



Are unequal societies more migratory?

Mathias Czaika

CMS 1 (1): 97–122

DOI: 10.5117/CMS2013.1.CZAI

Abstract

Are unequal societies more migratory? The position of this paper is: not necessarily, it depends on the type of inequality. By proposing horizontal and vertical inequality between and within ethnic groups as separate drivers of migration, we hypothesize that heightened emigration is a consequence of vertical inequality and feelings of individual relative deprivation, whereas people facing horizontal inequality feel rather strongly about collective relative deprivation, making non-migration more likely. Consequently, inequality and relative deprivation can work in both directions, i.e. either as a driver or a barrier of migration, depending on whether social comparisons are made within or between ethnic groups. Analysis of emigrant stocks for a large set of developed and developing countries show that countries with higher levels of horizontal inequality across ethnic groups show a lower emigration propensity whereas vertical within-group inequality seems rather a reason for people moving abroad. The analysis also shows that the relative size of these behavioural responses depends on people's educational levels which largely reflect their exit opportunities.

Keywords: international migration, inequality, relative deprivation

1. Introduction

This paper explores the relationship between economic inequality and international migration. I argue that the role of inequality in 'driving' emigration is less straightforward than the existing literature suggests. By proposing inter-group and intra-group feelings of relative deprivation as two

different ways of how people may perceive the unequal societies they are living in, I try to add an important new perspective to the analysis of the inequality-migration nexus, which thus far only looks at the role of vertical inequality as a potential driver of migration (Stark 2006).

The quantitative literature on the determinants of international migration largely confirms the assumption that migration decisions of individuals and households are mainly responsive to socio-economic factors, and can thus be considered as relevant drivers on aggregated emigration flows. However, knowledge about the role of socio-economic *inequality structures* and how they shape emigration flows is still very limited. One aspect that seems crucial in generating a better understanding about the drivers of emigration flows is the question of how economic, social, and political inequality and respective feelings of relative deprivation trigger emigration intentions (Czaika and de Haas 2012). For instance, feelings of *collective relative deprivation* as a consequence of inequality and social comparisons across social or ethnic groups can play a decisive role. Such feelings about the state of the 'collective' may lead to quite different behavioural responses than feelings of *personal relative deprivation* that are rather nurtured by a person's own relative position *within* a larger (reference) group or society (Czaika 2012, Czaika and de Haas 2012).

Some migration scholars have investigated the role of absolute and relative deprivation of particular groups in origin communities to explain people's decisions to, or not to, migrate. Hereby, the new economics of labour migration (NELM) has argued that feelings of relative deprivation are a major driver of migration, acknowledging that not only a person's own (absolute) income is relevant in the decision to migrate, but also the relative income of others (Stark 1984; Stark & Taylor 1991; Stark & Yitzhaki 1988). This assumption is confirmed by research in social psychology, which asserts that people not only assess their personal status and outcomes according to an objective and absolute standard, but also according to the situation of *relevant* others. This implies that people may migrate not only to increase their income in absolute terms, but more in general, to improve their relative position with respect to others in their 'reference group'.

Consequently, it has been argued that migration propensities are positively associated with inequality in the origin societies, and micro-level evidence has largely confirmed the hypothesis that relative deprivation in sending communities increases emigration tendencies (Stark & Taylor 1989, 1991; Bhandari 2004; Quinn 2006). Liebig and Sousa-Poza (2004) provide some evidence for the hypothesis that countries with a more unequal income distribution tend to have higher migration propensities. Stark (2006)

has provided a conceptual framework for this structural relationship by arguing that relative deprivation of individuals or households is the ‘missing link’ between economic inequality and emigration. He argues that a higher degree of economic inequality within a country increases feelings of relative deprivation, which *ceteris paribus* increases people’s emigration propensity, and thus, higher emigration rates. We may therefore assume that relative deprivation is conducive to emigration, although it seems neither necessary, nor sufficient, for inducing migration (Czaika and de Haas 2012).

However, almost all of these studies only focus on *vertical* inequality, i.e. within-group inequality among individuals of the same social entity, whereas horizontal (between-group) inequalities are largely ignored (Stewart 2008); at least as a causal factor of migration. The present study therefore analyses the inequality-migration nexus more in detail by contrasting feelings of individual relative deprivation (IRD) and collective relative deprivation (CRD) as separate drivers (or barriers) of migration. Acknowledging that people may simultaneously perceive multiple social identities, I will only focus on *ethnicity* as the distinct marker of social identity. The central hypothesis is the following: horizontal inequality between ethnic groups has a fundamentally different effect on the overall emigration propensity of a country than vertical inequality within ethnic groups.

In the next section I substantiate this hypothesis by proposing the concept of collective (i.e. group-based) relative deprivation as one way to operationalize economic horizontal inequality in contrast to individual (within-group) relative deprivation as a measure for vertical inequality. Section 3 will then provide some preliminary evidence on the size and direction of these hypothesised associations between (horizontal and vertical) inequality migration flows. The final section summarises and concludes.

2. Inequality, relative deprivation and migration

2.1. Inequality and relative deprivation

Most research on the inequality-migration nexus tends to focus on people’s individual (and sometimes household) income and its unequal distribution within a community or country (e.g. Czaika and de Haas 2012, Stark 2006). However, this focus on vertical inequality among individuals of the same reference group ignores the group dimension as a vital dimension of human well-being and of social coherence (Stewart 2002, Østby 2011).

Sen (1992) argues that general analyses of inequality should focus more on inter-group variations instead of focusing on only inter-personal (i.e. vertical) inequalities.

Migration scholars have attempted to explore the role of income inequality in origin countries in determining individual propensities to migrate. NELM has identified relative deprivation as one of the main motivators for migration. NELM scholars argue that the relative deprivation approach overcomes an important shortcoming of the welfare function approach by making marginal utility of income a function not only of people's own income, but also on the income of others (Stark, 1984; Stark & Yitzhaki, 1988; Stark & Taylor, 1991). They argue basically that the effect of income on utility and well-being is not independent from broader changes in socio-economic settings. For instance, the importance of a set increase in income to a person depends on his or her position in the income distribution (Stark & Yitzhaki, 1988; Stark & Taylor, 1991; Massey et al., 1993; Stark et al., 2009).

