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The Role of Internal and International Relative Deprivation in Global Migration

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MATHIAS CZAIKA & HEIN DE HAAS

ABSTRACT   *This paper explores the role of internal (within country) and international (bilateral and global) relative and absolute deprivation in international migration. It is argued that these three forms of relative deprivation need to be taken into account simultaneously to advance our theoretical understanding of the complex drivers of migration processes. Empirical analysis based on a large sample of bilateral migrant stock data suggests that absolute deprivation constrains emigration, while international relative deprivation and internal relative deprivation in destination countries may increase migration. The effect of internal relative deprivation in origin countries seems small and somewhat ambiguous. The results highlight the complex and potentially counter-intuitive ways in which relative and absolute deprivation may affect migration. This paper suggests that it would be unfounded to expect that decreases in international and internal relative deprivation combined with reductions in absolute deprivation would lead to a significant decline in the volume of international migration.*

1. Introduction

International migration is often seen primarily as a function of income differentials between countries. The underlying idea is that, as a result of these differences, people feel relatively deprived, and start aspiring to migrate as a means of improving their socio-economic status. Although there can be no doubt that this factor matters a great deal, a brief glance at global migration patterns reveals that migration cannot be understood satisfactorily in terms of this factor alone. It is hardly surprising that most migrants move from countries with lower average income levels to those with higher average income levels. Although the truism holds that most people move in search of better lives, and although much migration does indeed occur from comparatively poorer to comparatively wealthier countries, the largest flows do not typically occur along the largest income gradients. Furthermore, the poorest countries do not typically have the largest emigration flows. Finally, significant reverse migration occurs from wealthier to poorer countries and between countries with similar average levels of development.

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The complex and sometimes counter-intuitive character of international migration patterns can only be explained satisfactorily if we go beyond a comparison of country averages in GDP per capita or some other income measure. We can do this in two ways. First, it is important to broaden our view from income to opportunity differentials. Potential migrants are also likely to consider factors other than expected income gains and lifetime earnings in a variety of geographical locations. These factors are likely to include perceived and real differentials in security from violence, political stability, and political and civic freedoms, as well as social security and the quality and costs of education, health care and public services. This shows that we must simultaneously consider other important development indicators, which are also likely to shape migration behaviour (de Haas, 2010). Based on the capabilities approach by Sen (1999), we can argue that, taken together, all these factors will determine the extent to which people can enjoy substantive freedoms to live the lives they have reason to value. It would, therefore, be more appropriate to represent migration as a basic response to perceived *opportunity* differentials. Jointly, these factors shape opportunity structures in potential migration origins and destinations. Furthermore, flows of information will shape people's awareness and perceptions about opportunity differentials in their current country of residence and a limited range of potential destination countries, which will subsequently shape their migration aspirations, intentions and, eventually, behaviour.

Second, it is important to go beyond comparing country averages in relative levels of income and development by assessing the *internal* structures of societies, economies and labour markets in origin and destination countries, and investigating how they jointly shape migration flows. Here, two crucial factors are the structure and segmentation of labour markets as well as internal economic inequality and the resulting relative deprivation. Both factors are recognized in the literature as playing a major role in driving migration, but are not often systematically incorporated into empirical tests of international migration processes. In addition to international income and other opportunity differentials, we simultaneously need to take into consideration: (1) how cross-country differences in the structure and segmentation of labour markets and skill profiles of populations affect migration levels; (2) how relative deprivation of social groups (a) within a country and (b) in comparison with other countries affects migration levels and, last but not least; (3) how absolute deprivation, or poverty and the lack of other (e.g. political) freedoms, might *constrain* people from migrating. This paper explores how these three forms of deprivation may simultaneously affect international migration processes.

2. Background

Labour market segmentation and increasing levels of educational and occupational specialization partly explain why we can expect significant labour migration within and between countries even in the absence of income differences. Labour markets are not homogeneous but are typically segmented (Piore, 1979; Massey *et al.*, 1993; Castles & Miller, 2009). The level of complexity and segmentation and the geographical coverage of labour markets tend to increase with the level of economic development, a process which is also closely associated with concomitant increases in educational levels and occupational specialization (de Haas, 2009). This drives people to migrate, mainly within but also across national borders to optimize the match between skills and labour market

demand. Within a neoclassical framework, and if we consider migration as a human capital investment (Becker, 1962; Sjaastad, 1962), migration decisions will be guided by people's perceptions of the present discounted value of lifetime monetary and non-monetary benefits in other geographic locations. People are then expected to migrate when they assess that the lifetime benefits of migrating outweigh the costs of the migration investment. Apart from social, cultural and life cycle factors, this partly explains why migration is more common among younger and more educated people. Younger migrants have longer periods over which to reap the returns on their migration investment. In addition, more specialized professions requiring a higher level of education appeal to geographically larger labour markets. For instance, while the labour markets for medical doctors and academics are more often national and international, those for factory workers or cashiers tend to be more local or regional.

In particular, migration economists have explored the role of income inequality and relative deprivation of particular groups in origin countries in determining individual propensities to migrate. The new economics of labour migration (NELM; Stark, 1984; Stark & Taylor, 1991) identified relative deprivation as one of the main motives for migration, arguing that a major difference between the relative deprivation approach and the welfare function approach is that, in the utility approach, the marginal utility of income is a function of income alone and hence does not depend on the income of others (Stark & Yitzhaki, 1988). The NELM questioned the idea that income has a constant effect on utility (and well-being) across socio-economic settings—that a set increase in income means the same thing to a person regardless of his or her position in the income distribution (Stark & Yitzhaki, 1988; Stark *et al.*, 1988; Stark & Taylor, 1991; Massey *et al.*, 1993).

Thus, NELM hypothesizes that people and households migrate not only to improve income in absolute terms, but also to increase income *relative* to other households. Stark, in particular, has argued that migration propensities will be positively correlated with inequality in the origin societies, and negatively correlated with inequality in the destination societies. A number of micro-level empirical tests have confirmed the hypothesis that relative deprivation in sending countries increase migration propensities in sending communities (Stark & Taylor, 1989, 1991; Bhandari, 2004; Quinn, 2006).

