



JRC Contribution to Policy documents

The relationship between inequality in the origin country and emigration

Maestri, V.*

Migali, S.

Natale, F.

April 2017

Executive summary

The aim of this brief is to offer a first exploration of the relationship between inequality in countries of origin and emigration. While *inequalities between countries* – such as differences in income or employment rates - are generally regarded as drivers for emigration, the relationship between *inequalities within countries of origin* and emigration is less clear-cut. A better understanding of such link is essential to understand what sort of effects on migration flows might occur as a result of reduction in inequalities, a specific objective of the Sustainable Development Goals.

In our analysis, we find that there is a negative relationship between inequality *within the country of origin*, measured through the Gini index, and *emigration rates*. This means that a reduction in *within-country inequality* is associated with an increase in emigration, especially for middle income countries. The negative relationship can be explained by the fact that, if relatively large within-country inequalities exist, a considerable portion of the population might lack the very means to undertake a costly emigration journey. This finding, combined with the reduction in migration costs should indicate that emigration pressure is expected to increase. The tendency for an increase of emigration stemming from the reduction of within-country inequality is contrasted with an opposite tendency linked to the convergence of *global inequalities* recorded since the early 2000s which can be attributed to the economic growth in India and China.

1. Introduction

This brief illustrates the role of inequality as a driver of migration and seeks empirical evidence of the relationship between *inequality within the country of origin* and *emigration rate*.

The link between migration and inequality is complex and reciprocal. On the one hand, inequality influences migration. On the other hand, migration impacts on the income distribution both in the destination country and in the country of origin, through remittances. According to neoclassical migration theories, international migration movements are driven by between countries inequalities, such as differentials in wages, employment and economic opportunities between the origin and the destination (Massey et al., 2013). Furthermore, the seminal Borjas' theory of immigrants' selection (1987) predicts that the earnings dispersion in the origin and destination countries determine migration movements and the patterns of immigrants' selection. Besides the country-level perspective, there also exists the individual-level dimension of the migration and inequality link. In fact, the individual's propensity to migrate varies along the income distribution.

Focussing on one of the dimensions of the migration-inequality link, specifically, the impact of within origin country inequality on emigration, our analysis contributes to a better understanding of the effects of the convergence of world economies and of the changes of within country inequalities on international migration patterns.

2. Global inequality and migration

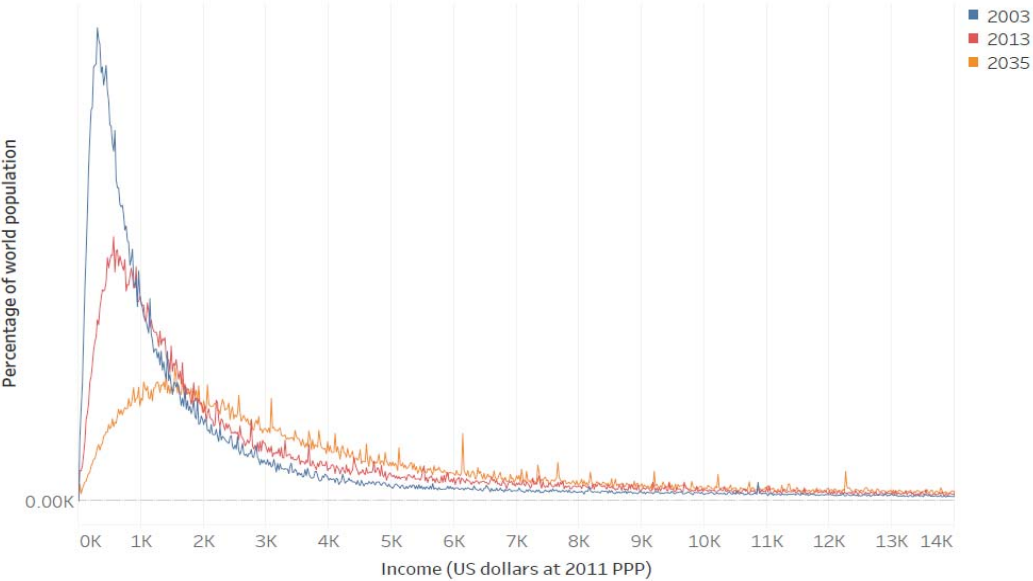
To analyse the "inequality and migration nexus", it is important to distinguish between two perspectives: the perspective of *within country inequality*, and the one of *between countries inequality*. The former refers to income differences within the population of a given country, while the latter refers to differences of the mean income between countries. According to Milanovic (2013), the "within country" one can be regarded as the part of inequality due to belonging to a specific class in a given society. Instead, the "between countries" one is related to belonging to one location or country.

