or Romanian returnees. Also, according to Population Pyramid, the population of Romania will decline at around 15 million people in 2050 from approximately 18 million nowadays. Therefore, we aim to understand some patterns of potential Romanian returnees in order to propose several solutions for decision makers.

We consider that the return migration is important to be analyzed from many angles in order to be understood properly. First, we took into consideration that this potential decision could be influenced by the present context and future rational opportunities in the country of origin or of residence. Second, the accent put by Romanian migrants on the institutional quality and performance in their country of origin may convince them to return home. We consider this particular element because they would prefer to leave the country of residence to settle in Romania when they could benefit from improved standards of living, fulfill their individual development opportunities in a stable political environment, less perverted by generalized corruption. Third, the role of church attendance abroad is often neglected in the existing literature, but we believe it could predict important chances to return in the country of origin, since the migrants who do so show that they are closely linked to the Romanian culture, traditions and way of life.

We assess the peculiarities in terms of return migration intentions considering an overall model and five particular models based on Romanian migrants' usual decision to migrate abroad (Italy, Spain, France, United Kingdom and Germany). We analyze these patterns for all six models (including the overall model), discussing then the cultural, social, political and economic variables that may influence each one. We found that, for all models, the desire to start a business in Romania in the following two years is the most powerful and the only common influence on return migration intentions. The rest of influences that may explain the differences between Romanian migrants' return intentions with respect to the host countries are also taken into consideration.

Assessing and understanding the intentions of return is important because decision makers could promote different policies in many fields to encourage them to settle in the country of origin, therefore witnessing a great inflow of human capital, knowledge and investment (Ghimire and Maharjan, 2015, pp. 90-107; Marcu, 2013, pp. 191-212). The local authorities may enhance the quality of the regulations for the credit and labour market or business and construction environment. Practically, for instance, the conditions to start a business or to get access to electricity need to be improved (e.g. in the field of construction) and dealing with construction permits is very important, as underlined by Doing Business 2020 report for Romania. Also, the

principle of flexicurity could be put into practice for the better insertion of the returned migrants in the local labour market and in the economy, to ensure higher employment flexibility and security and lower rigidities that may dampen competitiveness and growth (Ciucă *et al.*, 2009; Grigorescu and Niculescu, 2019).

A limit of our study (Carling and Schewel, 2018, pp. 945-963) is that return intentions usually precede the actual behaviour, but macroeconomic obstacles may delay it. In terms of the structure of the article, the next section reviews the literature of the determinants of return migration, while the third one stresses the data and methodology. The fourth section emphasizes the main results and their discussion. The fifth one presents the main conclusions.

## 1. Literature review

While the return migration was analyzed in many researches, the return intentions were less assessed (Waldorf, 1995, pp. 125-136; Ahlburg and Brown, 1998, pp. 125-151; Yue *et al.*, 2010, pp. 545-562). The positive effects of return migration among the countries of origin is presented in several studies (Dustmann and Mestres, 2010, pp. 62-70; Dustmann and Albrecht, 2011), being particularly regarded as an important source of entrepreneurship (Constant and Massey, 2003, pp. 631-653). Although the respondents still reside in foreign countries, especially in Western European countries, we consider that their intentions to return to their country of origin could be synonymous with actual decisions to do so, as the literature on such topic has emphasized (Di Belgiojoso, 2016, pp. 1-22; van Dalen and Henkens, 2008; Williams *et al.*, 2018, pp. 1-16; Carling and Schewel, 2018, pp. 945-963). Moreover, Caro, Fernández and Valbuena (2016, pp. 116-130) considered that the intentions and the decision to actually return are inseparable. Also, these return intentions are a very good predictor for the probability of sending remittances, making investments (Chabé-Ferret, Machado and Wahba, 2016; Dustmann and Mestres, 2010, pp. 62-70) or other behaviours related to future decisions.

The lack of precise statistics regarding return migration in Romania is an important difficulty and a reason to analyze this particular topic. Using data when the rhythm of migration abroad was low (in the early 2000s), Ambrosini, Mayr and Radu (2012) found that the number of Romanian returnees is quite high in comparison with other Central and Eastern European countries, with around 1 person from 2 migrants who has chosen to return to the country of origin. Using data from different surveys conducted among Romanian migrants in Madrid, some researchers (Caro, Fernández and Valbuena, 2016, pp. 116-130) found that, around 2007, the intentions to return were 7%, while in 2008, when the world crisis began, the percent became 71%. An in-depth perspective emphasized that only 42 percent were very sure about returning home (Marcu, 2013, pp. 191-212). A recent investigation, conducted by RePatriot and Open-I Research (2019) and based on a sample of 1810 respondents, underlined a decrease in the return migration intentions by 10% in

comparison with the research from 2017. Therefore, 47% of Romanian migrants intend to return, while those who do not are especially influenced by corruption, poor political and economic performance and local mentalities. Kotorri (2017, pp. 35-46) investigated the reasons behind the decision to return to the home country and found that demography, politics and income really matter. White (2013, pp. 25-49) added the economic prospects regarding the labour market and job opportunities generated by the Polish economy, elements that could discourage the less educated and the older individuals, therefore they will not become interested in returning in this pessimistic context, where only through personal contacts, corruption and informal channels, can they succeed.