This broadened perspective on the role of socio-economic factors in migration decision-making implies that people and entire households may not only migrate to improve their own absolute income, but also to increase their income relative to other individuals or households in their reference group. Stark, in particular, has argued that migration is a consequence of economic inequality in the origin societies (e.g. Stark 2006). A number of micro-level empirical tests have confirmed the hypothesis that feelings of individual relative deprivation as a correlate of vertical inequality increase migration propensities in sending communities (Stark & Taylor (1989, 1991) and Quinn (2006) for the Mexico-US case; Bhandari (2004) for Nepal; and Czaika (2012) for India).¹ Apart from the fact that evidence on the role of vertical inequality (within groups, communities or even countries) is still scarce, IRD within the same social or ethnic group is only likely to play a significant role in explaining migration if the returns on migration are high and 'reference group substitution' unlikely, i.e. people rather compare with peers at home than those abroad (Stark & Taylor, 1991; Czaika & de Haas 2012).²

To date, the migration literature has focused mainly on relative deprivation as a consequence of inter-personal comparisons within a community, region or sometimes even a country. This raises the crucial question about the appropriate reference point for such social comparisons. Sub-national entities with (ideally) clear markers of social boundaries such as ethnic groups seem a relevant reference category for both intra- and inter-group comparisons (Czaika 2012). However, this claim for studying the role of intra- and inter-group inequality on migration comes with some methodological

challenges. First, group identities are often self-chosen, multiple, and fluent. Thus, boundaries between groups are rarely clear cut and usually blurred, which makes categorization of social groups sometimes arbitrary.³ And second, even if a robust categorisation of social groups has been identified, the operationalisation and measurability of group identification seems another challenge. Taifel (1982) finds that a certain level of group identification requires the awareness and appreciation of membership including at least some emotional investment into group membership. The extent to which individuals or households identify themselves with a social or ethnic group they 'officially' belong to however, is *a priori* unclear. Beyond this, group identification is sometimes endogenous to group inequality. When people perceive inter-group inequality, the identification with their group may be strengthened. This reinforces perceptions of collective relative deprivation, particularly if others categorise and assign them into groups and thereby consolidate horizontal inequality (Stewart et al. 2005). Consequently, group identification can often be reinforced by cultural, economic and political differentials, which makes its operationalisation even more complex (Gurr 1993).

In societies where economic, social and/or political inequalities coincide with ethnic cleavages, group identification can be a mobilizing agent (Stewart 2002). This hypothesis has predominantly been explored in research on horizontal inequality and conflict (see Cederman et al 2011, Østby 2011, Stewart 2008). Gurr (1993) argues that ethnic identities and grievances may mutually reinforce each other: horizontal inequalities increase the level of group grievances as well as the perception of a common identity. At the same time, the strength of group identity does influence both group grievances and the potential for (political) mobilization.

Groups whose members have been systematically restrained from equal access to economic resources often develop a strong sense of collective grievances. Interestingly, privileged groups may also experience a similar type of collective grief due to their fear of losing their privileges. For instance, if relatively deprived groups gain political power and demand redistribution of economic or other resources, inter-group inequality is potentially associated with inter-group transfers from richer to poorer groups. Richer groups may perceive these transfers as too large and it may increase their level of collective grievances (Østby 2011). Accordingly, group-based collective action and political mobilization is usually not only initiated by relatively deprived groups but also by the more advantaged groups. Thus, groups with feelings of inferiority or superiority are potentially causing inter-group grievances, tensions and potentially even conflicts (Horowitz 1985). Stewart (2008)

reminds us that it is often not only the relatively deprived groups whose resentments trigger group-based collective (political) action. She notes that it is also the relatively privileged who may attack the underprivileged (or the state) as a reaction to what they may perceive as unfair redistribution, or simply out of fear that the relatively deprived may demand more resources and gain political influence.

It is clear though that collective grievance does not necessarily lead to collective action. Only when resources, organisation and opportunities are available along with collective feelings of relative deprivation that create strong group identification and cohesion, can people be mobilized for collective actions including protest and rebellion (Tilly, 1978). Brewer (1991) argues that the willingness of people to make sacrifices for group action is more linked to feelings of collective rather than individual relative deprivation. Thus, improving the situation of the own group may be a more powerful motivation to participate in collective actions than improvement of the individual's condition. Consequently, and using Hirschman's (1970) terminology, horizontal inequality may make the 'voice' option more attractive than 'exit'.

Furthermore, inter-personal comparisons with others outside the boundaries of the own social group may only be a source for feelings of individual relative deprivation and aspirations if these boundaries are perceived as permeable (*Ellemers et al 1990*). We may assume that ethnic boundaries are rather impervious, and thus, create a relatively high degree of group identification and loyalty. This implies that due to the fact that members of ethnic groups can hardly change their ethnic identity, social comparisons beyond their ethnic group are rather group-based, and thus, creating feelings of collective instead of personal relative deprivation.

2.2. Personal versus collective relative deprivation

Relative deprivation theory (RDT) studies the relationship between adverse outcomes from social comparisons and subsequent perceptions, feelings and behaviours (Runciman, 1966; Walker and Pettigrew 1984; Kawakami and Dion 1993). An unresolved question of RDT remains in specifying, a priori, who compares with whom? A simple social-psychological heuristic suggests that individuals tend to compare with 'similar others' (Brown 2000, Walker & Smith 2000). The notion of similar others implies though that people can assess their individual position both within their ethnic group as well as the overall standing of their entire group with respect to other ethnic groups. Thus, the extent to which social comparisons generate

different types of feelings of relative deprivation depends on the situation of peers either within or beyond the own ethnic group.

Runciman (1966) distinguishes two types of relative deprivation that are the result of either intra-group or inter-group comparisons. Personal relative deprivation refers to one's own position in relation to other members within the same social group. On the other hand, collective relative deprivation relates to the status of people's own ethnic group compared to other ethnic groups in a society. Thus, based on both inter-personal and inter-group comparisons, within-group and between-group inequality creates feelings of relative deprivation and as a consequence, discontent and frustration, but also aspirations for individual or collective change.

In the following, I argue that inter-personal comparisons within ethnic groups create feelings of IRD. On the contrary, a poor relative standing of an ethnic group with regard to other ethnic groups creates feelings of group-based CRD for all group members. As a consequence, we may roughly distinguish four groups of people: those simultaneously perceiving either relatively high (or low) levels of IRD and CRD, and those with rather 'mixed' feelings by simultaneously perceiving low (or high) IRD in combination with high (or low) CRD (see Pettigrew et al. 2008). Thus, a person may feel relatively deprived within the ethnic group, but at the same time, the respective ethnic group may be relatively better-off compared to other groups. Some people may even perceive 'double relative deprivation' due to a relatively low standing within their ethnic group and the poor status of the entire ethnic group. In India, for instance, both IRD and CRD are found to be distinct factors in the migration decision-making of individuals and households (Czaika 2012).

2.3. Relative deprivation versus absolute deprivation

People who usually have the strongest perceptions of (individual or collective) relative deprivation are not the poorest and most destitute (Kawakimi and Dion 1993). Therefore, it is rather feelings of relative and not absolute deprivation that are expected to be driving forces of behavioural responses. Some scholars argue that while absolute poverty may lead to apathy and inactivity, comparisons with those who do better may inspire for radical action, and sometimes even violence (Østby 2008).

For instance, Runciman's (1966) study on the causes of social unrest has already shown that people participating in insurgencies are rarely those most deprived. Some migration literature makes similar claims about the fact that it is usually not the poorest in a society who consider or can afford emigration as a way out of poverty (e.g. de Haas 2010). Obviously, scarcity

of economic resources and deprivation of other substantive freedoms and capabilities constraints people from moving, particularly internationally. Lack of human capabilities seem to be a significant constraint for migration as is indicated in many less developed countries by comparatively low emigration rates. For Burkina Faso, for instance, Wouterse (2008) shows that long-distance international migration, which generally involves high costs and risks, is mainly only accessible for relatively wealthy households. Thus, we may generally assume that the more a person perceives any form of relative deprivation, the higher is her propensity to migrate. However, this only holds if absolute deprivation and other resource constraints do not create barriers to the individual's ability to migrate. Therefore, absence of absolute deprivation seems to be a necessary, but not sufficient condition for any resource-intensive behaviour such as migration. Perceptions of a fundamental 'aspiration gap', i.e. the discrepancy between one's aspired position and the status quo, explain to a large extent discontentment and some form of individual or collective action (Brown 2000, Czaika and Vothknecht 2012). Interestingly, discontent as a consequence of a substantial aspiration gap is not only prevalent among poorer people, but also, and sometimes even more so, among more privileged people, which makes them more capable and also more willing for proactive behaviour.