The concept of global inequality merges the two dimensions of *between* and *within inequality* and it can be measured by looking at the income distribution of individuals of the world population as if they were part of a single nation (Milanovic, 2013; Lakner and Milanovic, 2016)¹. High inequality implies a skewed income distribution where a small share of the richest individuals holds most of the income. A measure of the dispersion of the income distribution is given by the Gini index, which takes the value of one in the extreme scenario when only one person owns all income in a country and of zero when income is equally distributed among all individuals. When comparing the evolution of global inequality over time several authors observe a reduction of the Gini index, which is illustrated in Figure 1. Indeed, the income distribution becomes flatter from 2003 to 2013 and also in the projection for 2035.

* Author's current affiliation: DG EMPL. This work has been carried out also at the author's previous affiliation, Dir. JRC-B Growth and Innovation, Unit B.2 Fiscal policy analysis.

¹ Specifically, when calculating global inequality, each individual is represented either by her actual income (Milanovic, 2013), or by her country-decile income (Lakner and Milanovic, 2016). It should be noticed that computing global inequality using actual individual income is data demanding. Indeed, household survey data comparable across countries are needed. This kind of data is not available for several countries (for instance most of sub-Saharan ones), hence the calculation of global inequality requires the use of alternative methods, not always reliable or precise (Milanovic, 2013). To overcome this problem, Lakner and Milanovic (2016) develop a panel database of income country-deciles from 1998 to 2008. This allows the comparison of the growth of the bottom decile of country A with the growth of the top decile of country B, thus capturing both the *between dimension* (country A vs country B) and the *within dimension* (given by the changes of inequality within any decile).

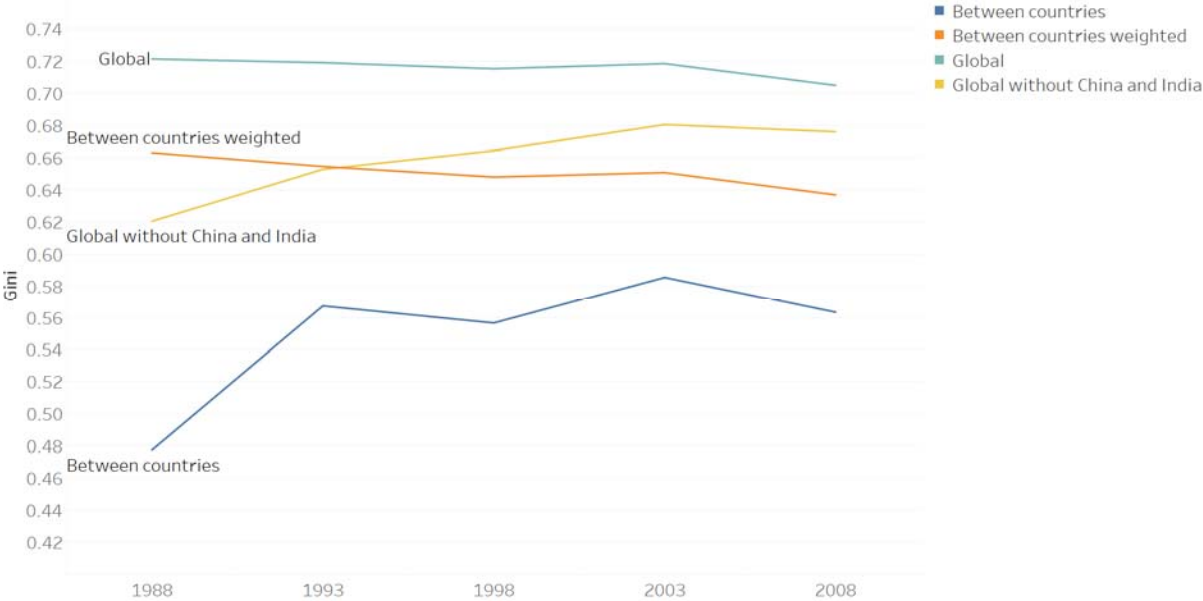
Figure 1. Global income distribution in 2003 and 2013 and projected distribution for 2035.