The role of transnational activities, such as remittances, investments, visits to the country of origin, following the media and voting there are behaviours that strengthen the connections with the native country (De Haas and Fokkema, 2011, pp. 755-782), each person being linked with both societies (Tezcan, 2019, pp. 189-201). Moreover, those emigrants who intend to return to their country of origin usually remit more and for different purposes in comparison with the permanent emigrants (Collier, Piracha and Randazzo, 2017, pp. 174-202). De Haas and Fokkema (2011, pp. 755-782) demonstrated the negative relationship between return migration and remittances and a positive one with the investment in the country of origin. It is clear that these decisions to save more help temporary migrants to accumulate in order to finance several investment projects in their country of origin (Mesnard, 2004, pp. 242-262). The fact that they remit more, especially for investment projects, is based on the belief that the return readjustment means high costs which may be covered by this safety rational act (Dustmann and Mestres 2010: 62-70). Delpierre and Verheyden (2014, pp. 1-43) stressed that the uncertainty relating to constant incomes provided in the country of destination puts a great emphasis on remitting more money in the country of origin, which may in turn stimulate the proclivity of remigration intentions. Hinks and Davies (2016) found that remittances have a positive influence on the likelihood to return home. The way these remittances are spent in Romania emphasizes different dimensions regarding the return migrants' intentions. For example, savings or home improvement expenses mean a much stronger intention to return to Romania.

Démurger and Xu (2011, pp. 1847-1861), using a survey conducted in a Chinese province in rural households, found that the return migrants are more inclined to become self-employed than non-migrants. Also, their likelihood to become self-employed is influenced by remitting the savings made during migration and the frequency of changing jobs abroad. Moreover, Reiner and Radu (2012, pp. 109-128) highlighted that return emigrants are more inclined to become unemployed because the local labour market cannot absorb their skills and capabilities (in terms of creating some particular jobs), therefore, unintentionally, encouraging them to choose to be self-employed, the only possibility that could exploit their expertise in terms of entrepreneurial features. Piracha and Vadean (2010, pp. 1141-1155),

Batista, McIndoe-Calder and Vicente (2014) or Wassink and Hagan (2018) demonstrated that return migrants are more likely to become entrepreneurs after a period of re-adaptation.

Massey *et al.* (1990) found that return migration is basically a process that is highly influenced by property ownership in the country of origin or wages, while Anniste and Tammarux (2014, pp. 377-412) presented a different perspective, namely, it is considered that such variable is not necessarily influencing the decision. Carling (2004, pp. 113-132) emphasized that owning a house is not necessarily a reason to return, but a symbolic one that may increase the “ethos of return”. In the case of second-generation Turkish migrants, Fokkema (2011, pp. 365-388) found that the belonging or the affinity with cultural, religious and national feelings and transnational links with Turkey are positive predictors of return migration. The migrants who are less integrated in the country of destination and are more transnational oriented are more likely to return to the country of origin (Carling and Pettersen, 2014, pp. 13-30). Alberts and Hazen (2005, pp. 131-154) found that foreign students who graduated in the USA are more likely to return in the countries of origin due to social and personal influences. Massey and Akresh (2006) stressed that an increased level of satisfaction felt in the destination country, such as the USA, negatively influences the return migration.

The duration of stay abroad is a controversial predictor of return migration intentions. Güngör and Tansel (2014, pp. 208-226) demonstrated that the longer the period spent abroad, the lesser the return migration intentions. In contrast, other scholars found a positive relationship between the duration of stay and return migration intentions (De Haas, Fokkema and Fihri, 2015, pp. 415-429; Paparusso and Ambrosetti, 2017, pp. 137-155).

The role of local discrimination and xenophobia is also nuanced in the paper. In the literature, the difficulties faced by Turkish immigrants in the host society (Germany) may have forced them to adopt multiple national identities, especially the native ones being considered superior to the ones where they currently live and work (Çelik, 2017, pp. 705-723). Özyürek (2014) found that Turkish immigrants facing local discrimination put a stronger accent on their national roots instead of on the mainstream one. The result of feeling like a stranger is “more forceful affirmation of a minority identity as a way of achieving dignity in a hostile context.” (Maliepaard and Alba, 2016, pp. 70-94).

The attachment to the country of origin was emphasized in the specific literature (Dustmann and Weiss, 2007, pp. 236-256). Gashi and Adnett (2015, pp. 57-81) found that the number of visits in the home country is considered a behaviour that denotes some family ties that increase the propensity to return home. Plaza (2008, pp. 1-23) found that individuals attached to persons and institutions from the native country are more likely to return to the home country rather than to stay abroad due to lower transaction costs. Reynolds (2005) considered that owning or investing in properties in the country of origin is a form of cultural remittance, denoting a sense

of belonging and a form of insurance that, in the future, these individuals would prefer to return there. Pusti (2013) found out that a reunited family and better standards of living in Spain increase the likelihood to stay rather than return in the country of origin.

The relationship between return migration intentions and education is also presented in the existing literature. De Haas and Fokkema (2011, pp. 755-782) found a positive relationship between these two variables. Jasso and Rosenzweig (1988) and Gundel and Peters (2008, pp. 769-782) found that highly qualified individuals abroad have higher intentions to return than the less skilled ones. When it comes to students, the situation is interesting. Although they are mobile and easily get integrated in host societies, most of them return to their countries of origin after graduation (Bijwaard, 2010, pp. 1213-1247).

## 2. Data and methodology

By taking into consideration the previous background facts and ideas, we are encouraged to test the following hypotheses and, further, we expect that:

*Hypothesis 1:* Currently owning and also the plans to start a business, to build a house or to buy a car in the country of origin increase the likelihood to return.