However, it is important to note that relative deprivation is only likely to play a significant role in explaining migration if the returns on migration are high and if the income reference group substitution (from the origin to the destination society) is unlikely (Stark & Taylor, 1991). As long as transnational ties remain strong and migrants remain focused on origin communities, the main reference group is likely to be the origin community. This is an important explanation for the fact that migrants are willing to accept low-paid "dangerous, dirty and demeaning" jobs that natives typically refuse. Although income earned by migrants in low-skilled and often irregular jobs in construction, agriculture, industry or domestic work is low by Western standards, it is often many times what migrants would have been able to earn in origin countries, substantially raising their socio-economic status in origin communities (cf. McKenzie & Gibson, 2010). As long as the origin community or society remains the main reference group, migrants will be willing to perform low-paid work that is downgrading in the eyes of natives.

We can also hypothesize that low-skilled migrants from "traditional" rural areas are more likely to consider origin communities as their main reference group than more highly

skilled and comparatively wealthier migrants, who are less relatively deprived in the first place, and for whom reference group substitution is likely to occur more quickly as they integrate more easily. However, in the long term, reference substitution is also likely to take place for lower skilled and culturally more distinct migrants, which explains why the second generation often refuses to do the jobs their parents would have accepted.

So far, the literature has considered the role of international income and other opportunity differentials separately from the role of relative deprivation within origin communities. Survey-based empirical tests focus on the effect of relative deprivation *within* sending communities and internal (Bhandari, 2004; Quinn, 2006) or international migration to one particular destination country (Stark & Taylor, 1989, 1991). While these studies have yielded extremely valuable insights, their micro-level focus implies that they cannot *simultaneously* study the effect of relative deprivation on migration propensities between and within sending and receiving locations.

This is unfortunate as both forms of inequality can be considered as forms of relative deprivation and, in the same vein, it seems somewhat unrealistic to assume that reference groups are situated either in the origin or destination country. It seems reasonable to assume that most migrants maintain social ties in both origin and destination countries and therefore can have multiple reference groups in both societies. To bring more precision to the debate, we aim to go beyond the observation that both forms of relative deprivation, as well as absolute deprivation, play a "certain" but unspecified role, by developing hypotheses on their specific role and relative importance.

To increase our understanding of the complex role played by relative deprivation in migration, it seems useful to make an analytical distinction between *internal* (within country) and *international* (between countries or within global national income rankings) relative deprivation and to simultaneously explore their roles in international migration. Depending on the unit of analysis, internal relative deprivation refers to the position that individuals or income groups have within the income distribution of their sending communities and countries, respectively. Bilateral relative deprivation refers to the position of individuals or income groups in the origin country with respect to the income distribution of the (potential) destination country. The crucial point is that internal and international relative deprivation can be assumed to play their roles *simultaneously* and also to reinforce each other. However, their relative effects on migration are likely to differ across different income groups.

We can also hypothesize that migration would still occur even without international relative deprivation because of internal relative deprivation, and vice versa. This means that international relative deprivation facilitates international migration, but it is not a necessary condition for it to occur. Groups that feel internally deprived could still be expected to migrate even in a (very hypothetical) world without international relative deprivation, that is, where all countries have identical average income or development levels. Similarly, internal relative deprivation is conducive to emigration, although it is not a necessary condition for inducing migration. If the relative income distributions of all countries in the world were similar, migration would continue as long as international relative deprivation persisted. Obviously, this ignores non-economic migration determinants and those related to the labour market structure. Beyond these separate effects, we can expect that internal and international relative deprivation will be positively interlinked, leading to the "double deprivation" of individuals in lower income cohorts, and can therefore be expected to reinforce each other.

To achieve a comprehensive account of the role of deprivation in migration and a methodologically valid way of assessing the specific role of relative deprivation, we also need to integrate *absolute* deprivation (or poverty) into the analysis. It is well established that absolute deprivation in the form of absolute income poverty and deprivation of other substantive freedoms constrain people from moving, particularly internationally. This is particularly likely to play a constraining role in very poor countries. For instance, a recent survey in Burkina Faso indicated that long-distance international migration, which generally involves high costs and risks, is mainly accessible for relatively wealthy households (Wouterse, 2008). In addition, education can initially spur migration. The highly educated have greater capabilities ("human capital") and access to technology (e.g. job websites) enabling them to explore employment and general livelihood opportunities (e.g. education, health care and social security) in other places and other countries. Educated migrants are also likely to have a greater capacity to adapt to receiving societies.

In addition, we can hypothesize that education brings with it a broadening of "mental horizons" and changing concepts of the "good life", increasing life aspirations. As long as such aspirations among populations rise more quickly than improvements in socio-economic conditions in origin countries would allow them to achieve these aspirations, we can hypothesize that this will increase aspirations to migrate to better match aspirations with concrete possibilities for personal advancement (de Haas, 2010). Migrants are therefore also likely to go to places and countries that offer not only the best instantaneous advantages, for instance in the form of better wages, but also the best opportunities for upward socio-economic mobility for them and their children. This might attract (particularly skilled) migrants to countries with high levels of inequality, where higher returns on human capital and business investments may be expected. This may also partly reflect the fact that such countries tend to have more flexible and deregulated labour markets, which can facilitate labour market insertion of migrants and reduce the likelihood of their long-term unemployment. On the other hand, unequal societies may also have low levels of intergenerational economic mobility between and across social groups and classes as well as less developed public services, such as education and health care, rendering the net effect theoretically ambiguous.