What behavioural actions are likely to follow from these different types of relative deprivations? Wright (2001) argues that members of a disadvantaged group may choose collective action, which is intended to improve the circumstances and conditions of the entire social group. Alternatively, relatively deprived members of a (disadvantaged) group may also try to improve their personal situation by taking individual action. In this case, 'an individual focuses on one's personal identity and acts in ways that distance oneself from the disadvantaged in-group, while attempting to acquire a more advantaged position'(Wright 2001, p. 411). This implies that individual relative deprivation induces individual mobility, whereas collective relative deprivation rather triggers actions for broader social change. By referring to Hirschman's (1970) distinction of 'exit and voice' as two possible behavioural options, we may re-interpret these as alternative responses to feelings of individual and collective discontent.⁴ People who feel personally deprived are more likely to prefer individual strategies to change individual circumstances (Walker and Pettigrew, 1984; Walker and Mann, 1987), whereas people who believe that the group they belong to and identify with is relatively deprived are likely to participate more frequently and actively in collective action to pursue broader structural change. Therefore, I subsequently argue that emigration (i.e. the exit option)

is a consequence of IRD, whereas people who feel strongly about collective relative deprivation are likely to choose non-migration (i.e. voice). Consequently, inequality and relative deprivation can work in both directions, i.e. either as a driver or as a barrier of migration, depending on whether social comparisons are made within or between ethnic groups. The assumed implication is that feelings of personal relative deprivation are more likely to create aspirations for migration, whereas decisions not to migrate and be loyal to one's own ethnic group may be the consequence of horizontal inequality and associated feelings of collective relative deprivation. Thus, we can formulate the following two hypotheses by specifying vertical and horizontal inequality as separate determinants of migration.

Hypothesis 1: *Vertical inequality as driver of migration*

Endowment with sufficient economic, social and human capital enables individuals and households to generate and realise their desire to migrate. This desire for migration is based on factors that create aspirations to migrate in order to significantly change one's 'life qualities'. Although factors that generate migration aspirations are likely to be manifold, we can argue that intra-group inequality and comparison among individuals belonging to the same ethnic group is a driving factor for generating individual relative deprivation (IRD), which is expected to trigger people's aspirations for migration (*Hypothesis 1a*).

We may further hypothesise that emigration propensities vary by people's capabilities for migration, which are often represented by their respective educational background or skills. Education can initiate and spur migration. Highly educated people have greater capabilities and access to technology and information enabling them to explore job and general livelihood opportunities in other countries. Educated migrants are also likely to have a greater capacity to adapt in host societies. Thus, although high skilled migrants have generally higher emigration propensities, they are less likely to suffer, and therefore respond less to vertical within-group inequality, making IRD a relatively strong driver of migration for lower skilled migrants (*Hypothesis 1b*).⁵

Hypothesis 2: *Horizontal inequality as barrier of migration*

Hirschman (1970) argues that loyalty is a major condition for behavioural responses such as protest or rebellion (i.e. the 'voice option'), which aim for broader societal changes that go beyond individual concerns. Being loyal to people who are part of, and identify with the same social group implies a relatively strong (emotional) commitment that often overrides

individualistic interest (Pfaff & Kim, 2003; North 1981). Therefore, without having a strong loyalty to a social (or ethnic) group, individuals without effective constraints on exiting are more likely to leave. Thus, the likelihood of choosing the ‘voice’ option, i.e. non-emigration, increases with the degree of group identification and loyalty (Hirschman 1970).⁶ Consequently, we can hypothesise that horizontal (inter-group) inequality that induces feelings of collective relative deprivation (CRD) increases the degree of group identification and loyalty, and lowers people’s aspirations and intentions for migration (*Hypothesis 2a*). Finally, we may hypothesise that lower skilled migrants respond more strongly to horizontal inequality than more privileged and often better educated people for whom social boundaries are more permeable. Therefore, we should expect that low-skill emigration has a relatively strong negative association with horizontal inequality compared to the emigration of higher skilled people (*Hypothesis 2b*).

3. Empirical Analysis

3.1. Methodology and data

In order to test the validity of the outlined hypotheses on the relationship between (vertical and horizontal) inequality and emigration, I outline the operationalization of two key concepts, individual and collective relative deprivation, which are at the core of the following empirical analysis. Hereby, I refer to a standard assumption in NELM that an individual’s perception of relative deprivation arises from inter-personal comparisons of his situation with those who are perceived as better off (Stark 2006). According to Yitzhaki (1979), individual relative deprivation can be defined as an aggregate shortfall of an individual’s income with regard to the respective income of all wealthier members of a society, divided by the number of all members of the society. Or, more technically: assuming a continuous income distribution with $F(y)$ representing the cumulative distribution of income and $1-F(y)$ reflecting the percentage of individuals whose income is higher than y . For any individual i of the society, feelings of (personal) relative deprivation are then an increasing function of the percentage of individuals with an income larger than y_i , $1 - F(y_i)$, times their mean excess income:

$$RD_i = \int_{y_i}^{y^{max}} [1 - F(z)] dz = [1 - F(y_i)] \cdot E(z - y_i | z > y_i) \quad (1)$$

Stark (2006) shows that the total (aggregate) relative deprivation is equal to the total aggregate income times the Gini coefficient of income inequality G in a society with n members:

$$TRD = \sum_{i=1}^n RD_i = G \cdot \sum_{i=1}^n y_i \quad (2)$$

Given a country's overall (vertical) inequality, measured by the Gini coefficient, and its average income with GDP per capita as an approximation, and ignoring within-group inequality, we can calculate the overall (i.e. ignoring group boundaries) individual relative deprivation IRD across all members of a society as follows:

$$IRD^{overall} = G \cdot \bar{y} = \frac{TRD}{n} \quad (3)$$

Overall vertical inequality in a society can then be decomposed into two elements: horizontal inequality *between* ethnic groups generating CRD, and vertical inequality *within* ethnic groups generating IRD.

For calculating intra-group IRD, we may assume that individual i , member of ethnic group $k \in K$, perceives feelings of individual relative deprivation IRD_{ik} according to the proportion of in-group members of the same ethnic group k that are richer than individual k times their mean excess income:

$$IRD_{ik}(y_i) = [1 - F(y_{i,k})] \cdot E(z_k - y_{i,k} | z_k > y_{i,k}) \quad (4)$$

At the same time, and given the existence of horizontal inequality, individual i as a member of ethnic group k may also perceive feelings of collective relative deprivation CRD_{ik} . CRD can be defined as the mean excess income of all non-members of ethnic group k belonging to another ethnic group l which has an average income \bar{y}_l higher than the per capita income of members of group k , \bar{y}_k :

$$CRD_{ik}(\bar{y}_{i,k}) = \int_{\bar{y}_k}^{\bar{y}_l^{max}} [1 - F(\bar{z})] d\bar{z} = [1 - F(\bar{y}_{i,k})] \cdot E(\bar{z} - \bar{y}_k | \bar{z} > \bar{y}_{i,k}) \quad (5)$$

This definition implies that collective relative deprivation is equally perceived by all members of the same group.