*Hypothesis 2:* Currently owning and also the plans to own a house or to make a bank deposit in the host country reduces the likelihood to return.

*Hypothesis 3:* Individual development opportunities, political stability, improved standards of living, better institutional quality and low corruption environment in the country of origin increase the likelihood to return.

Our analysis focuses on the planned migration return intentions of first-generation Romanian migrants from several Western European countries, such as Austria, Belgium, Denmark, Switzerland, Finland, France, Italy, Germany, Luxemburg, United Kingdom, Norway, the Netherlands, Portugal, Spain and Sweden, representing a total of 1554 unique responses. Our decision to analyze the Romanian migrants' intentions to return to their country of origin is based on the official statistics which emphasize that a large number of emigrants are currently living abroad (Romania. Migration Profiles), especially in Italy, Spain, France, UK and Germany (1192 rows for these five specific countries taken into consideration or 76.71% of the total number of distinct answers mentioned above).

The empirical analysis is based on individual level data collected through an online survey conducted in 2018 on a convenience sample of first-generation migrants from Romania. In fact, we sent our questionnaire by email to Romanian associations, organizations and parishes, due to our need to control for a better

quality of responses and for a more uniform and easy to gather collection of data in the host countries from a geographical point of view. Because of their authority and knowledge, we politely asked the presidents of such organizations and associations and the priests from local Orthodox churches to provide a list of Romanian migrants' name and emails in order to send them our questionnaires. Because we did not know the total number of Romanian migrants living and working abroad (e.g. the illegal ones), our sample also includes this kind of workers, therefore, any link with probability representative sampling is not reliable. Although such investigation has certain limits, we consider it extremely useful for policymakers and potential decisions.

In order to identify the most powerful predictor (model's core) considering all collected data (1554 records), we have used the Data Mining (DM) add-in from Microsoft's spreadsheet application working with SQL Server Analysis Services (SSAS) responsible for model's persistency and DMX queries (Data Mining eXtension of the well-known Structured Query Language) in SSAS to explore the resulting model. To estimate the return intentions, to assess the most important influences and to test the validity of all formulated hypotheses, we have used a general econometric model, namely, the one based on binary logistic regressions (logit - eq. 1).

$$\text{Logit}(p) = \ln\left(\frac{p}{1-p}\right) = \beta_0 + \sum_{j=1}^m \beta_j * X_j + \varepsilon, \quad (1)$$

where:

- $p$  is the probability of return migration intentions;
- $X_j$  are the independent variables (Table 1, Appendix section), with  $j = 1, 2, \dots, m$ ;
- $\beta_j$  - are the corresponding logit coefficients;
- $\varepsilon$  is the error.

The dependent variable (Table 1, Appendix section) is based on the question "How would you appreciate the chances to return to live in Romania in the next two years?" (0 - No; 1 - Yes). To confirm the core and explore the common and the most powerful influences, we have also performed additional tests by using three Lasso variable selection procedures in Stata 15 Multi Processing (MP) x64: the one based on K-fold cross-validation with 10 folds (*cvlasso*), the rigorous one (*rlasso*) and the Lasso2 procedure (*lasso2*).

This version of the Stata tool was further used to perform the entire statistical analysis, including post-estimations. We improved the overall statistical model and all regional ones by preserving only variables with a Variance Inflation Factor (VIF) lower than 5.5, while a worrying collinearity is usually considered for values higher than 10. Moreover, we considered only those variables with statistical significance ( $p$  values < 0.1) which were also tested in terms of robustness by including them in at

least two consecutive scenarios. To be able to make comparisons between models in terms of magnitude of the influence associated with the core, we finally computed marginal effects for all scenarios. The plan to start a business, to build a house or to buy a car in the country of origin (Hypothesis 1) are measured by using the following questions: “For the next two years, do you personally intend to start your own business?”, “For the next two years, do you personally intend to do the following in Romania?, with the possibilities: “to buy a car”; “to buy a house”; “to buy land”; “to start a business” and “to make a savings account”.

Hypothesis 2 is operationalized by using the question “For the next two years, do you personally intend to make the following options in the host country?”, with the possibilities: “to buy a car”; “to buy a house”; “to buy land”; “to start a business” and “to make a savings account”.

Regarding hypothesis 3, its items are measured through the answers provided to the question: “How much do you consider that the significant improvement of the following factors in Romania could contribute to your return to the country of origin in the next two years?”, namely wages, professional development opportunities, political stability, low corruption environment and standards of living. These answers were coded on a five-point ordinal scale that ranges between “not at all” (1) and “very much so” (5).

### 3. Results and discussion

After building the first type of DM models based on the Naive Bayes classifier in Microsoft SSAS via the DM add-in and trained with 100%, 75% and 67% of our entire collection of data (overall Romanian migrants in Europe), we explored the resulting most powerful influences in three ways: first, by using the dependency network and the left slider associated with the strength of the links (Figure 1, Appendix section); secondly, by using the discrimination analysis of attributes and corresponding values (Figure 2, Appendix section); and thirdly, by using a DMX query (Figure 3, Appendix section). All three exploration ways indicate `own_busi_ROpl` as the most powerful predictor (core of the overall model) which influences the outcome variable (`return_RO`). More, in terms of probabilistic results of migration return in direct relation with the core (`own_busi_ROpl`) of this first DM model, our preliminary results (Figure 3, Appendix section) show that, if a Romanian migrant intends to create his own business in Romania (`own_busi_ROpl=1`), it is probable (64.75%) that he might return to Romania (`return_RO=1`) in the next two years while if he does not have plans to create his own business back home (`own_busi_ROpl=0`), it is more probable (80.89%) that he might not return (`return_RO=0`) in the next two years.