Notes: authors' calculation based on data from Hellebrandt and Mauro (2015).

The reduction of global inequality may result from the combined effects of convergence of economies across countries (i.e. the decline of between countries inequality), and from changes of within country inequality. Indeed, Figure 2 shows that the decrease of the Gini index between 2003 and 2008 disappears once China and India are excluded from the calculation of global inequality. The large population of these two countries implies that the economic growth recorded in their economies determines a reduction of global inequality even in the presence of increasing within and across countries inequalities elsewhere.

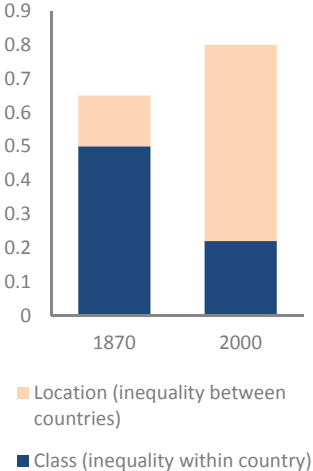
Figure 2. Different concepts of inequality and their evolution.



Notes: authors' calculation based on data from Lakner and Milanovic (2016). Between (unweighted) inequality is calculated as the mean income of a country, without taking into account the country population size. Conversely, in the between weighted inequality, the mean income is weighted with the size of the country population.

An important finding of Milanovic's analysis (2013) is that while global inequality in the nineteenth century was mainly due to differences between classes, in the twenty-first century the "location" component explains most of the differences in incomes (Figure 3). The "class" versus "location" distinction suggests that people in poor countries have more incentives to improve their income level through emigration with respect to the situation in the nineteenth century, rather than through changes in class within their own country. A research question that remains unanswered is why it is that despite this strong pressure for migration according to economic theory, the number of migrants is still confined to the rather low share of 3.2% of world population.

Figure 3. Income inequality within (class) and between (location) countries in 1870 and 2000.



Notes: authors' calculation based on Milanovic (2013). The composition of global inequality is based on the Theil index.

3. Empirical analysis: within country inequality and migration

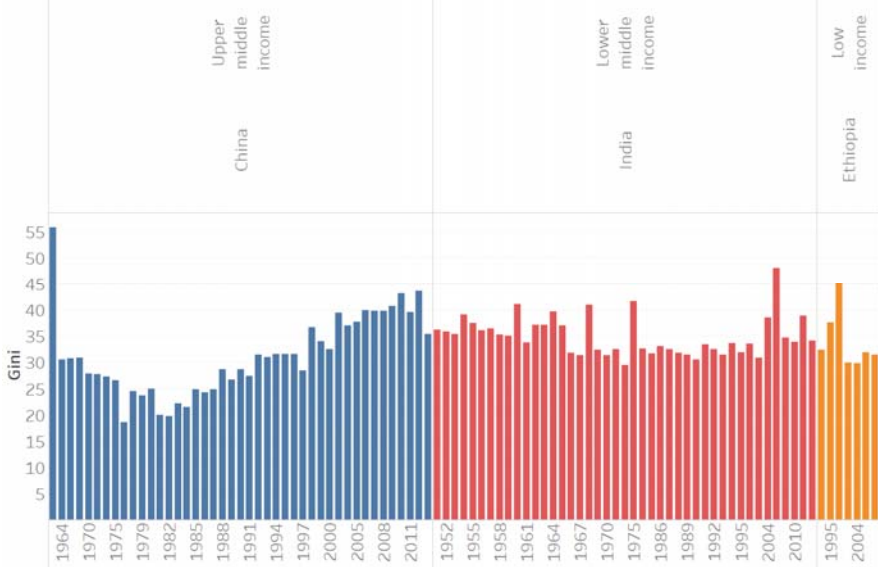
After having described the general trend of global inequality, we focus on the specific relation between *inequality within the origin country* and *emigration*, considered in isolation from the other interactions between migration and inequality. There are several reasons for restricting attention to such a specific relation. First, the complexity of the issue requires the adoption of a "partial" perspective to ease the analysis of the phenomenon. This comes at the cost of not being able to isolate the causal relationship between inequality and migration, but simply a correlation (indeed, as mentioned in the introduction, the opposite relation – i.e. the influence of migration on inequality, may exist). Second and most important, the study of income inequality within the migration sending country is relevant for its medium-term policy implications reflected in the specific Sustainable Development Goal (SDG 10) targeted at reducing inequality.