In most countries, vertical inequality is positively associated with horizontal inequality. It is sometimes possible however, to have considerable inter-group inequality combined with rather low within group inequality, or vice versa. In countries where horizontal inequality forms a salient compo-

ment of the overall inequality, any ambition to reduce overall inequality may be bound to fail without reducing inequality between groups (Stewart 2002). But typically the between group component of overall (vertical) inequality is relatively small compared to within group inequality (cf. Stewart et al. 2005).

In order to quantify CRD, Cederman et al. (2011) provide a new global dataset on economic horizontal inequality across ethnic groups by providing estimates on per capita income by ethnic group. These data have been generated by combining Nordhaus' (2006) G-Econ dataset on local economic activity with information on settlement areas of ethnic groups (Cederman et al. 2010).⁷

Based on this data on the mean income for each major ethnic group, I am able to calculate measures for countries' CRD (per capita) according to Eq (5). In order to calculate a country's average *intra-group IRD*, i.e. relative deprivation within ethnic groups, I first need to calculate a country's per capita *inter-group IRD* (vertical income inequality) according to Eq (3) for which we use the 1990s ten-year average on each country's Gini coefficient (World Bank 2012). Based on this measure of a country's overall vertical inequality ($IRD^{overall}$) per capita, we can determine a country's average level of *intra-group IRD*, i.e. relative deprivation within ethnic groups, by the difference between the per capita $IRD^{overall}$ and the average *inter-group CRD*. According to our two hypotheses, we expect a positive association between emigration flows and *intra-group IRD*, and a negative effect for *intra-group CRD*.

As further control variables we use each country's standardized geographical size as calculated by the Centre d'Etudes Prospectives et d'Informations Internationales (Mayer and Zignago 2006). The usefulness of this variable is justified by the fact that larger countries usually have more internal opportunities for potential migrants, which make international emigration a less needed, and thus, less aspired option (de Haas 2010).

As already mentioned, the migration literature has shown that it is not generally the poorest people who migrate internationally as economic constraints and limited access to human and knowledge capital are central prerequisites for realising emigration aspirations (Czaika and de Haas 2012). We control for the effect of limited capabilities for migration by considering two alternative proxies capturing access and availability of human and economic resources. A first, standard proxy for resource constraints or affluence is people's income (GDP per capita). However, in the way we have operationalized our horizontal and vertical *income* inequality, we may run into problems of co-linearity between average income levels and our measures of relative deprivation. In fact, *intra-group IRD* as well as

inter-group CRD are significantly correlated with income per capita (around 0.8). That is why the income variable has been replaced by using information on UNDP's human development index (HDI) by averaging for each country (all available) HDI scores during the 1990 (UNDP 2012). Herewith, we try to capture not only economic, but also education and health aspects reflecting a broader definition of human capabilities. We are expecting that this measure approximates average migration capabilities, and is thus positively associated with overall emigration intensity.

Furthermore, we control for the quality of the political and institutional environments (*political violence*) using information based on the Political Terror Scale (www.politicalterrorsscale.org), which captures levels of political violence and terror that a country experiences ranging from: 'Countries under a secure rule of law' (level 1), to 'Terror has expanded to the whole population' (level 5) (see Gibney et al 2011). What we are expecting is that political terror and instability is positively associated with people's desire to leave the country.⁸

The dependent variable(s) are based on emigrant stock data disaggregated by migrants' skill levels (Docquier & Marfouk 2006). This dataset contains information for 192 independent countries on the number of emigrants at working-age (25 and over) and categorised by their educational attainment (low, medium, high skilled) who have migrated to an OECD country before 2000. Docquier and Marfouk (2006) have re-calculated emigrant stocks based on information on the composition of OECD immigration stocks, which capture about 90 per cent of the worldwide stocks of highly skilled migrants. Obviously, coverage for medium and low skill migrants is significantly lower and estimates have to be interpreted accordingly. In general, and as long as skills transferability is not a major problem, highly skill workers have a higher propensity to migrate internationally than lower skilled people, which implies that –on average- emigration rates are increasing with skill levels.

Finally, emigration decisions of different skill groups are unlikely to be mutually independent. For instance, large-scale emigration can reduce grievances among those who stay if, for example, emigration of skilled workers creates new opportunities for social mobility for those left behind (Pfaff & Kim 2003). My empirical strategy will take this into account by simultaneously estimating three migration equations for high, medium, and low skilled migrants, respectively. This means that the error term for the i^{th} equation is correlated with the error terms of the other two other equations. Furthermore, our measures capturing horizontal and vertical inequality, respectively, may be endogenous either due to reverse causality or an omit-

ted variable bias. In order to minimise this bias I am using per capita rent of natural resources as an instrumental variable. We simultaneously estimate the three equations with a SUR (seemingly unrelated regression) estimator, and as a robustness check, also with a 3SLS estimator.⁹

3.2. Results

Before providing some preliminary evidence on the type of associations between horizontal and vertical inequality, respectively, on a country's emigration propensity, Figure 1 displays log-linear relationships between skill-based emigration rates and Gini coefficients for 146 countries in 2000.¹⁰

Skill-specific emigration rates (logged) plotted against countries' Gini coefficients displays the following: (1) emigration rates for high skilled workers are systematically higher than those for medium and low skill workers; (2) emigration rates of high skilled people are higher in societies with high inequality; and (3) low skilled people are less migratory in more unequal societies. Interestingly, these results seem to partly contradict Borjas' (1987) predictions regarding the link between income inequality and migration. Regarding the effects of the skill and income distribution in the home country on emigration propensities for various skill groups, the Borjas model implies that *ceteris paribus* the more unequal returns on skills (e.g. in terms of wage rates or income per capita) are distributed the more similar are emigration rates across different skill groups. This implies that societies with a relatively equal income distribution should expect a relatively strong positive selection of highly skilled migrants compared to more unequal societies for which we should expect a more balanced or even negative selection of migrants along skill levels.

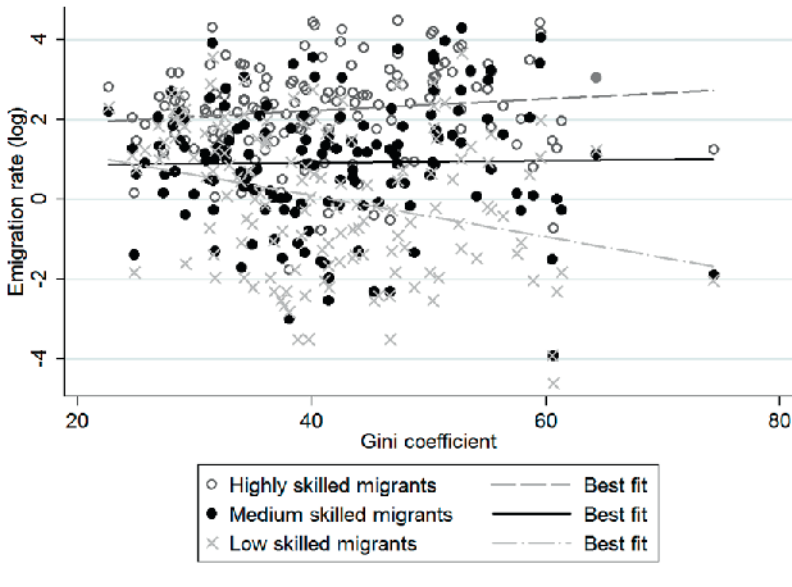


Figure 1 *Inequality and skilled-based emigration (N=146)*

Figure 1 implicitly shows that the Gini coefficient as a measure of overall vertical inequality is –if at all– rather negatively correlated with total (i.e. independent from skill) emigration rates. This contradicts the theoretical rationale proposed by scholars such as Stark (2006) and also some empirical evidence provided by Liebig-Souza (2004) and others, who suggest that more unequal societies (measured by the Gini coefficient) are expected to experience higher emigration rates, mainly due to a higher level of total relative deprivation. However, an ‘overall measure’ such as a country’s Gini coefficient ignores the existence of structural inequality and patterns of ‘double relative deprivation’, which take implications of horizontal and vertical inequalities into account.