When querying a second type of DM models built by using the Microsoft’s Neural Networks based classifier and trained with the entire collection of data (1554 records, 100%) or randomly with a part of it (75% and 67% for training), we have



also obtained promising results (probabilities of 54.27%, 51.27% and 51.18%, respectively, that return<sub>RO</sub>=1 when own<sub>busi</sub><sub>ROpl</sub>=1 and 77.6%, 80.62% and 81.88%, respectively, that return<sub>RO</sub>=0 when own<sub>busi</sub><sub>ROpl</sub>=0).

The general statistics for the entire dataset regarding Romanian migrants in Western Europe (Table 2, Appendix section) shows that, from a total of 1554 responses corresponding to distinct responders, 27.48% responded affirmatively when questioned if they want to return to the home country.

The influences (both positive and negative ones) from the regression analysis corresponding to the entire collection of data (migrants in Western Europe including Italy, Spain, France, UK and Germany) are presented in Table 3, Appendix section (the overall model).

The positive influences (Table 3, Appendix section) regarding the chances to return to Romania are interpreted as follows:

- The most powerful predictor is given by the plan for the next two years to start a business in Romania. Hence, individuals who plan to start their own business are more likely to return compared to those who do not make such plans;
- The second one is given by the desire to buy a car in Romania, individuals who make such plans are more likely to return to their country of origin;
- The third positive influence is represented by the will to open a savings account in the country of origin, those with such desires being more likely to return to Romania.
- Another influence is exerted by the professional development opportunities in Romania, those who consider this variable important are also more likely to return.
- Variables related to the attachment to Romania and the number of visits to Romania are the last two positive influences, those who put an accent on these being more likely to return to their country of origin.

The negative influences are also significant. The most powerful is given by the plan to own a house in the host country, those indicating this possibility are less likely to return to their country of origin. Also, those who already possess their own house in the host country are less likely to return in comparison with the ones who do not have one. It was not a surprise for us that the respondents who feel attached to the current foreign country are less likely to prefer to return to Romania. The same tendency is exerted by the corruption level, hence a high level of corruption in the Romanian society is equivalent with the less likely behaviour in terms of intentions to return. The Pearson goodness-of-fit tests for the most comprehensive scenario (d) from our overall model (Table 3, Appendix section) returned a value of 0.16, which indicates that this model fits reasonably well. Moreover, for the same scenario (d), the AUC-ROC value (>0.8) indicates a good classifier.

For each of those five countries taken into consideration, we have also built a distinct regional model (Tables 3-7), revealing noticeable peculiarities in terms of likelihood of return migration.

Romanian migrants from the UK (Table 4, Appendix section) who wish to return to their country of origin manifest particular influences. Their intentions to return to Romania are overwhelmingly determined by variables related to certain plans of investment in their country of origin. Hence, the plans to buy a car, to start a business or to make a savings deposit are the most powerful positive predictors. The potential desire to buy a house in Romania increases the intentions to return to their country of origin, but far less significant.

Also, the novelty is brought by the variable related to church attendance which is interpreted as follows: the higher the participation in religious services abroad, the more likely the decision to return, as early emphasized by De Haas and Fokkema (2015, pp. 415-429). Owning a house abroad or planning to have one in the host country are negative predictors for the return migration intentions.

Romanian respondents from Germany (Table 5, Appendix section) wishing to return back home are mostly influenced by their desire to use the money sent to Romania to make savings accounts. This result is in line with other previous findings about a positive relationship between return decisions and savings. To be more specific, those willing to return save more in their home countries and less in the host ones (Amuedo-Dorantes and Pozo, 2002, pp. 48-71; Pinger, 2010, pp. 142-173). Therefore, those with such savings behaviour are more likely to return to Romania than those who do not manifest such tendency. Also, the intentions to own a house or an apartment in Romania is another positive predictor for return, those Romanian migrants being more likely to act like this compared to those who do not manifest such intentions. This is in accordance with Collier, Piracha and Randazzo (2011) who emphasized that those who decided to return to the home country were more likely to remit more for investment reasons and they did so as long as their return decision was postponed. Moreover, those willing to start a business in Romania are more likely to return to their country of origin. This result strengthens other findings about the relationship between entrepreneurial behaviour and return intentions (Batista, McIndoe-Calder and Vicente, 2014).

A better functioning of local state institutions in the host country compared to Romanian ones manifests a negative influence on the decision to return to Romania, evidence which is in line with other previous findings (Massey and Akresh, 2006, pp. 954-971).

In the case of Romanian migrants from Italy (Table 6, Appendix section), the willingness to start a business in the near future in Romania has a much more powerful influence on the return intentions, the Romanian migrants who intend to do so are more likely to return than those who have no such intentions. Also, the ownership of a house in Romania increases the intentions to return to Romania, hence, those individuals being more likely to do so than those who do not have any real estate.