These factors can explain the paradox that social and economic development in the poorest countries tends to coincide with increasing emigration, as increases in income, education and individual freedoms tend to loosen constraints on movement while simultaneously increasing migration aspirations. As long as significant origin–destination opportunity gaps remain, this kind of "take-off emigration" will result. According to the relative deprivation theory, if development coincides with increasing income inequality in countries of origin, not only will new migration processes be created, but long-established processes will also be spurred even more.[1]

The application of a capabilities framework to the analysis of migration might also help us explain the, perhaps counter-intuitive, finding that a lack of political freedoms appears to be *negatively* associated with emigration rates (de Haas, 2010). Although political repression is likely to increase migration *aspirations*, repression also tends to coincide with higher emigration restrictions such as exit visas and financial and bureaucratic obstacles to obtaining passports (McKenzie, 2007), which decrease *capabilities* to migrate, and the latter effect may be stronger than the former (de Haas, 2010). Autocratic

states tend to have a higher capability to constrain emigration than democratic states, as freedom of emigration is a fundamental human right.

In summary, we can hypothesize that, alongside other migration determinants: (1) internal and (2) international relative deprivation as well as (3) absolute deprivation all play a significant role in explaining international migration. We can only properly assess their roles if these three forms of deprivation are *simultaneously* taken into account. The crux is that while they are obviously interrelated, the different forms of relative and absolute deprivation might theoretically have contradictory effects on migration, which partly explains why international migration is rarely a mere function of distance and income (or other opportunity) differences, and indicates that these different dimensions of deprivation can rather have counter-intuitive effects on migration. For instance, while increasing within-country inequality might increase relative deprivation and, hence, migration aspirations among the poor, if this occurs alongside increasing absolute poverty, they might actually be less capable of moving internationally. At the same time, increasing absolute poverty is also likely to coincide with increasing international deprivation, potentially raising aspirations further. So, the question remains: what is the precise role played by these three forms of deprivation in explaining international migration, what is their relative weight and how do they interact?

The empirical part of this paper will further explore the role of internal and international relative deprivation in international migration by analysing migration data drawn from the World Bank/University of Sussex *Global Migrant Origin Database*. By doing so, we aim to start to fill this particular gap in the literature and hopefully this will inspire future studies using improved, longitudinal data. While most analyses of relative deprivation and migration have drawn on micro-level survey data, they have largely remained separate from macro-level analyses of the determinants of international migration that focus on average income gaps (Liebig & Sousa-Poza, 2004; Stark *et al.*, 2009). Unfortunately, such studies do not generally take into account income distributions within *and* across countries as proxies of relative deprivation. To our knowledge, there are no empirical studies that *simultaneously* consider the role of internal (within countries) and international (between countries) relative deprivation as well as absolute deprivation. There is no empirical work that systematically explores the effects of relative deprivation at the national level on aggregate outflows and inflows as well as bilateral (country-to-country) flows for a global cross section of countries.

The initial tests of the relative deprivation hypothesis by Stark & Taylor (1989, 1991) are survey-based, micro-level tests of the role of relative deprivation at the community level, whereas this test focuses on relative deprivation at the country macro-level. This limits the comparability of these two types of tests. However, different results of community- and national-level relative deprivation are not necessarily incompatible or logically inconsistent. Ideally, one would like to simultaneously test the effects of community- and country-level forms of relative deprivation. This would require uniform survey data sets across a wide range of countries, which are unfortunately not available. In addition, the cross-sectional nature of the data prevents us from making firm causal inferences. Future improvements in historical migration and longitudinal inequality data will hopefully enable us to compile panel data sets to further explore the role of relative deprivation in international migration processes.

3. Empirical Analysis

3.1 Methodology and Data

The availability of the unique large-scale *Global Migrant Origin Database*, compiled by the University of Sussex and the World Bank, makes the following empirical analysis possible. This database contains bilateral (dyadic) migration stock estimates for 226 countries and overseas territories, derived from the bilateral migration matrix created by the University of Sussex (Parsons *et al.*, 2005). This original database not only uses data primarily from national censuses around the year 2000, but also from population registers and some other secondary sources, to compile bilateral stock data for 162 countries. For the remaining 64 countries, for which censuses were not available or had no relevant information, bilateral stocks were estimated and later updated (Ratha & Shaw, 2007). In the following, we use the last available version of the database.[2]

These data reflect the bilateral stocks of migrants around the year 2000. This approximates to net bilateral flows of migrants over the preceding one to two decades and is therefore an appropriate proxy for long-term past trends of bilateral migration. On the basis of this bilateral migration matrix, we use two alternative compilations of the migration stock variables: first, we calculate total emigration stocks (total numbers of origin-born living abroad) for all 226 countries and, second, bilateral migration stocks, for each country pair. However, constraints on the availability of data for some independent variables allow us to include only a maximum of 177 countries in our analysis of total emigrant stock, and about 144 countries for bilateral migration stock, generating about 20 000 observations.

Our main aim is to identify the relevance of internal and international relative deprivation as determinants of global migration patterns. For this purpose we construct three different measures of relative deprivation, which are distinct in their definition of the comparative reference group.[3] The concept of relative deprivation was originally developed for individuals perceiving deprivation with respect to other members of their reference group such as the village community or social group—and this is also the level at which Stark & Taylor (1989, 1991) situated their analysis. This paper applies the concept of relative deprivation to a country's total population as well as to each of a country's five income quintiles. We assume for each individual of an income quintile the same income per capita according to the quintile's average income. We further assume that an individual perceives "relative deprivation" with respect to individuals belonging to higher income quintiles either within the same country or with respect to individuals with a higher per capita income (in purchasing power parity; PPP) in other, potential destination, countries.[4] We therefore modify the original definition of relative deprivation by assuming that individuals experience *internal* relative deprivation if they do not belong to the wealthiest quintile of that country; the level of relative deprivation is determined by the mean excess income of all higher income quintiles.

We define *international* relative deprivation on a global level as well as on a bilateral level. On the global level, a country (i.e. its entire population) is relatively deprived if the average income per capita is lower than that of the richest country in the world (which is Bermuda in our data set). The level of global relative deprivation of a country is calculated as the share of world population living in countries with a higher per capita income times the population-weighted mean excess income of this wealthier part of the world population.