The analysis is based on UNDESA migration stock data and on Gini index data (the most recent and comparable sources of data on Gini index are used, as detailed in Table 1 below. Figure 4 below plots the evolution over time of within country inequality for selected countries). We analyse empirically the relation between inequality in the country of origin and emigration rate through the model described in Table 1. The results reveal that **there is a negative relationship between the within origin country inequality and the emigration rates**. In other words, high levels of within country inequality are associated with low emigration rates.

One possible explanation of this preliminary finding could be that high within origin inequality limits the possibilities of the large part of the population to migrate. Hence, inequality may be seen as an additional variable to explain the poverty trap effect for the medium income class, which is not necessarily captured by the average GDP per capita of

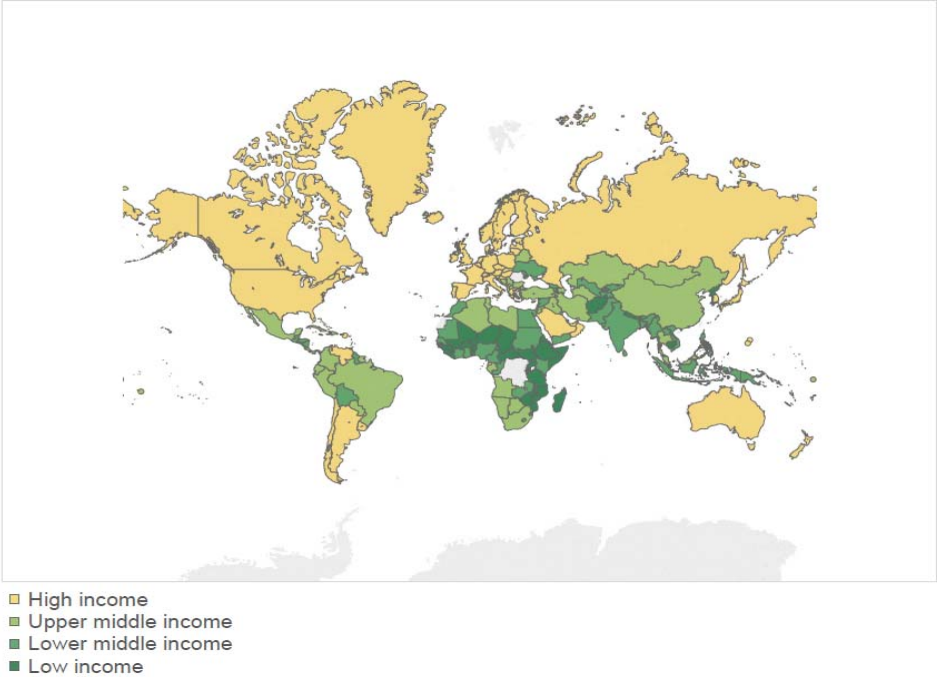
the country of origin or by poverty rates. Indeed, the negative relationship seems to be guided by the *upper-middle-income* economies (i.e. the ones where individuals are not too poor to move abroad -differently from the low-income economies- but who might still encounter financial constraints to migrate (see in Figure 6 the countries' income-level and in Figure 7 the emigration stocks from origin countries, grouped by income-level).