The most powerful negative independent variable is the one related to the debts for buying a home in the current country. Another negative one is brought by

the desire to live in a different society as a perspective which influenced the decision to leave Romania. Having a savings deposit in the host country reduces the likelihood to return to Romania, but with less significance than those above. The last negative variable is the one related to planning to buy a house in the host country. The case of Spain (Table 7, Appendix section) brings additional influences and offer different peculiarities. The Romanian migrants' willingness to start a business in their country of origin in the near future emphasized a positive influence on the return intentions. In the case of Spain, this positive predictor is the most powerful compared to the rest of regional and overall models. The plan to buy a car in Romania exerts another positive influence on the likelihood to return to the country of origin. Particularly, two negative influences should be analyzed and underlined. The plan to buy a house abroad or already owning an estate in the host country reduces the likelihood to return to Romania.

Romanian migrants from France (Table 8, Appendix section) also have different patterns compared to the rest of the models underlined above, bringing new nuances to the general picture. The most powerful positive predictor is given by the willingness to start a business in Romania, individuals considering this being more likely to return to the country of origin than those with no entrepreneurial intentions. The individuals who responded that they are members in an organization for helping other Romanians are also more likely to return to their country of origin than those who do not hold such membership.

What is quite interesting is the fact that the longer the respondents have lived in the current foreign country, the lesser their intention to return to their country of origin. Also, the plan to buy a car in the current country reduces the likelihood to return to Romania. The desire to live in a different society (therefore facilitating the intention to migrate abroad) also diminishes the likelihood to return to the country of origin.

In terms of validation of hypotheses, the first one is validated by all our regional models, but only for that part corresponding to the plans to start a business in the country of origin, a finding which is in line with other previous research (Mesnard, 2004; Delpierre and Verheyden, 2014). The rest of it depends on the host country. Moreover, the second and the third hypotheses are partially validated and not by all models, meaning that the last two ones mostly correspond to regional peculiarities. To be more specific, the second hypothesis is confirmed only in the case of Romanian migrants from Italy and invalidated by those from Germany and France. The third one is partially validated among those who put an increased emphasis on the quality of how local public institutions work and on the significant improvement of the standard of living in Romania. These last findings are connected with previous studies which emphasized that skilled returnees put a greater pressure for better political and economic institutions (Li *et al.*, 2016).

The average marginal effects of the core variable (*own\_busi\_ROpl*) on the return migration synthesized in Table 9 (Appendix section) by considering all

scenarios from the simplest - (a) to the most comprehensive one - (d) made us believe that Romanian migrants gone abroad in the Latin countries from Western Europe (Italy, Spain and France) who plan to start a business back home in Romania are more inclined to return to their country of origin and not to continue to live and work abroad rather than the ones gone in the non-Latin countries (Germany and the UK). The reasons supporting this idea are related to considerably larger variations in magnitude for the models corresponding to both Germany and the UK and substantial loss of significance in the case of the one corresponding to Germany. These interesting results could be interpreted as follows: because the Latin Western European countries have been the preferred destination countries for decades due to cultural and linguistic affinities and to the already existing important migration networks, because of lower labour market restrictions (Fic, 2013, pp. F4-F7), they would prefer to return to their country of origin to invest the money earned abroad. Moreover, as they are more likely to be part in the phenomenon of circular migration, if they failed at home, they could return abroad much easier than in the case of non-Latin countries, where the entry and exit are much more difficult.

## Conclusions

The economic reasons are the most important inputs that may affect the likelihood of a migrant to return to the country of origin. The only common one is linked with the plan to start a business in Romania no matter the country they currently live in. Other influences are particular from one case to another:

- For Romanian migrants from Germany, the intentions to return are positively influenced by their plan to build or buy a house in Romania and their decision to create a savings deposit by using the money earned abroad; negatively, it is influenced by the perception regarding the poor quality of Romanian local institutions;
- In the case of those currently living in the UK, they are highly sensitive to the professional development opportunities in Romania in the case they decide to return. Also, planning to own a house and a car in Romania increases the likelihood to return home. A higher church attendance abroad has a powerful influence on returning to Romania;
- Romanian migrants from Italy who own a house in Romania are more likely to return than those who do not have one;
- In the case of Romanians who live and work in Spain, they would choose to return when they intend to buy a car in Romania;
- When taking into account Romanians from France, the likelihood to return to Romania increases when an individual is a member in organizations that aim to help other Romanian migrants.

This paper presents interesting facts since the main determinants of return migration are different from one country to another. Therefore, it would be a great

mistake to consider Romanian migrants acting in a uniform way, being greatly influenced by economic, cultural or other local reasons in their decision to come back home. Hence, decision makers should formulate policies to stimulate the return migration phenomenon by taking into account these potential elements. For instance, from our results, to create a business environment that would increase the appetite to invest in the local economy, a place with less corruption, efficient bureaucracy or no administrative hurdles that could generate barriers, and low taxes is a mainstream for all Romanian migrants abroad. Migrants are very sensitive to economic and political reasons and this is why decision makers should invest more in stimulating such elements in order to attract these individuals to return.