According to our definition, bilateral relative deprivation only exists if the income per capita in the top income quintile of the sending country is lower than the income per capita

of the top income quintile in the destination country. We calculate the level of bilateral relative deprivation for each income quintile of the sending country as the share of the destination country's population with a comparatively higher quintile income per capita times the mean excess income per capita of these richer income quintiles in the destination country. Consequently, the level of bilateral relative deprivation of each income quintile in a sending country depends on the share of population in the destination country with higher incomes than they have and their respective mean excess income.

All measures of relative deprivation are thus calculations based on (accumulated) income gaps across internal or bilateral quintile cohorts. The World Bank (2009) provides measures on income inequality, i.e. Gini coefficients and income shares per population quintile, for about 150 countries. However, these data are not available on an annual basis—for the 1990s, there are on average only 1.7 observations per country. We have therefore calculated averages of quintile-specific income levels for the 1990s, i.e. the decade preceding the time when censuses on migration stocks (around 2000) took place, by multiplying for each income quintile the relative GDP shares by a country's GDP per capita, measured in constant 2005 US dollars and at PPP. In this way, we have attempted to incorporate a time lag in our analysis. However, the cross-sectional nature of the data and the fact that migrant stocks reflect past migration prevent us from drawing firm causal inferences.

In our analysis of total emigration stocks, the two measures capturing global and internal relative deprivation are specified as follows. First, the level of *Global Relative Deprivation* of country i, RD_i^{global}, is based on a comparison of its per capita income $\bar{y}_i$ with countries with a higher per capita income according to the following formula:

$$RD_i^{global} = \int_{\bar{y}_i}^{\bar{y}^{\max}} [1 - F(z)]dz = [1 - F(\bar{y}_i)] \cdot E(z - \bar{y}_i | z > \bar{y}_i) \tag{1}$$

This measure defines country i's level of relative deprivation as the share of world population living in countries with a higher income per capita than that of country i times the (population weighted) mean excess income per capita of these richer countries. This means that the global level of relative deprivation of a country decreases if, *ceteris paribus*: (1) this country improves its rank on a global income per capita scale; (2) the average income gap with respect to the wealthier countries declines; or (3) the share of world population living in wealthier countries diminishes.

Second, *Internal Relative Deprivation*, $RD_{qi}^{internal}$, is calculated separately for all five income quintiles $q = \{1, \ldots, 5\}$ based on the respective mean quintile income $\bar{y}_{qi}$ in country i:

$$RD_{qi}^{internal} = \int_{\bar{y}_{qi}}^{\bar{y}_{si}} [1 - F(z)]dz = [1 - F(\bar{y}_{qi})] \cdot E(z - \bar{y}_{qi} | z > \bar{y}_{qi}) \tag{2}$$

This specification yields the level of relative deprivation for each income quintile in country i with respect to the country's population. Internal relative deprivation of income quintile q is calculated as the share of the country's population that is wealthier than this income quintile (i.e. 0% for the wealthiest quintile and 80% for the poorest income quintile) times the mean excess income per capita of the wealthier income quintiles. Internal relative deprivation of individuals decreases if the total income gap between the average income of the quintile to which they belong and all higher income quintiles

declines. According to this definition, individuals in the highest income quintile are not internally deprived. In addition, we calculate the level of *Total Internal Relative Deprivation*, RD_i^{total}, as the aggregation of internal relative deprivation across all five income quintiles (i.e. across the total population):

$$RD_i^{total} = \sum_{q=1}^{5} RD_{qi}^{internal} \tag{3}$$

This measure of total internal relative deprivation proxies the overall degree of income inequality within a country and is distinct from alternative inequality measures such as the Gini coefficient.[5]

For our fourth measure of relative deprivation, *Bilateral Relative Deprivation*, we determine the level of relative deprivation of each income quintile in sending country i with respect to the income levels and distribution in destination country j. Therefore, the level of bilateral relative deprivation of income quintile q in country i, $RD_{qi}^{bilateral}$ is calculated as the share of the population in destination country j that has a higher income per capita than the respective income quintile in the origin country i times the mean excess income per capita of the wealthier income quintiles in the destination country j:

$$RD_{qi}^{bilateral} = [1 - F(\bar{y}_{qj})] \cdot E(\bar{y}_{qj} - \bar{y}_{qi} | \bar{y}_{qj} > \bar{y}_{qi}) \tag{4}$$

Hence, the level of bilateral relative deprivation of an income quintile in the origin country decreases, if, *ceteris paribus*: (1) the share of the population in the destination country with a higher income decreases; or (2) the average income gap between the origin country's income quintile and all wealthier income quintiles in the destination country decreases.

Our analysis of the different types of relative deprivation also includes the levels of absolute deprivation. Instead of controlling for this by using absolute GDP per capita levels alone, we use the UNDP's broader human development index (HDI) as a composite indicator reflecting absolute deprivation in the dimensions of health (life expectancy at birth), educational attainment (literacy) and living standards (income per capita). We expect this to have a positive effect on total and bilateral migration stocks; the easing of resource constraints as a result of the availability of human and physical capital is well established in the migration literature (Martin & Straubhaar, 2002) and, as we argued earlier, education and improved access to information are also initially likely to increase migration aspirations in various ways.

In addition, we explore the role of the human rights situation in terms of violations of the rights to physical or personal integrity perpetrated by a state or its agents (Wood & Gibney, 2010), which can be considered as an important non-economic form of deprivation. This is expected to be an important driver of forced emigration from fragile and failed states. On the other hand, disrespect for such human rights might also impede people from moving out, which makes the effect potentially ambiguous. For instance, autocratic states quite often impose exit visas or limit the issuing of passports. We use annual data provided by the *Political Terror Scale* (PTS) and calculate a 10-year average for the 1990s.[6] The PTS distinguishes five levels of political terror and violence ranging from "Countries under a secure rule of law, people are not imprisoned for their views, and torture is rare or exceptional. Political murders are extremely rare." (level 1) to "Terror

has expanded to the whole population. The leaders of these societies place no limits on the means or thoroughness with which they pursue personal or ideological goals." (level 5).