Figure 4. Within country inequality for selected countries, by income-level groups.



Notes: evolution of within country inequality in selected countries. Authors' calculation using Gini index from UNU-WIDER Database (2017).

Figure 6. Countries according to their income-level.



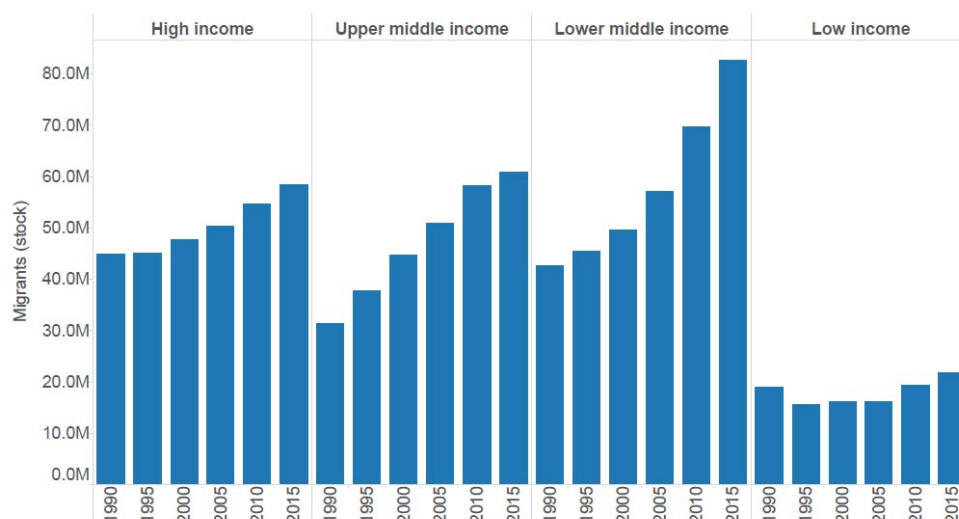
Notes: authors' elaboration based on the World Bank country classification by income level.

Table 1. Empirical analysis: within country inequality and migration

<i>Model</i>	$\ln(\text{Emigr rate}_{ot}) = \beta \ln(\text{Ineq}_{ot}) + \gamma \ln(X_{ot}) + \varepsilon_{ot}$
<i>Variables</i>	<p>Emigr rate_{ot}: ratio between stocks of emigrants from origin o (to all destinations d included in the sample) at time t, and population of the origin country at time t.</p> <p>Ineq_{ot}: Gini index of origin country, at time t (calculated as the average of the Gini from t-5 to t).</p> <p>X_{ot}: controls for the origin country economic characteristics (averaged from t-5 to t), such as GDP per capita, unemployment rate, population growth, government expenditure on education.</p>
<i>Main sample</i>	<p>Countries: emigration rates from 231 origin countries.</p> <p>Time: from 1990 to 2015, with 5-years frequency.</p>
<i>Alternative samples</i>	<p>Countries: emigration rates: origin countries split according to the income-level² (see Figure 6 for the income-level groups).</p> <p>Time: from 1990 to 2015, with 5-years frequency.</p>
<i>Data sources</i>	<p>Migration data: UNDESA (bilateral stocks of immigrants by country of birth, 5-years frequency).</p> <p>Gini Index: different sources (each of them used separately to estimate the model):</p> <ul style="list-style-type: none"> • <i>World Income Inequality Database-WIID, Version 3.4</i> (UNU-WIDER, 2017); • <i>Standardized World Income Inequality Database- SWIID, Version 5.1</i> (Solt, 2016); • <i>All Ginis Database</i> (Milanovic, 2014). <p>Other variables: World Bank.</p>
<i>Main Finding</i>	<p>Using main sample: the Gini Index of the origin country (independently of the data source used for the Gini), is negatively correlated with the emigration rate. This relationship disappears when controlling for the growth of the population in the origin country.</p> <p>Using alternative samples: when splitting the sample into macro regions by income-level, the negative correlation between the Gini index and the emigration rate remains significant for the upper-middle-income economies and for the high-income economies (though not in all specifications for the latter case). As before, this relationship disappears when controlling for the growth of the population in the origin country.</p>
<i>Data limitations</i>	<p>Gini Index:</p> <ul style="list-style-type: none"> • Incomplete coverage in terms of countries and time; • Different definitions of the Gini are included in the mentioned databases (i.e. Gini calculated on consumption, on disposable income, on gross income). Different data sources, methodology, units of analysis are used to define Gini index (for details on the pros and cons of each of the databases, please see Milanovic, 2014; Solt, 2016; UNU-WIDER, 2017).