Therefore, what matters is not only whether emigration responds to an unequal income distribution in a country, but more importantly, whether within and between group inequalities affect emigration propensities in opposite directions and varying degrees for different skill groups. Social stratification, such as ethnic fractionalization, in combination with relatively strong personal or social identities and respective feelings of relative deprivation are factors that make the role of inequality on emigration less straightforward.

Table 1 Emigration by skill level: Horizontal versus vertical inequality, 2000, SUR

DV:	(1)	(2)	(3)	(4)	(5)	(6)
Emigrants (log) by Skill	High	Medium	Low	High	Medium	Low
High skilled pop (log)	0.418** (0.060)			0.416** (0.061)		
Med skilled pop (log)		0.282** (0.070)			0.290** (0.071)	
Low skilled pop (log)			0.208* (0.087)			0.209* (0.086)
Human development (log)	1.140* (0.560)	3.431** (0.527)	2.214** (0.703)	1.690** (0.524)	4.053** (0.453)	2.710** (0.628)
Country size (log)	-0.258+ (0.136)	-0.253+ (0.150)	-0.198 (0.181)	-0.135 (0.137)	-0.084 (0.151)	-0.017 (0.178)
Political violence	0.449** (0.121)	0.508** (0.142)	0.502** (0.166)	0.285** (0.109)	0.317* (0.127)	0.365* (0.147)
Landlocked	-0.732** (0.225)	-0.783** (0.261)	-1.038** (0.307)	-0.976** (0.227)	-1.040** (0.261)	-1.286** (0.304)
Vertical inequality (intra-group RD)	0.088* (0.043)	0.097* (0.049)	0.059 (0.058)			
Horizontal inequality (inter-group RD)				-0.415+ (0.240)	-0.676* (0.275)	-0.896** (0.321)
Constant	yes	yes	yes	yes	yes	yes
Observations	109	109	109	116	116	116
R-squared	0.68	0.60	0.47	0.65	0.57	0.45

Notes: Standard errors in parentheses. Significance levels: ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$. Robustness test in appendix: OLS versus 3SLS (Instrument: Total natural resources rents per capita).

Table 1 provides some evidence on the direction and extent that horizontal and vertical inequalities are associated with emigration propensities of different skill groups. Estimates for intra-group relative deprivation show that vertical inequality within ethnic groups is positively correlated with emigration. Interestingly though, only high and medium skilled people, i.e. the more privileged population, are significantly inclined to leave the country if exposed to intra-group inequality. On the other hand, for all three skill groups, horizontal inequality seems negatively associated with emigration tendencies. Thus, inequality across ethnic groups has the opposite effect compared to inequality within ethnic groups. Therefore, feelings of collective relative deprivation may work as the behavioural link that turns structural inter-group inequalities into an emigration barrier due to stronger loyalty to their ethnic group. Our estimates show that this 'loyalty

effect' seems particularly strong for lower skilled people whose estimate (-0.896) is more than double the size of the estimate for high skilled people (-0.415). Due to higher opportunity costs, i.e. costs for not leaving are higher for high-skilled than for low-skilled people, better educated people seem less concerned about and affected by structural inequalities across ethnic groups than lower skilled people. Therefore, when faced either with vertical or horizontal inequality, high-skilled people are generally more inclined than the low-skilled population to choose the exit option.

Our other control variables largely show the expected signs. Emigration rates are increasing by skill level, and average human development is positively associated with overall emigration. Interestingly, this relationship is non-linear in skill levels indicating that medium skilled people are becoming more migratory as a consequence of development than high- or low-skilled people. Beyond this, political environment is a robust driver of emigration for all three skill groups, whereas landlocked countries experience less emigration than countries with sea access. Furthermore, there is a weak negative correlation between country size and emigration, which reflects the fact that larger countries are generally less (internationally) migratory because of available internal opportunities, which makes international migration a less attractive option.¹¹

4. Conclusion

Are unequal societies more migratory? The (preliminary) answer is: not necessarily, it depends on the type of inequality.

In fractionalized societies, we usually observe inequality within (i.e. vertical) and across (i.e. horizontal) social groups. This distinction has often been ignored in investigations of the inequality-migration nexus. However, this distinction is important, because people may respond differently to these two types of inequality. In this paper, I have argued that people perceive within-group inequality in terms of feelings of individual relative deprivation, whereas between-group inequality is generating feelings of collective relative deprivation.

Stark (2006) and others suggest that societies with higher income inequality are also characterised by higher migration propensities. However, simple cross-sectional regression analysis on emigration stocks for more than 140 sending countries does not confirm this hypothesis. Overall inequality measured by the Gini coefficient is positively associated with high-skilled emigration and negatively with low-skilled emigration. These somehow

opposing 'effects' are resolved when we use – in my view – more appropriate concepts of vertical and horizontal inequality, which I operationalize by calculating average levels of individual and collective relative deprivation. This shows that emigration propensities are more consistent across skill groups when regressed on these measures of vertical and horizontal inequality. People of all skill levels (and thus, potentially all income levels) emigrate more from countries with relatively high vertical intra-group inequality. This type of inequality is supposed to generate aspirations for personal change and advancement, for which migration is a viable option. On the other hand, people migrate less from countries with relatively high horizontal inter-group inequality.

Interestingly, while the direction of these inequality-migration relationships is quite consistent for different skill groups, the size of these associations reflect some skill-specific patterns. While highly skilled people respond much stronger to vertical inequality within ethnic groups, low-skilled people are significantly more responsive to more structural horizontal inequalities across ethnic groups. This seems to confirm other research that is showing that better education and capabilities spur aspirations for personal advancement, for which, of course, emigration is one possible behavioural instrument. Better education makes people more aware and receptive to outside opportunities, and also more able to realise these opportunities by leaving the country. Poorer and often lower skilled people do not have access to the same set and quality of opportunities, which is why they may be more inclined to be loyal and interested in the fate of their own ethnic group.

In this study, the only marker of social identity is people's ethnicity. In a context of multi-identities, of course, this is a reductionist approach and its only justification is data availability. For future (case) studies it would therefore be interesting to see whether inequality within and across other social identities such as religion, language, class, and so on have slightly different effects on migration behaviour. Compared to other social categories, ethnic boundaries are generally assumed as relatively impermeable, and therefore, able to create a relatively strong element of group identification. Thus, we would expect that *ceteris paribus* horizontal inequality across ethnic groups has a stronger migration-reducing effect than the same type of inequality for other social categories. Obviously, beyond ethnic or any other type of social identity, factors such as a strong national identity can be the 'glue' that holds a society together, and thus, reducing emigration propensities.