For the bilateral stock regression models, we use three different types of dyadic variables that control for different dimensions of a bilateral relationship. First, geographical *Distance*, defined as the distance in kilometres between the two capital cities measured using the great circle formula (Mayer & Zignago, 2006). It captures the effect of increasing travel costs and decreasing flows of migration-relevant information, and thus people, with the increasing distance between source and destination countries. Furthermore, we expect higher bilateral stocks of migrants when two countries have had a colonial relationship for a significant period of time including substantial participation of the (former) colonizer in the governance of the colonized country (Mayer & Zignago, 2006).[7] A positive effect of former colonial ties is expected for both sides of this dyadic relationship, as such countries are more likely to have cultural, linguistic and religious ties, as well as institutional and economic links through trade, investment, military and development cooperation, and also past migration.

Third, we control for contiguity by using a dummy variable set to 1 if the two countries share a *Common border*. Data for these three bilateral variables stem from the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII).[8] Fourth, from the same source we retrieved the data for the geographical *Country size* measured in square kilometres.[9] Finally, and since we are estimating gross migration stock, we have to control for population in both sending and receiving countries. Obviously, this variable accounts for a large proportion of the variance in the migration flows. As Kim & Cohen (2010) observe, the population might be highly correlated with geographical country size for both origin and destination countries. We check for collinearity among the independent variables by calculating variance inflation factors (VIFs), which reveal that the mean VIFs do not exceed 4, and none of the independent variables has a VIF above 8. Consequently, we do not consider multi-collinearity to be a serious concern in all model specifications.

We test two types of empirical models, both of which are log-linear. First, the model specifications on total emigration stocks include the following independent variables:

$$\ln(M_i) = \beta_0 + \beta_1 \ln(Global\,RD_i) + \beta_2(Total\,Internal\,RD_i)$$
$$+ \beta_{3q} \ln(Quintile\,Internal\,RD_i) + \beta_4(Political\,terror_i) + \beta_5 HDI_i$$
$$+ \beta_6 Country\,size_i + \beta_7 \ln(Population_i) + \varepsilon_i$$

Second, we adjust and extend this model on total migration stocks by adding some variables that might have a particular influence on the bilateral migration pattern:

$$\ln(M_{ij}) = \beta_0 + \beta_{1q} \ln(Quintile\,Internal\,RD_i) + \beta_{2q} \ln(Quintile\,Bilateral\,RD_{ij})$$
$$+ \beta_3\,Political\,terror_i + \beta_4 Political\,terror_j + \beta_5 HDI_i + \beta_6 HDI$$
$$+ \beta_7 Country\,size_i + \beta_8 Country\,size_j + \beta_9 \ln(Population_i)$$
$$+ \beta_{10}\ln(Population_j) + \beta_{11}Distance_{ij} + \beta_{12}Colony_{ij}$$
$$+ \beta_{11}Common\,border_{ij} + \varepsilon_{ij}$$

where the origin country *i* and the destination country *j* are identified by subscripts. In the

following section, we present the results and an interpretation of the effects of the different types of relative deprivation on global migration patterns.

4. Results

Table 1 reports the results for the total emigration model, while Table 2 displays the specifications of the bilateral migration model. The results suggest that relative deprivation plays a somewhat ambiguous role in both types of migration stock aggregations. We find that countries with higher levels of human development have larger emigrant stocks, giving support to the hypothesis that reductions in absolute deprivation may release constraints on outward mobility and that more developed societies are generally more migratory. We also find that global relative deprivation has a positive effect, but this effect is comparatively small[10] and insignificant in the model specifications where relative internal deprivation is included. This seems to indicate that global relative deprivation is an abstract concept that does not register in people's real-life imaginations. In other words, it is less likely that people migrate because of their relative deprivation vis-à-vis the wealthier "rest of the

Table 1. Log-linear estimation: relative deprivation and total emigration

DV IV	Total emigration					
	(1)	(2)	(3)	(4)	(5)	(6)
Global RD	0.119*	0.092	0.074	0.086	0.088	0.095
	(1.66)	(0.82)	(0.65)	(0.77)	(0.80)	(0.89)
Total internal RD		−0.331*				
		(1.73)				
Internal RD (1st Q)			−0.380*			
			(1.88)			
Internal RD (2nd Q)				−0.301		
				(1.57)		
Internal RD (3rd Q)					−0.291	
					(1.65)	
Internal RD (4th Q)						−0.266
						(1.65)
Political terror	0.118	0.136	0.135	0.145	0.147	0.148
	(1.21)	(1.28)	(1.27)	(1.37)	(1.39)	(1.40)
HDI	2.607**	4.311**	4.605**	4.195**	4.108**	3.95**
	(4.53)	(4.05)	(4.06)	(3.95)	(4.16)	(4.33)
Country size	−0.859**	−0.550	−0.562	−0.558	−0.547	−0.542
	(2.23)	(1.42)	(1.46)	(1.45)	(1.42)	(1.40)
Population	0.734**	0.711**	0.711**	0.701**	0.697**	0.696**
	(13.09)	(10.83)	(10.90)	(10.68)	(10.58)	(10.52)
VIF (mean)	1.90	4.20	3.88	3.76	3.40	3.05
Number of observations	172	143	143	142	142	142
R^2 adjusted	0.656	0.661	0.662	0.654	0.655	0.655

Note: Figures in parentheses are *t*-statistics. RD, Relative Deprivation; Q, Quintile. Emigration, RD and population variables are natural logarithms. (∗) and (∗∗) denote significance at 10% and 1% level, respectively.