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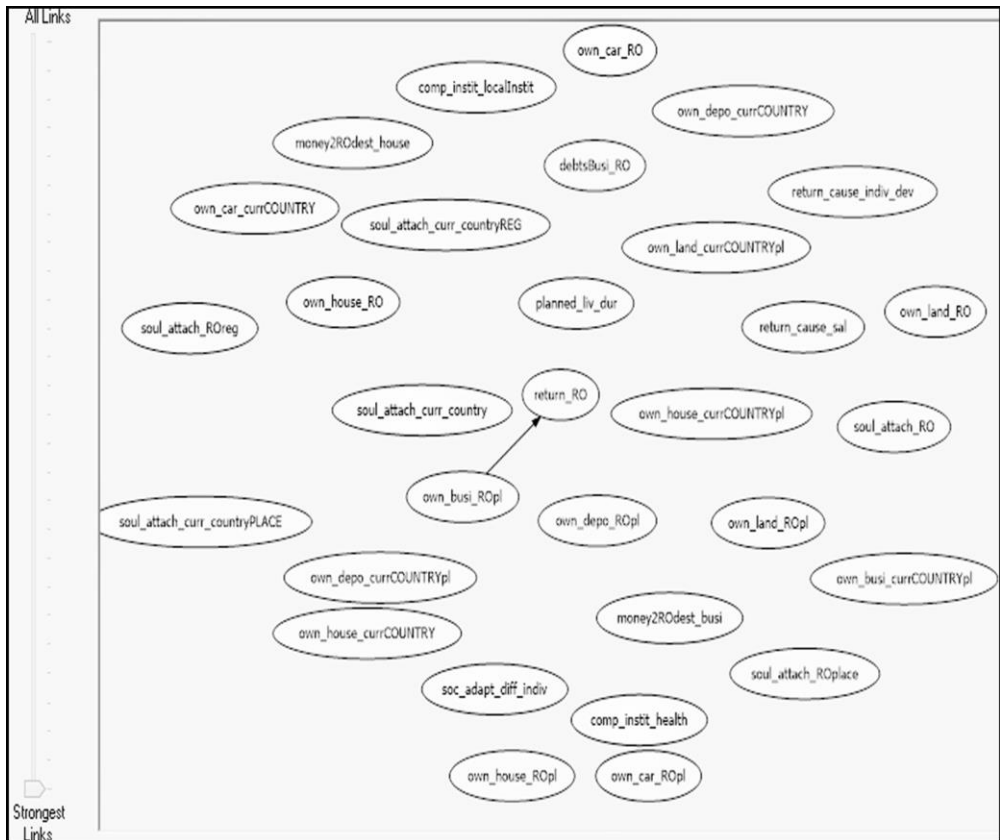
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APPENDIX

**Figure 1. DM model’s core resulting from applying the Naive Bayes classifier in Microsoft SSAS on all collected data (1554 records, 100% for training) and visualizing the dependency network with the strongest link**



Source: Authors’ representation (a high resolution image is available at: <https://sites.google.com/site/supp4ejes/d/fig1-ref.tiff> ).

**Figure 2. Top two influences in the DM models as robust result of applying the Naive Bayes classifier in Microsoft SSAS on the entire collection of data (1554 records, 100%) or randomly on a part of it (75% and 67% for training) and visualizing the attribute discrimination**

Attribute: return_RO		Value 1: 1	Value 2: 0
Discrimination scores for 1 and 0			
Attributes	Values	Favors 1	Favors 0
own_busi_ROpl	1		
own_busi_ROpl	0		

Source: authors representation (a high resolution image is available at: <https://sites.google.com/site/supp4ejes/d/fig2-ref.tiff>).

**Figure 3. Probabilistic results when querying (two DMX queries in Microsoft SSAS) the first DM model built based on the Naive Bayes classifier and using all collected data (1554 records, 100% for training)**

<pre>SELECT PREDICT ([MigrReturn1554NB].[return_RO]) AS [return_to_Romania], PREDICTPROBABILITY ([MigrReturn1554NB].[return_RO]) AS [Prob_result] FROM [MigrReturn1554NB] NATURAL PREDICTION JOIN (SELECT '0' AS [own_busi_ROpl]) AS [condition]</pre>	
return_to_Romania	Prob_result
0	0.80886...
<pre>SELECT PREDICT ([MigrReturn1554NB].[return_RO]) AS [return_to_Romania], PREDICTPROBABILITY ([MigrReturn1554NB].[return_RO]) AS [Prob_result] FROM [MigrReturn1554NB] NATURAL PREDICTION JOIN (SELECT '1' AS [own_busi_ROpl]) AS [condition]</pre>	
return_to_Romania	Prob_result
1	0.64747...

Source: Authors' representation (a high resolution image is available at: <https://sites.google.com/site/supp4ejes/d/fig3-ref.tiff>).

**Table 1. Variables and afferent questions used in this study** are available at <https://sites.google.com/site/supp4ejes2020/dwnld/PH-Tb11.pdf>

**Table 2. General statistics**

<b>Variable</b>	<b>Median</b>	<b>Mean</b>	<b>Std.Dev.</b>	<b>Min</b>	<b>Max</b>	<b>Yes(1)</b>	<b>%</b>
birth_year	1982	1980.73	10.39	1937	1999		
male							44.47
last_edu_form	6	5.53	1.36	1	7		
own_car_RO							17.89
own_car_currCOUNTRY							62.74
own_house_RO							44.08
own_house_currCOUNTRY							35.26
own_land_RO							30.57
own_land_currCOUNTRY							8.88
own_busi_RO							4.12
own_busi_currCOUNTRY							15.77
own_depo_RO							22.97
own_depo_currCOUNTRY							67.50
own_car_ROpl							8.56
own_car_currCOUNTRYpl							35.20
own_house_ROpl							18.40
own_house_currCOUNTRYpl							33.01
own_land_ROpl							15.44
own_land_currCOUNTRYpl							9.97
own_busi_ROpl							18.47
own_busi_currCOUNTRYpl							22.14
own_depo_ROpl							11.33
own_depo_currCOUNTRYpl							24.84
money2ROdest_currExp							47.17
money2ROdest_debtsPay							18.40
money2ROdest_buyDrbGds							21.24
money2ROdest_house							16.92
money2ROdest_busi							2.77
money2ROdest_depo							5.98
debtsCurrExp_RO							11.90
debtsCurrExp_currCOUNTRY							17.44
debtsHouse_RO							8.11
debtsHouse_currCOUNTRY							14.74
debtsCar_RO							2.25
debtsCar_currCOUNTRY							11.97
debtsBusi_RO							1.93
debtsBusi_currCOUNTRY							2.90
return_cause_sal	3	2.58	1.41	0	4		
return_cause_indiv_dev	3	2.86	1.37	0	4		
return_cause_high_livStand	4	3.11	1.29	0	4		
comp_instit_edu	4	4.19	1.00	1	5		
comp_instit_health	5	4.45	0.92	1	5		
comp_instit_localInstit	5	4.45	0.81	1	5		