Figure 7. Evolution of the emigrants (in millions). Countries of origin grouped by income-level.

²The sample of origin countries is split into sub-samples according to income-level groups, as defined by the World Bank: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>.



Notes: authors' elaboration based on UNDESA data on migrant stocks.

4. Policy implications and conclusions

Understanding the link between inequality and migration is crucial in the context of *Sustainable Development Goal 10*, which is aimed at *reducing inequality within and among countries*. How are migration movements expected to evolve as a result of changing inequalities? The following considerations would indicate that migratory pressure might increase:

1. the analysis of global inequality reveals that there is a decisive and greater role for **location** in determining individual income. This fact, combined with the reduction of migration costs associated with globalization, should increase the incentives to migrate;
2. convergence of global inequality, albeit not particularly strong (OECD, 2016) is taking place mainly through economic growth of China and India. When excluding these economies both global and between inequalities are still high and diverging. The persisting, though decreasing, gaps between countries should still foster the incentives to migrate;
3. according to our empirical analysis, a decrease in inequality within the sending country may still produce an increase of the emigration rate by freeing a large share of population from the poverty trap - even for middle income classes.

These considerations pose a puzzle. Indeed, they seem to contrast with the fact that migration involves 3.2% of total world population. Hence, we need to better understand why despite all these conditions possibly favouring migration movements, the world is still experiencing relatively low migration. Moreover, the push and pull model of migration should also consider other elements such as admission policies, different stages of mobility, or developing countries demographic transition. All these factors may act as barriers, limiting actual migration movements.

Finally, it needs to be noted that despite recent efforts to increase both the comparability and the coverage of Gini indexes (Solt 2014), especially for medium and low income countries, data limitations still exist and thus require a cautious interpretation of the result. As already stressed previously, given the difficulty to identify the causal link between inequality and migration, the finding is about a correlation, which needs to be further explored. For instance, it could be analysed whether this relationship is confirmed when using migration data by education level or by migration reason including through the use of better migration flows data at the international level. A more disaggregated analysis could also be performed, looking at emigration rate toward EU destinations only.

References:

- Borjas, G. J. (1987). Self-Selection and the Earnings of Immigrants. *The American Economic Review*, 531-553.
- Hellebrandt, T., & Mauro, P. (2015). The Future of Worldwide Income Distribution.
- Lakner, C., & Milanovic, B. (2016). Global Income Distribution: From the Fall of the Berlin Wall to the Great Recession. *World Bank Economic Review*, 30(2), 203-232.
- Mayda, A. M. (2010). International migration: A panel data analysis of the determinants of bilateral flows. *Journal of Population Economics*, 23(4), 1249-1274.
- Massey, D. S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A., & Taylor, J. E. (1993). Theories of international migration: A review and appraisal. *Population and development review*, 431-466.
- Milanovic, B. (2013). Global income inequality in numbers: In history and now. *Global policy*, 4(2), 198-208.
- Milanovic, B. (2014). Description of All the Ginis dataset. *New York: Luxembourg Income Study. November.*
- OECD (2016), *Perspectives on Global Development 2017: International Migration in a Shifting World*, OECD Publishing, Paris.
- Solt, F. (2016). The standardized world income inequality database. *Social science quarterly*, 97(5), 1267-1281.
- UNU-WIDER (2017), 'World Income Inequality Database (WIID3.4)'.

JRC Mission

As the science and knowledge service of the European Commission, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle.



EU Science Hub
ec.europa.eu/jrc



@EU_ScienceHub



EU Science Hub - Joint Research Centre



Joint Research Centre



EU Science Hub