Table 2. Log-linear estimation: internal relative deprivation and bilateral migration

DV	Bilateral migration					
IV	(1)	(2)	(3)	(4)	(5)	(6)
Total internal RD (original)	0.052 (1.54)					
Total internal RD (destination)	0.570** (15.73)					
Total bilateral RD	0.077** (9.03)					
1st Q Internal RD (origin)		0.038 (1.05)				
1st Q Internal RD (destination)		0.655** (17.18)				
1st Q Bilateral RD		0.077** (8.46)				
2nd Q Internal RD (origin)			0.057* (1.70)			
2nd Q Internal RD (destination)			0.566** (15.77)			
2nd Q Bilateral RD			0.081** (9.93)			
3rd Q Internal RD (origin)				0.058* (1.84)		
3rd Q Internal RD (destination)				0.533** (15.72)		
3rd Q Bilateral RD				0.071** (9.14)		
4th Q Internal RD (origin)					0.064** (2.18)	
4th Q Internal RD (destination)					0.473** (15.06)	
4th Q Bilateral RD					0.064** (8.60)	
5th Q Bilateral RD						0.065** (11.26)
Political terror (origin)	0.039** (2.03)	0.043** (2.26)	0.039** (2.06)	0.049** (2.63)	0.058** (3.13)	0.068** (3.68)

Political terror (destination)	−0.591**	−0.575**	−0.587**	−0.593**	−0.599**	−0.588**
	(32.14)	(31.15)	(31.99)	(32.31)	(32.53)	(31.54)
HDI (origin)	3.037**	2.952**	3.064**	3.111**	3.118**	3.450**
	(15.13)	(13.53)	(15.24)	(16.43)	(17.60)	(28.96)
HDI (destination)	−3.596**	−4.046**	−3.573**	−3.275**	−2.830**	−0.427**
	(18.40)	(19.11)	(18.30)	(17.81)	(16.41)	(3.42)
Country size (origin)	0.024	0.025	0.042	0.058	0.070	0.143**
	(0.33)	(0.34)	(0.57)	(0.80)	(0.96)	(1.98)
Country size (destination)	0.939**	0.951**	0.940**	0.939**	0.947**	1.196**
	(12.92)	(13.13)	(12.93)	(12.88)	(12.98)	(16.60)
Population (origin)	0.610**	0.607**	0.610**	0.605**	0.600**	0.591**
	(49.82)	(50.07)	(50.10)	(49.70)	(49.31)	(50.10)
Population (destination)	0.837**	0.828**	0.835**	0.839**	0.841**	0.790**
	(70.42)	(70.09)	(70.23)	(70.15)	(69.83)	(66.78)
Distance	−0.194**	−0.192**	−0.194**	−0.195**	−0.195**	−0.189**
	(55.51)	(54.87)	(55.62)	(55.72)	(55.66)	(53.62)
Colony	2.607**	2.602**	2.606**	2.598**	2.598**	2.674**
	(21.05)	(21.02)	(21.06)	(20.97)	(20.94)	(21.41)
Common border	3.068**	3.088**	3.055**	3.066**	3.082**	3.216**
	(30.66)	(30.88)	(30.54)	(30.65)	(30.81)	(31.88)
VIF (mean)	3.20	3.50	3.15	2.94	2.71	1.77
Number of observations	20 016	20 016	20 016	20 016	20 016	20 158
R^2 adjusted	0.541	0.541	0.541	0.541	0.539	0.530

Note: Figures in parentheses are *t*-statistics. RD, Relative Deprivation; Q, Quintile. Migration, RD and population variables are natural logarithms. (*) and (**) denote significance at 10% and 5% levels, respectively.

world", but that (sub-)populations in other countries are the more likely reference groups. This seems a reasonable assumption, and our findings appear to support this.

In comparison, total internal relative deprivation in the origin country seems to affect total emigrant stocks negatively (Table 1). This would imply that a (hypothetical) internal redistribution of income that resulted in a reduction in the overall level of internal relative deprivation would, *ceteris paribus*, be associated with higher emigrant stocks. This result supports some recent micro-evidence on the negative relationship between internal relative deprivation and out-migration from India (Czaika, 2012). There is no straightforward interpretation of this result, but it might well reflect the fact that high levels of relative deprivation also mean that larger shares of populations will be absolutely deprived, which constrains them from moving internationally. Perhaps this leads to increasing internal migration, although we do not have data to substantiate this. National averages, such as HDI scores, do not capture such distributional dimensions of income and other resources. A decomposition of total internal deprivation into separate income quintiles shows that internal relative deprivation has a somewhat smaller effect for the richer income quintiles of the population and that the effect is only significant for the lowest income quintile.

Furthermore, increasing levels of internal relative deprivation among the relatively poor tend to reduce emigration propensities by more than when wealthier parts of a population are experiencing higher relative deprivation, which can be explained by the irrelevance of absolute deprivation for higher income groups. However, this association is not very robust and, as we will see, it is not significant in the bilateral models (Table 2). In addition, as expected, higher levels of political terror are positively associated with emigrant stocks, although the coefficients are not significant.

Interestingly, disaggregation of total outflows into bilateral outflows (see Table 2) turns the effect of internal relative deprivation within origin countries around and this effect also becomes stronger and more significant as we move up national income hierarchies. This change in the sign reflects the sensitivity of the effect of internal relative deprivation for different model specifications and further highlights the difficulty of interpreting these apparently conflicting results. At best, we can say that the role of relative deprivation in emigration is ambiguous, and this deserves to be further explored in future research using improved data sets.

In contrast to this ambiguous effect of internal relative deprivation in origin countries, inequality in destination countries measured by the level of internal relative deprivation clearly increases the bilateral stock of migrants. It is unlikely that reverse causality in terms of destination countries with larger immigrant stocks having systematically higher internal relative deprivation levels can explain most of this effect; the fact that the

Table 3. Income gaps between lowest and highest income quintiles (in US dollars)

HDI level	Number of countries	Mean income (1st quintile)	Mean income (5th quintile)	Income gap (1st–5th quintile)
<0.6	44	439.17	4443.39	4003.69
0.6–0.7	57	579.96	6773.53	6193.57
0.7–0.8	92	937.80	9506.59	8568.79
>0.8	56	7362.11	43 594.41	36 232.30

Note: Based on own calculations.

population-weighted size of the global migration stock is only about 3%, with a significant share of high-skilled migrants, implies that immigration is unlikely to worsen the income distributions of destination countries.