comp_instit_otherInstit	5	4.37	0.85	1	5	
comp_instit_politInstit	4	4.15	0.90	1	5	
corruption_level	4	3.14	1.28	0	4	
desire_liv_diff_soc	3	2.73	1.33	0	4	
howOften_voteRO	1	1.75	1.69	0	4	
howOften_voteCurrCountry	0	1.28	1.70	0	4	
howOften_voteEUR	0	1.19	1.69	0	4	
howOften_protests	0	0.69	1.16	0	4	
howOften_signedPet	2	1.45	1.40	0	4	
part_of_ROorgAssoc_No						70.70
howOften_currCOUNTRYnews	4	3.46	1.79	0	5	
howOften_currCOUNTRYtv	4	3.18	2.02	0	5	
howOften_ROnews	4	3.00	1.96	0	5	
howOften_ROtv	3	2.49	2.11	0	5	
pres_country_living_all	-	-	-	-	-	
pres_country_liv_dur	5	4.15	1.11	1	5	
planned_liv_dur	3	2.98	1.58	1	5	
country_living_oth						24.97
soc_adapt_diff_indiv						32.18
env_adapt_diff_indiv						35.20
friends_fam_lack_indiv						60.81
insuff_lang_know_indiv						46.72
local_discrim	2	1.59	1.22	0	4	
church_attend	2	2.43	2.10	0	7	
how_often_link_RO	2	2.39	0.99	0	4	
how_often_visit_RO	1	1.23	0.91	0	4	
how_often_visited_RO	1	1.21	1.03	0	4	
soul_attach_ROplace	3	2.91	1.14	0	4	
soul_attach_ROreg	3	2.89	1.15	0	4	
soul_attach_RO	3	2.88	1.17	0	4	
soul_attach_curr_country	3	2.45	1.02	0	4	
soul_attach_curr_countryREG	2.5	2.41	1.06	0	4	
soul_attach_curr_countryPLACE	3	2.49	1.09	0	4	
return_cause_polit_stab	4	2.97	1.37	0	4	
return_cause_low_corrupt	4	3.19	1.35	0	4	
return_RO (OUTCOME)						27.48
<b>No.obs. (N) = 1554</b>						

**Table 3. Raw coefficients of the overall model based on the entire dataset - Western Europe**

Variables	(a)	(b)	(c)	(d)
own_busi_ROpl	2.059*** (0.143)	1.369*** (0.171)	1.908*** (0.149)	1.303*** (0.177)
own_house_currCOUNTRY		-0.772*** (0.147)		-0.650*** (0.152)
own_car_ROpl		0.727*** (0.229)		0.717*** (0.234)
own_house_currCOUNTRYpl		-1.074*** (0.154)		-0.912*** (0.158)
own_depo_ROpl		0.761*** (0.214)		0.680*** (0.218)
return_cause_indiv_dev		0.242*** (0.056)		0.237*** (0.059)
corruption_level			-0.211*** (0.048)	-0.203*** (0.051)
how_often_link_RO			0.295*** (0.068)	0.216*** (0.071)
how_often_visit_RO			0.232*** (0.069)	0.202*** (0.072)
soul_attach_curr_countryPLACE			-0.341*** (0.059)	-0.249*** (0.062)
constant	-1.449*** (0.072)	-1.654*** (0.197)	-0.981*** (0.275)	-1.280*** (0.334)
Number of observations	1554	1554	1554	1554
Pseudo R-square	0.1216	0.1983	0.1732	0.2286
AUC-ROC	0.673	0.7941	0.7704	0.8169

*Note:* Standard errors in parentheses. \*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1%.

*Source:* Authors' calculations in Stata 15 MP for all specifications/scenarios with progressive inclusion of the core variable in scenario (a) and background controls—scenarios (b), (c), and (d).

**Table 4. Raw coefficients of a local model based on data regarding Romanian migrants in UK**

Variables	(a)	(b)	(c)	(d)
own_busi_ROpl	2.184*** (0.270)	1.410*** (0.341)	2.189*** (0.271)	1.416*** (0.344)
own_house_currCOUNTRY		-1.178*** (0.287)		-1.377*** (0.301)
own_car_ROpl		1.741*** (0.462)		1.795*** (0.466)
own_house_ROpl		0.668**		0.547*

		(0.323)		(0.327)
own_house_currCOUNTRYpl		-1.497***		-1.578***
		(0.303)		(0.309)
own_depo_ROpl		0.738*		0.891**
		(0.416)		(0.423)
church_attend			0.109**	0.200***
			(0.055)	(0.065)
constant	-1.325***	-0.797***	-1.600***	-1.230***
	(0.126)	(0.178)	(0.193)	(0.234)
Number of observations	465	465	465	465
Pseudo R-square	0.1293	0.2716	0.1363	0.289
AUC-ROC	0.6739	0.8315	0.7074	0.8447

The source and note are the same as those under Table 3.