Finally, the reverse impact of massive brain drain on inequality in the sending country for example, has been beyond the scope of this paper.

However, it is very likely that emigration of educated and more privileged people may affect vertical as well as more structural horizontal inequality. Depending on whether better educated emigrants are providing opportunities for upward social mobility of relatively deprived or consolidating social inequalities through their financial or social remittances, emigration can either be part of the problem or the solution in overcoming systemic inequality. Empirical evidence on the effect of emigration on horizontal and vertical inequality is not available yet, and therefore conclusive propositions on possible emigration-induced reverse effects on vertical and horizontal inequality are rather speculative.

Possible next steps in gaining a better understanding of the inter-linkages between social fractionalisation, relative deprivation and migration should elaborate more on the role of social identity and attitudes on perceptions of relative deprivation, but also whether and under what circumstances emigration is a strategy to overcome feelings of relative deprivation. For this purpose, more micro-level and case study evidence is needed in order to explore, for instance, whether different types of relative deprivation produce different types of migrants, or whether 'individual migration' is really linked to feelings of personal relative deprivation whereas 'collective migration' may rather result when an entire social group perceives some sense of collective relative deprivation.

Acknowledgement

The research leading to these results is part of the DEMIG (The Determinants of International Migration) project and has received funding from the European Research Council under the European Community's Seventh Framework Programme (FP7/2007-2013) / ERC Grant Agreement 240940.

Notes

1. In fact, Czaika (2012) provides some mixed evidence for India indicating that individual relative deprivation of households increases propensity for internal migration, whereas the effect on international emigration is rather weakly negative.
2. The same holds true for the role of IRD in migrants' decision about staying or returning home. As long as transnational ties remain strong, migrants main reference group is likely to be the origin community. This explains why many migrants are willing to accept low-paid 3D jobs (dangerous, dirty and demeaning) that natives typically refuse. Although income earned by international 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).

3. Tajfel defines a social group on the basis of criteria which are either external or internal. External criteria are 'outside' designations or characteristics, whereas internal criteria are related to group identification.
4. Obviously, a third alternative is inaction where (relatively deprived) members of a disadvantaged group do nothing to improve their personal or collective situation.
5. Highly skilled migrants, who are the comparatively wealthier migrants, and thus, less relatively deprived within their group of reference in the first place, may (1) compare with peers outside their ethnic reference group; and (2) integrate more quickly and easily to the host country context, and thus, will quickly substitute their original ethnically-based point of reference by a new peer group in the host country (e.g. expats), which most likely affects the return decision more than the actual emigration decision. In the long run, though, reference group substitution is also likely to occur also 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 (Czaika & de Haas 2012).
6. Apart from the loyalty effect, collective action for voice, which implies non-migration, is also more likely if the exit option is relatively costly. Exit costs generally depend on various kinds of economic resources, political constraints and social capital, but also on the availability and transferability of human capital. For instance, less educated people face usually higher barriers in transferring their skills and qualifications to another country.
7. The G-Econ dataset assembles data on local economic activity within countries for geographical one degree grid cells, and convert these to comparable GDP figures in purchasing power parity. The data are constructed from a variety of sources, including regional gross product data for the lowest available political subdivision, estimates of regional income by industry, and estimates of rural population and agricultural income. The specific methodologies differ by countries and data availability (see Nordhaus (2006) for a detailed discussion). The database covers about 160 countries, but the temporal scope is limited to observations in 1990.
8. As an alternative measure that would capture the quality of the political climate and environment we considered and tested variables from FreedomHouse (2009) on political and civil rights. In the end, we have decided for the political terror scale variable because it performed better, but results based on the political and civil rights variable can be obtained from the author on request.
9. 3SLS results (additional to OLS) results are reported in the appendix.
10. Find the list of countries including Gini coefficients in the appendix (Table A1).
11. The results of the 3SLS (three-stage least square) regression are reported in the appendix (Tables A4 and A5). The respective results largely confirm the results of the SUR regression (Table 1).

References

- Bhandari, P. (2004). Relative deprivation and migration in an agricultural setting of Nepal. *Population & Environment*, 25(5), 475-499.
- Borjas, G.J. (1987). Self-Selection and the Earnings of Immigrants, *American Economic Review*, 77(4), 531-53.

- Brewer, M.B. (1991). The social self. On being the same and different at the same time. *Personality and Social Psychology Bulletin*, 17, 475-82.
- Brown, R. (2000). *Group Processes: Dynamics Within and Between Groups*. Oxford: Blackwell.
- Cederman, L.-E., Weidmann, N.B., & Gleditsch, K.S. (2011). Horizontal Inequalities and Ethno-Nationalist Civil War: A Global Comparison. *American Political Science Review*, 105(3), 478-95.
- Cederman, L.-E., Wimmer, A., & Min, B. (2010). Why Do Ethnic Groups Rebel? New Data and Analysis. *World Politics*, 62(1), 87-119.
- CEPII (2012) GeoDist. Retrieved in January 2013 from <http://www.cepii.fr/CEPII/en/welcome.asp>
- Czaika, M. (2012). Internal versus international migration and the role of multiple deprivation: some evidence from India. *Asian Population Studies*, 8(2), 125-149.
- Czaika, M., & de Haas, H. (2012). The Role of Internal and International Relative Deprivation in Global Migration. *Oxford Development Studies*, 40(4), 423-442.
- Czaika, M., & Vothknecht, M. (2012). Migration as cause and consequence of aspirations, *IMI Working Paper*, No. 57, University of Oxford.
- De Haas, H. (2010). Migration and Development: A Theoretical Perspective. *International Migration Review*, 44(1), 227-264.
- Docquier, F., & Marfouk, A. (2006) *International Migration, Remittances and Development*, In: C. Ozden and M. Schiff (eds), Palgrave Macmillan: New York.
- Ellemers, N., van Knippenberg, A., & Wilke, H. (1990). The influence of permeability of group boundaries and stability of group status on strategies of individual mobility and social change. *British Journal of Social Psychology*, 29(3), 233-246.
- Freedomhouse. (2009). Freedom in the World. FreedomHouse: Washington, DC. Retrieved in January 2013 from www.freedomhouse.org.
- Gibney, M., Cornett, L., & Wood, R., (2011) Political Terror Scale 1976-2008. Retrieved in January 2013 from the PTS website: www.politicalterrorstudies.org/
- Gurr, T. R. (1993). *Minorities at Risk: A Global View of Ethno-political Conflicts*, Washington DC: Institute of Peace Press.
- Hirschman, A.O. (1970). *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*. Cambridge, MA: Harvard University Press.
- Horowitz, D.L. (1985). *Ethnic Groups in Conflict*. Berkeley: University of California Press.
- Kawakami, K., & Dion, K. L. (1993). The impact of salient self-identities on relative deprivation and action intentions. *European Journal of Social Psychology*, 23(5), 525-540.
- Liebig, T., & Sousa-Poza, A. (2004). Migration, self-selection and income inequality: an international analysis, *Kyklos*, 57(1), 125-146.
- 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*, 19(3), 431-466.
- Mayda, A. (2009). International migration: a panel data analysis of the determinants of bilateral flows. *Journal of Population Economics*, 23(4), 1249-1274.
- Mayer, T., & Zignago, X. (2006). Notes on CEPII's distances measures. www.cepii.fr/distance/noticedist_en.pdf.
- McKenzie, D. & Gibson, J. (2010) *The Development Impact of a Best Practice Seasonal Worker Policy*, Washington, DC: World Bank.
- Nordhaus, W.D. (2006). Geography and Macroeconomics: New Data and New Findings. *Proceedings of the National Academy of Sciences* 103 (10): 3510-17.
- North, D. (1981). *Structure and Change in Economic History*. New York: Norton.
- Ortega, F., & Peri, G. (2013). The Effect of Income and Immigration Policies on International Migration, *Migration Studies*, 1(1), 1-28.