Thus, it seems that inequality in destination countries attracts immigrants: inequality does not necessarily only signal social injustice, but it can also signal social mobility and opportunities to climb the social and economic ladder. It is important to realize here that absolute income gaps between the lowest and highest income quintiles, and thus the levels of internal relative deprivation, are much higher for wealthier and more developed countries (see Table 3). More developed countries offer much higher internal economic opportunities for absolute income gains and generally higher returns to human capital if social mobility is possible. It is however plausible to assume that social and economic penetrability (upward mobility) in wealthier countries is, at least, no lower than in less developed countries. The evidence thus suggests that inequality and high levels of internal relative deprivation attract rather than deflect potential migrants. Concerning relative deprivation in the origin country, the results also suggest that absolute deprivation in terms of lower levels of human development with regards to health, education and economic standards seems to play an important role in constraining emigration and possibly also in reducing migration aspirations.

Surprisingly, bilateral immigration stocks are not higher for destination countries with higher levels of human development. This seems counter-intuitive. However, a large degree of destination-country development is already captured by the bilateral relative deprivation measure, and destination HDI might capture other, non-measured factors, such as restrictive immigration policies and, perhaps, better mechanisms for external (border) and internal (institutional) migration controls, although this remains speculative and further analysis is required.

For all the income quintiles of the origin countries, bilateral relative deprivation is positively associated with emigration stocks. This corroborates the observation mentioned above that migrants are more likely to engage in bilateral (country-to-country) comparisons rather than comparing their income with an abstract idea of global excess wealth. A hypothetical reduction in bilateral relative deprivation of 10% would on average decrease bilateral stocks of migrants by about 0.7%, i.e. globally by about 1.2 million migrants. Thus, bilateral relative deprivation of upper income quintiles seems to contribute less to overall emigration than the relative deprivation of lower income quintiles.

This result qualifies our previous finding about the likely effect of an internal redistribution of income. Thus, we can conclude that if a government were unilaterally to change its internal income distribution by transferring income from the richer parts of its population to the poorer ones (for instance, through tax reform), this country would not necessarily experience lower emigration propensities in its population as a consequence.

The other control variables show a clear pattern, in line with the expectations. Human rights violations and political terror seem to be strong immigration deterrence factors, while the apparent "expulsion" or "push" effect of political terror on emigration is stronger if we simultaneously control for relative deprivation of higher income quintiles. We can think of at least two explanations for this effect: first, relatively rich and more educated people are "positively selected" as targets for state aggression or simply more likely to be, or suspected of being, politically active; and second, rich people might value their personal liberties comparatively more highly than their (already relatively high and taken-more-for-granted) economic well-being and standing. Security and personal liberties, therefore, can

perhaps be considered as "superior goods", with demand rising with income levels, i.e. income elasticity greater than one. On the other hand, poor people are obviously more vulnerable to insecurity, but may be unable to move due to resource constraints. However, the origin-country effect of this variable is much smaller than the destination-country effect, which might be because the "expulsion effect" is partly counter-balanced by the fact that human rights-violating countries also tend to put more constraints on free mobility.

Our controls for geographical proximity, common borders and colonial links show significant effects in the hypothesized direction: larger geographical distances between origins and destinations are associated with smaller bilateral migrant stocks (about 19% fewer migrants per 1000 kilometers); neighbouring countries receive on average three times more migrants than countries without a common border with the sending country; and bilateral dyads reflecting post-colonial ties are characterized by bilateral migrants stocks about 260% higher than between countries with no colonial relationship. Country size has low explanatory power on the origin side, but considerably more on the destination side. The geographical size of the sending country, which may be a proxy for the possibility of internal migration as an alternative to international emigration, only shows a weak effect for total emigrant stocks, primarily when controlling for global relative deprivation (Table 1). Although migration is no longer dominated by settlers and colonists, the geographical size of destination countries does have a positive effect on international migration.

5. Conclusion

This paper explored the role of internal and international relative deprivation in explaining global migration patterns. The analysis suggested that international migration does not necessarily decrease when opportunity differentials are reduced across national boundaries. Economic and human development within sending regions may actually increase international migration.

Our results also suggest that economic redistribution within countries with a somewhat unequal income distribution could have two implications: reducing inequality within countries of origin could lead to a small increase in emigration, while reducing inequality within destination countries could lead to a greater reduction in immigration. This needs some explanation. By definition, redistribution leads to lower levels of total internal relative deprivation, but at the expense of raising relative deprivation levels for the richer income quintiles, which might increase their aspiration to migrate. Since the upper quintiles often have a higher migration propensity (particularly in developing countries where resource constraints inhibit many poor from migrating), this might lead to a net increase in total emigration.

On the other hand, by reducing total relative deprivation in destination countries, the compression of the income distribution may reduce their attractiveness to potential immigrants from the (relatively mobile) upper end of a sending country's income distribution. Beyond this, redistribution reduces bilateral relative deprivation, which may diminish aspirations to improve well-being by migrating. Consequently, national policies and economic transformations that alter the income distribution change the relative deprivation pattern (and thus migration incentives) of not only their own populations, but also of populations in sending countries. National policies that affect the distribution of income (and other "capabilities") may therefore influence international migration independent of their effects on

per capita income. The interaction between absolute deprivation (human development and economic well-being), internal relative deprivation and international relative deprivation determines the net effect of relative deprivation on bilateral and global migration flows.

These results highlight the fact that the role of internal (within country) and international (bilateral and global) relative deprivation and absolute deprivation need to be taken into account simultaneously to advance our understanding of the complex interplay of these important migration drivers. Our empirical results seem to confirm the idea that absolute deprivation constrains emigration, while international and internal relative deprivation in destination countries fuel migration. The effect of internal relative deprivation in origin countries seems to be small and more ambiguous.