**Table 5. Raw coefficients of a local model based on data regarding Romanian migrants in Germany**

Variables	(a)	(b)	(c)	(d)
own_busi_ROpl	1.831***	0.739*	1.889***	0.759*
	(0.331)	(0.437)	(0.340)	(0.448)
own_house_ROpl		1.165***		1.351***
		(0.363)		(0.376)
own_depo_ROpl		1.464***		1.428***
		(0.498)		(0.512)
comp_instit_localInstit			-0.667***	-0.756***
			(0.200)	(0.210)
constant	-1.671***	-1.910***	1.387	1.527
	(0.170)	(0.190)	(0.921)	(0.954)
Number of observations	309	309	309	309
Pseudo R-square	0.0933	0.1573	0.1278	0.198
AUC-ROC	0.6508	0.7341	0.7042	0.7827

The source and note are the same as those under Table 3.

**Table 6. Raw coefficients of a local model based on data regarding Romanian migrants in Italy**

Variables	(a)	(b)	(c)	(d)
own_busi_ROpl	1.765***	1.608***	1.751***	1.598***
	0.381	(0.456)	(0.387)	(0.462)
own_house_RO		1.501***		1.520***
		(0.436)		(0.444)
own_depo_currCOUNTRY		-0.795*		-0.798*
		(0.426)		(0.432)
own_house_currCOUNTRYpl		-1.023**		-0.968*
		(0.521)		(0.526)

debtsHouse_currCOUNTRY		-1.831**		-1.866**
		(0.866)		(0.862)
return_cause_high_livStand		0.367		0.482*
		(0.245)		(0.262)
desire_liv_diff_soc			-0.243**	-0.281**
			(0.119)	(0.140)
constant	-1.170***	-2.389**	-0.612*	-2.154**
	0.22	(0.929)	(0.340)	(0.975)
Number of observations	159	159	159	159
Pseudo R-square	0.1112	0.2846	0.1316	0.3047
AUC-ROC	0.6813	0.8376	0.728	0.8469

The source and note are the same as those under Table 3

**Table 7. Raw coefficients of a local model based on data regarding Romanian migrants in Spain**

Variables	(a)	(b)	(c)	(d)
own_busi_ROpl	3.597***	4.002***	3.726***	4.084***
	(0.634)	(0.984)	(0.675)	(1.046)
own_house_currCOUNTRY		-2.631**		-2.444**
		(1.106)		(1.093)
own_car_ROpl		2.673**		2.390**
		(1.147)		(1.114)
own_house_currCOUNTRYpl		-2.419**		-2.840***
		(0.995)		(1.075)
howOften_currCOUNTRYnews			0.391	0.632*
			(0.246)	(0.378)
constant	-2.499***	-1.697***	-4.128***	-4.197**
	(0.425)	(0.516)	(1.177)	(1.749)
Number of observations	103	103	103	103
Pseudo R-square	0.3789	0.5789	0.406	0.6164
AUC-ROC	0.837	0.9293	0.8703	0.9475

The source and note are the same as those under Table 3

**Table 8. Raw coefficients of a local model based on data regarding Romanian migrants in France**

Variables	(a)	(b)	(c)	(d)
own_busi_ROpl	2.371***	2.230***	2.223***	2.023***
	(0.472)	(0.480)	(0.523)	(0.547)
own_car_currCOUNTRYpl		-0.936**		-1.263**
		(0.451)		(0.505)
desire_liv_diff_soc			-0.373**	-0.396**
			(0.165)	(0.169)
part_of_ROorgAssoc_No			1.099**	1.319**



			(0.527)	(0.542)
pres_country_liv_dur			-0.859***	-0.886***
			(0.256)	(0.262)
constant	-1.406***	-1.079***	2.592*	3.066**
	(0.223)	(0.260)	(1.373)	(1.411)
Number of observations	156	156	156	156
Pseudo R-square	0.1536	0.178	0.2794	0.3158
AUC-ROC	0.6919	0.759	0.8345	0.8572

The source and note are the same as those under Table 3.

**Table 9. Comparing the influence of the core variable on the outcome in terms of average marginal effects, when considering both the overall model and the regional ones**

Model	N	(a)	(b)	(c)	(d)
Overall	1554	0.345*** (0.018)	0.208*** (0.024)	0.3*** (0.019)	0.19*** (0.024)
UK	465	0.379*** (0.033)	0.2*** (0.045)	0.377*** (0.034)	0.196*** (0.045)
Germany	309	0.278*** (0.041)	0.102* (0.06)	0.275*** (0.041)	0.099* (0.058)
Italy	159	0.343*** (0.053)	0.245*** (0.059)	0.331*** (0.054)	0.237*** (0.058)
Spain	103	0.351*** (0.03)	0.271*** (0.046)	0.348*** (0.032)	0.251*** (0.045)
France	156	0.393*** (0.053)	0.359*** (0.055)	0.308*** (0.056)	0.265*** (0.059)

Note: Standard errors in parentheses. \*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1%, respectively.

Source: Authors' calculations in Stata 15 MP for all specifications / scenarios from (a) to (d).