- Østby, G. (2008). Polarization, Horizontal Inequalities and Violent Civil Conflict, *Journal of Peace Research*, 45(2), 143–162.
- Østby, G. (2011). *Horizontal Inequalities and Political Violence*. PhD Dissertation, University of Oslo.
- Pettigrew, T. F., Christ, O., Wagner, U., Meertens, R. W., Van Dick, R., & Zick, A. (2008). Relative Deprivation and Intergroup Prejudice. *Journal of Social Issues*, 64(2), 385–401.
- Pfaff, S., & Kim, H. (2003). Exit–Voice Dynamics in Collective Action: An Analysis of Emigration and Protest in the East German Revolution. *American Journal of Sociology* 109(2), 401–444.
- Quinn, M. A. (2006). Relative deprivation, wage differentials and Mexican migration. *Review of Development Economics*, 10(1), 135–153.
- Runciman, W. G. (1966). *Relative Deprivation and Social Justice: A Study of Attitudes to Social Inequality in Twentieth-Century England*. Berkeley, CA: University of California Press.
- Sen, A. (1992) *Inequality Re-examined*. Oxford: Clarendon Press.
- Stark, O. (1984). Rural-to-Urban Migration in LDCs: A Relative Deprivation Approach. *Economic Development and Cultural Change*, 32(3), 475–486.
- Stark, O. (2006). Inequality and migration: A behavioral link. *Economics Letters*, 91(1), 146–152.
- Stark, O., Micevska, M., & Mycielski, J. (2009). Relative poverty as a determinant of migration: Evidence from Poland. *Economics Letters*, 103(3), 119–122.
- Stark, O., & Taylor, J. E. (1989). Relative Deprivation and International Migration. *Demography*, 26(1), 1–14.
- Stark, O., & Taylor, J. E. (1991). Migration Incentives, Migration Types: The Role of Relative Deprivation. *The Economic Journal*, 101(408), 1163–1178.
- Stark, O., & Yitzhaki, S. (1988). Labour Migration as a Response to Relative Deprivation. *Journal of Population Economics*, 1(1), 57–70.
- Stewart, F. (2002) Horizontal Inequalities: A Neglected Dimension of Development, *QEH Working Paper*, No. 81, University of Oxford.
- Stewart, F., Brown, G., & Mancini, L. (2005). Why Horizontal Inequalities Matter: Some Implications for Measurement, *CRISE working paper*, No. 19, University of Oxford.
- Stewart, F. (ed.) (2008). *Horizontal Inequalities and Conflict: Understanding Group Violence in Multiethnic Societies*. Houndmills, UK: Palgrave Macmillan.
- Tajfel, H. (1982). Social psychology of intergroup relations. *Annual review of psychology*, 33(1), 1–39.
- Tilly, C. (1978). *From Mobilization to Revolution*. New York: McGraw-Hill.
- UNDP (2012) Human Development Index, United Nations: New York, retrieved in January 2013 from <http://hdrstats.undp.org/en/indicators/103106.html>.
- Vogler, M., & Rotte, R. (2000). The effects of development on migration: theoretical issues and new empirical evidence. *Journal of Population Economics*, 13(3), 485–508.
- Walker, I., & Pettigrew, T. F. (1984). Relative deprivation theory: An overview and conceptual critique. *British Journal of Social Psychology*, 23(4), 301–310.
- Walker, I., & Mann, L. (1987). Unemployment, relative deprivation, and social protest. *Personality and Social Psychology Bulletin*, 13(2), 275–283.
- Walker, I., & Smith, H. J. (2000) *Relative Deprivation: Specification, Development, and Integration*, Cambridge University Press, Cambridge.
- Wright, Stephen C. (2001) “Strategic collective action: Social psychology and social change.” *Blackwell handbook of social psychology: Intergroup processes* (2001): 409–430.
- Worldbank. (2012). World Development Indicators. Washington, DC: World Bank.
- Wouterse, F. (2008) *Migration, Poverty, and Inequality: Evidence from Burkina Faso*, Washington, DC: International Food Policy Research Institute.
- Yitzhaki, S. (1979). Relative Deprivation and the Gini Coefficient. *The Quarterly Journal of Economics*, 93(2), 321–324.

About the author

Mathias Czaika, International Migration Institute for International Development,
University of Oxford
3 Mansfield Road, OX1 3TB, Oxford, United Kingdom
Phone: +44-1865-281706, Fax: +44 (0) 1865-281801
IMI, University of Oxford
Email: Mathias.Czaika@qeh.ox.ac.uk

Appendix

Table A1 Gini coefficients (average 1990-2000) of N=146 sample countries

Albania (29.12); Algeria (35.33); Angola (58.64); Argentina (47.92); Armenia (40.22); Australia (35.19); Austria (29.15); Azerbaijan (34.96); Bangladesh (29.19); Belarus (27.32); Belgium (32.97); Belize (59.56); Benin (38.62); Bhutan (46.74); Bolivia (52.76); Bosnia & Herzegovina (28.03); Botswana (60.96); Brazil (58.95); Bulgaria (28.16); Burkina Faso (48.78); Burundi (37.86); Cambodia (38.28); Cameroon (46.82); Canada (32.56); Cape Verde (50.40); Central African Republic (61.33); Chad (39.78); Chile (55.34); China (41.53); Colombia (56.37); Comoros (64.34); Congo (47.32); DR Congo (44.43); Costa Rica (46.82); Cote d'Ivoire (39.11); Croatia (28.62); Czech Republic (27.43); Denmark (24.70); Djibouti (36.77); Dominican Republic (50.44); Ecuador (52.77); Egypt (31.63); El Salvador (51.40); Estonia (36.05); Ethiopia (34.98); Finland (26.88); France (32.74); Gabon (41.45); Gambia (50.23); Georgia (37.50); Germany (28.31); Ghana (39.44); Greece (34.27); Guatemala (55.31); Guinea (43.73); Guinea Bissau (52.00); Guyana (47.38); Haiti (59.50); Honduras (53.57); Hong Kong (43.44); Hungary (26.99); India (36.80); Indonesia (39.41); Iran (43.55); Ireland (34.28); Israel (39.20); Italy (36.03); Jamaica (40.12); Japan (24.85); Jordan (39.89); Kazakhstan (34.00); Kenya (47.35); Korea (31.59); Kyrgyzstan (41.43); Lao PDR (32.67); Latvia (30.98); Lesotho (60.55); Liberia (52.56); Lithuania (32.00); Macedonia (31.33); Madagascar (42.36); Malawi (50.31); Malaysia (48.44); Maldives (37.41); Mali (50.56); Mauritania (42.13); Mexico (50.47); Moldova (36.03); Mongolia (31.74); Morocco (39.33); Mozambique (44.49); Namibia (74.33); Nepal (37.67); Netherlands (30.90); New Zealand (36.17); Nicaragua (55.12); Niger (38.82); Nigeria (45.73); Norway (25.79); Pakistan (31.30); Panama (55.06); Papua New Guinea (50.88); Paraguay (57.50); Peru (45.56); Philippines (44.74); Poland (31.77); Portugal (38.45); Qatar (41.10); Romania (28.34); Russia (43.99); Rwanda (46.68); Saint Lucia (42.60); Sao Tome & Principe (50.60); Senegal (47.79); Serbia & Montenegro (32.55); Sierra Leone (42.52); Singapore (42.48); Slovakia (22.65); Slovenia (28.80); South Africa (57.90); Spain (34.66); Sri Lanka (33.95); Suriname (52.81); Swaziland (60.65); Sweden (25.00); Switzerland (33.68); Tanzania (34.23); Thailand (43.53); Timor Leste (39.52); Togo (34.41); Tonga (31.52); Trinidad & Tobago (40.27); Tunisia (41.24); Turkey (41.53); Turkmenistan (38.08); Uganda (40.94); Ukraine (29.93); United Kingdom (35.97); USA (40.81); Uruguay (43.92); Uzbekistan (45.35); Venezuela (47.13); Viet Nam (35.60); Yemen (36.45); Zambia (54.08); Zimbabwe (50.10)