Building on the debate about the effects of redistribution on global inequality (e.g. Bourguignon *et al.*, 2009), this paper suggests that it would be unfounded to expect that decreases in international and internal relative deprivation combined with declining absolute deprivation would lead to large reductions in the volume of international migration, as is quite often assumed in public and academic debates. The results highlight the complex ways in which relative and absolute deprivation affect migration. While they are obviously interrelated, the different forms of relative and absolute deprivation might have somewhat contradictory effects on migration. For instance, it is often assumed that "take-off" economic growth in sub-Saharan African countries will reduce emigration. However, while rapidly increasing average income levels and concomitant decreases in absolute deprivation may decrease international relative deprivation (potentially decreasing migration aspirations), growing wealth may also significantly ease constraints on international mobility. Particularly if such take-off economic growth also coincides with increasing income inequality and domestic relative deprivation, it may accelerate emigration.

Notes

[1] Such inequalities might be further reinforced by migration processes themselves. Migrant selectivity explains that remittances often initially increase income inequalities and levels of relative deprivation in origin communities and countries (Adams, 1989; Jones, 1998), although such effects may be reversed if network effects lead to a diffusion of migration across sending communities.

[2] www.migrationdrc.org/research/typesofmigration/global_migrant_origin_database.html (accessed 1 April 2011).

[3] For an overview on reference group formation, see Runciman (1966).

[4] The authors concede that the definition of "relative deprivation" is somewhat narrow and uni-dimensional because it focuses only on monetary income and ignores other sources for feelings of relative deprivation such as deprivation of education and health care, social exclusion and/or ethnic, gendered and political discrimination. Our choices were driven by data limitations and future analyses should try to include other forms of, non-pecuniary, deprivation.

[5] The formal derivation of the relationship between total internal relative deprivation and the Gini coefficient is provided by Stark (2006).

[6] We accessed the database on 15 September 2010, www.politicalterrorscale.org/download.php.

[7] We acknowledge the limitations of a colonial dummy capturing the bilateral implications of a post-colonial history and we considered some alternative indicators for measuring the strength of post-colonial ties, such as the number of years since independence or the length of colonization. However, we discarded them for two main reasons. First, the number of years since independence or the length of colonization would test alternative hypotheses based on different underlying assumptions on the long-term effects of a colonial history on migration. And second, the fact that our "colonial dummy" is set to 1, if and only if, the colonial relationship was "significant" requires an informed (qualitative) case-by-case evaluation of all dyadic colonial links, which the data set by Mayer & Zignago (2006) ensures.

[8] We accessed the CEPII database on 15 September 2010, www.cepii.fr/anglaisgraph/bdd/distances.htm.

[9]   We interpret the Country size variable as average internal distance. That is, the gross country area is adjusted by a transformation (country size $= \frac{2}{3}\sqrt{area/\pi}$) to reduce the so-called "illusionary border effect" (see Head & Mayer, 2002).

[10]   According to the first model specification, a (hypothetical) reduction of global inequality, measured by the global level of relative deprivation, by about 10% would, *ceteris paribus*, reduce the global emigration stock of about 175 million people (in the year 2000) by about 1.2%, i.e. by about 2 million migrants.

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Appendix 1. Descriptive Statistics

Variable	Definition	Mean	Standard deviation	Min.	Max.
Total emigration	Natural log of total emigration stock in 2000–2001.	12.020	2.290	3.332	16.309
Bilateral migration	Natural log of bilateral migration stock in 2000–2001.	2.837	2.836	0	16.049
Global RD	Natural log of relative deprivation measured on a country level. Reference group: world.	8.059	1.414	−1.800	9.149
Total internal RD	Natural log of sum of quintile relative deprivation. Reference group: origin country.	9.234	1.096	6.300	11.258
Internal RD (1st Q)	Natural log of relative deprivation of lowest income quintile. Reference group: origin country.	8.255	1.136	5.359	10.882
Internal RD (2nd Q)	Natural log of relative deprivation of second-lowest income quintile. Reference group: origin country.	7.949	1.087	5.019	9.986
Internal RD (3rd Q)	Natural log of relative deprivation of third-lowest income quintile. Reference group: origin country.	7.649	1.073	4.709	9.646
Internal RD (4th Q)	Natural log of relative deprivation of second-highest income quintile. Reference group: origin country.	7.232	1.059	4.302	9.255
Internal RD (5th Q)	Natural log of relative deprivation of highest income quintile. Reference group: origin country.	0	0	0	0
Bilateral RD (1st Q)	Natural log of relative deprivation of lowest income quintile. Reference group: destination country.	7.298	2.999	0	10.837
Bilateral RD (2nd Q)	Natural log of relative deprivation of second-lowest income quintile. Reference group: destination country.	6.671	3.486	0	10.641

Appendix 1 *(Continued)*

Variable	Definition	Mean	Standard deviation	Min.	Max.
Bilateral RD (3rd Q)	Natural log of relative deprivation of third-lowest income quintile. Reference group: destination country.	6.155	3.779	0	10.637
Bilateral RD (4th Q)	Natural log of relative deprivation of second-highest income quintile. Reference group: destination country.	5.573	4.006	0	10.635
Bilateral RD (5th Q)	Natural log of relative deprivation of highest income quintile. Reference group: destination country.	4.029	4.203	0	10.626
Political terror	Average levels of political violence and terror that a country experienced in the 1990s based on a five-level terror scale with "1" indicating a low and "5" a high level of political terror.	2.473	1.110	1	5
HDI	Composite index measuring development by combining indicators of life expectancy, educational attainment and income, 10-year average for 1991–1999.	0.725	0.170	0.336	0.968
Country size	Average internal distance of a country, calculated according to the formula $\frac{2}{3}\sqrt{area/\pi}$.	180.439	229.778	0.532	1554.244
Population	Natural log of population, 10-year average for 1991–1999.	14.724	2.685	7.601	20.956
Distance	Geographical distance (in 1000 kilometres) between the two capital cities.	8.405	4.680	0.995	19.951
Colony	Dummy set to one if the two countries have had a colonial relationship for a relatively long period of time.	0.010	0.098	0	1
Common border	Dummy set to one if the two countries share a common border.	0.013	0.112	0	1