

## REVIEWER 1

“This paper tries to investigate the interaction of emigration and immigration on foreign direct investment, international trade and remittances. The author considers Spain with 112 countries. The author(s) try to answer the following research questions:

1. Does the increase in the number of migrants in the destination country mean ...[more] ... an increase in the FDI flow of the migrants' countries of origin?
2. What is more relevant for emigration and greater immigration, FDI or remittances?
3. What is the relationship between immigration, FDI and international trade?
  - a. Does the trade of the destination country increase towards the countries of the immigrants?
  - b. Do the emigrants of the host country choose as destinations those countries where the international trade of their country is greater?

The authors employ linear mixed models (LMM) with the help of R and presents their results. There are a couple of issues that I would like to share with the authors:

1. First of all, by looking at the number of hypothesis and research questions, I got an impression that I am about to read a thesis than a paper. I strongly suggest the author(s) to focus on one topic and bring a convincing story. The current paper includes a large number of hypothesis and research questions that the author(s) could not answer to them properly. “

Thank you for your feedback and review.

Part of the relevance of the problem is the lack of studies that explore connections of main mobility factors: workers, trade, capital, especially regarding empirical papers. In this sense, explanation of such relationships leads us to response several logical and connected questions based on literature review. It is precisely one of the common problems in this area that research concentrates on a single mobility factor or topic, or on transverse or longitudinal partial studies. It is, therefore, a complex issue, but with a rigorous analysis we attempt to obtain empirical results for a wide sample of countries and years, and here resides part of the value of this research.

Following the recommendation of the reviewer, we attempt to clarify and better explain complex connections between mobility factors at international level over the time. Therefore, in order to clarify the research, we have restructured and ordered the hypotheses around the main axes of research: migratory flows and their association with fdi, remittances and trade. We also include a figure explaining and summarizing the stages of development of the research.

2. I find it very weird that the author(s) did not presented their empirical results in a form of Table. As a reader I cannot believe the results without reporting the coefficients and standard errors. The paper includes two tables of descriptive statistics.

Precisely, one of strengths of the research is a big number of countries of the sample. But it means tables in detail are very large, therefore we selected the main indicators, ordered and showed them as appendix, because adding all of them meant a bigger number of

tables. Also, the paper summarizes the main results in the empirical section for each hypothesis. including R-square, conditional R-square, p-values.

Thanks to the reviewer comments' we improve this paper adding further details of our methodology as supplementary file and new tables in the appendix. Also we share our dataset as guarantee that any reader can perform the same analysis and test our data.

3. Trade, remittance and FDI also include zero flows. How do the author(s) addressed this issue?

In this case, the number of zero flows has been minimal, but in any case, firstly we managed the data collection (from which we have obtained Figure 2 and 3) and perform and a data cleansing (Granquist, 1984)

also the endogeneity issue has not been addressed. Therefore, the presented results are biased.

The transformation of data correcting and modeling both the structural and the reduced form equations together (Guanyi et al., 2019; Quian et al. 2018). Also, we use the restricted (or residual, or reduced) maximum likelihood (REML) approach, that is a particular form of maximum likelihood estimation that does not base estimates on a maximum likelihood fit of all the information, but instead uses a likelihood function calculated from a transformed set of data, so that nuisance parameters have no effect. In the case of variance component estimation, the original data set is replaced by a set of contrasts calculated from the data, and the likelihood function is calculated from the probability distribution of these contrasts, according to the model for the complete data set. In particular, REML is used as a method for fitting linear mixed models. In contrast to the earlier maximum likelihood estimation, REML can produce unbiased estimates of variance and covariance parameters.<sup>1</sup>

In addition, we show results of the variance inflation factor (VIF). Such tests are included in a separated file as supplementary file.

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<sup>1</sup> Baker, R.J. (1986). Selection indices in plant breeding. CRC press: University of California  
Bartlett, M. S. (1937). Properties of Sufficiency and Statistical Tests. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences. 160 (901): 268. Bibcode:1937RSPSA.160..268B. doi:10.1098/rspa.1937.0109.  
Guanyi L., Xin D., Peng, H., Chuang, H.H. (2018), Addressing endogeneity in operations management research: Recent developments, common problems, and directions for future research, Journal of Operations Management, 64, 53-64, <https://doi.org/10.1016/j.jom.2018.10.001>.  
Patterson, H. D.; Thompson, R. (1971). Recovery of inter-block information when block sizes are unequal. Biometrika. 58 (3): 545. doi:10.1093/biomet/58.3.545.  
Qian, T., Klasnja, P. & Murphy, S. (2019). Linear mixed models under endogeneity: modeling sequential treatment effects with application to a mobile health study. Statistical Science, 1-23.  
Harville, D. A. (1977). Maximum Likelihood Approaches to Variance Component Estimation and to Related Problems. Journal of the American Statistical Association. 72 (358): 320–338. doi:10.2307/2286796.

4. For such a large number of research questions the conclusion and interpretation of results is very short and lacks convincing interpretation.

we have reviewed the paper and new literature to improve the consistency and of our approach