Table A2 Descriptive statistics

Variable	Source	Obs	Mean	Std. Dev.	Min	Max
Emigrants	Docquier & Marfouk (2006)	194	104195	288147	6	3096853
Low Skilled		194	85899	211629	99	2408250
Medium Skilled		194	103518	201227	115	1441307
High Skilled		194	103518	201227	115	1441307
Population (25+)	Docquier & Marfouk (2006)	194	4875.48	21729.19	2	271159
Low Skilled		194	9694.76	43603.84	3	467883
Medium Skilled		194	1858.81	7558.79	0	94168
High Skilled		194	1858.81	7558.79	0	94168
Income per capita (ppp)	WDI (2012)	220	11687.69	12357.61	312	76403
Human Development	UNDP (2012)	177	0.72	0.17	0.34	0.97
Country size	CEPII (2012)	226	180.44	229.78	0.53	1554.24
Political terror	(Gibney et al. 2011)	179	2.47	1.11	1	5
Landlocked	CEPII (2012)	226	0.16	0.37	0	1
Inequality						
Vertical (intra-group RD)	Own calculation	111	3220.09	3308	160	16947.38
Horizontal (intergroup RD)	Cederman et al (2011)	122	199.88	406	0	2736.72
Gini	Worldbank(2012)	146	41.42	9.96	22.65	74.33

Table A3 Cross-correlation matrix

	Emi-grants	Popu-lation size	HDI	Coun-try size	Po-litical vio-lence	Po-litical vio-lence	Vertical Inequal-ity
Population size	0.333	1.000					
HDI	0.262	0.046	1.000				
Country size	0.250	0.492	-0.036	1.000			
Political violence	0.059	0.167	-0.515	0.271	1.000		
Political violence	-0.168	-0.089	-0.277	0.047	-0.032	1.000	
Vertical Inequality (intra-group RD)	0.231	0.058	0.764	0.186	-0.543	-0.140	1.000
Horizontal inequality (inter-group RD)	0.130	0.018	0.264	0.297	0.063	-0.202	0.221

Table A4 Vertical inequality and migration (OLS vs 3SLS)

DV:	(1)	(2)	(3)	(4)	(5)	(6)
Emigrants (log) by Skill	High	Medium	Low	High	Medium	Low
Estimator	OLS	OLS	OLS	3SLS	3SLS	3SLS
High skilled pop (log)	0.699** (0.085)			0.489** (0.076)		
Med skilled pop (log)		0.759** (0.101)			0.049 (0.085)	
Low skilled pop (log)			0.587** (0.110)			-0.233 (0.147)
Human development (log)	-0.397 (0.663)	3.039** (0.548)	0.752 (0.768)	-3.037 (2.708)	-8.472+ (4.627)	-10.765 (7.871)
Country size (log)	-0.574** (0.156)	-0.676** (0.167)	-0.557** (0.197)	-0.780* (0.326)	-1.458** (0.562)	-1.495 (0.971)
Political violence	0.348** (0.127)	0.257+ (0.152)	0.345* (0.174)	1.201* (0.603)	3.111** (0.973)	3.696* (1.658)
Landlocked	-0.698** (0.233)	-0.624* (0.271)	-0.970** (0.318)	-0.105 (0.511)	1.113 (0.842)	1.278 (1.451)
Vertical inequality (intra-group RD)	0.080+ (0.044)	0.086+ (0.051)	0.053 (0.060)	0.690 (0.453)	2.029** (0.733)	2.406+ (1.254)
Constant	yes	yes	yes	yes	yes	yes
Observations	109	109	109	109	109	109
R-squared	0.71	0.68	0.53	0.17	-4.08	-6.81
Hausman test (prob>chi2)	.	.	.	0.182	0.182	0.182

Notes: Standard errors in parentheses: ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$. Additional instrument: Total natural resources rents per capita.

Table A5 Horizontal inequality and migration (OLS vs 3SLS)

DV:	(1)	(2)	(3)	(4)	(5)	(6)
Emigrants (log) by Skill	High	Medium	Low	High	Medium	Low
Estimator	OLS	OLS	OLS	3SLS	3SLS	3SLS
High skilled pop (log)	0.718** (0.088)			0.340** (0.060)		
Med skilled pop (log)		0.803** (0.103)			0.170* (0.072)	
Low skilled pop (log)			0.615** (0.112)			0.017 (0.097)
Human development (log)	-0.053 (0.649)	3.506** (0.474)	1.073 (0.705)	2.946** (0.647)	5.387** (0.615)	4.955** (0.893)
Country size (log)	-0.483** (0.158)	-0.582** (0.171)	-0.412* (0.196)	0.166 (0.171)	0.347+ (0.194)	0.552* (0.250)
Political violence	0.188 (0.114)	0.074 (0.135)	0.210 (0.154)	0.388** (0.127)	0.488** (0.149)	0.578** (0.191)
Landlocked	-0.935** (0.235)	-0.820** (0.271)	-1.213** (0.314)	-1.193** (0.268)	-1.394** (0.311)	-1.690** (0.402)
Horizontal inequality (<i>inter-group RD</i>)	-0.343 (0.248)	-0.479+ (0.285)	-0.821* (0.332)	-2.222** (0.662)	-3.352** (0.770)	-4.138** (0.988)
Constant	yes	yes	yes	yes	yes	yes
Observations	116	116	116	116	116	116
R-squared	0.68	0.65	0.51	0.48	0.25	-0.04
Hausman test (prob>chi2)	.	.	.	0.001	0.001	0.001

Notes: Standard errors in parentheses: ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$. Additional instrument: Total natural resources rents per capita.



© 2013 Czaika / Amsterdam University Press.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.