



Working Papers

Paper 36, April 2011

Migration and social fractionalization

Double relative deprivation as a behavioural link

Mathias Czaika

DEMIG project paper no. 6

DEMIG

The Determinants
of International
Migration

The research leading to these results is part of the DEMIG 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. www.migrationdeterminants.eu The paper is published by the International Migration Institute (IMI), Oxford Department of International Development (QEH), University of Oxford, 3 Mansfield Road, Oxford OX1 3TB, UK (www.imi.ox.ac.uk). IMI does not have an institutional view and does not aim to present one. The views expressed in this document are those of its independent authors.

The IMI Working Papers Series

IMI has been publishing working papers since its foundation in 2006. The series presents current research in the field of international migration. The papers in this series:

- analyse migration as part of broader global change
- contribute to new theoretical approaches
- advance understanding of the multi-level forces driving migration

Abstract

This study proposes a link between inequality, social fractionalization and the emigration propensity of a population. By assuming that perceptions of relative deprivation may increase migration propensities, I can argue that more fractionalized societies are characterized by lower or higher emigration rates depending on whether social comparisons are made within or across social groups. For intra-group comparisons, the average level of relative deprivation is decreasing with the number of social groups, whereas the opposite is true for inter-group comparisons. Consequently, whether social fractionalization corresponds with higher or lower emigration rates depends on the relative importance of the two concepts, and thus, it is an empirical question. This study finds significantly higher emigration rates for ethnically fractionalized countries, whereas countries with a relatively strong linguistic fractionalization are unequivocally characterized by lower migration propensities.

Keywords: International migration, social fractionalization, inequality, relative deprivation, social comparisons

Author: Mathias Czaika, Research Officer, International Migration Institute, University of Oxford, mathias.czaika@qeh.ox.ac.uk

Contents

Introduction	4
1 Double relative deprivation	4
2 Inequality, social fractionalization, and migration: the empirical evidence	7
Conclusion.....	9
References	10

Introduction

Stark (2006) suggests relative deprivation as a conceptual link for the empirical finding by Liebig and Sousa-Poza (2004) that societies with higher income inequality are also characterized by higher migration propensities. However, this finding seems empirically not robust since I rather find the contrary: income inequality is insignificantly correlated with the emigration rates of about 188 countries (Table 1). Does this result imply that relative deprivation is inappropriate as a behavioural link between income inequality and migration? No, but the link is incomplete. In order to explain this new evidence, I consider social fractionalization (i.e. the divide of a society into separate groups) as the missing link and reformulate Stark's (2006) definition of total relative deprivation by identifying two separate definitions of relative deprivation based on intra-group and inter-group comparisons of individuals. This distinction between intra-group ('egoistic') and inter-group ('fraternal') relative deprivation was first made by Runciman (1966). According to this refinement, people can either feel personally deprived within the social group they belong to, or as members of this social group compared to other groups, or both (Pettigrew et al. 2008). Thus, individual (intra-group) relative deprivation (IRD) depends on the relative position within a social group, while group-based (inter-group) relative deprivation (GRD) is determined by the relative position of a social group across the entire society. If these two types of social comparisons constitute the sources for feelings of relative deprivation, then each contributes to an overall perception of relative deprivation.

In the following, I argue with Stark and Taylor (1989; 1991) that relative deprivation increases migration aspirations, and thus, the likelihood for emigration. Furthermore, Stark (2006) shows for a non-fractionalized society that total relative deprivation, i.e. the population-wide aggregation of individual relative deprivation based on individual income, equals the product of the Gini coefficient of income inequality and total population income, which implies that emigration rates increase with income inequality. I can show, however, that social fractionalization can change the level of total relative deprivation, and thus, can affect emigration propensities independently of the Gini coefficient. This result is based on the decomposition of relative deprivation into intra-group and inter-group relative deprivation.

In Section 1, I introduce this concept of 'double relative deprivation' and provide the rationale for its link between social fractionalization and migration. In Section 2, I provide some empirical evidence on the relationship between inequality and emigration and the ambiguous role of social fractionalization. I conclude with some implications.

1 Double relative deprivation

We may well assume that an individual's perception of relative deprivation arises from inter-personal comparisons of his situation with those who are better off. According to Yitzhaki (1979), individual relative deprivation is an aggregate income shortfall of an individual with income y_i from the incomes of all those who are richer divided by the population size N . A population-wide comparison of income without any fractionalization of the society (i.e. number of social groups being $K = 1$) generates the following level of relative deprivation for each individual $i = 1, \dots, N$:

$$RD(y_i) = \frac{1}{N} \sum_{j=i+1}^N (y_j - y_i) \quad (1)$$

Stark (2006) shows that the total (aggregate) relative deprivation TRD is equal to the total population income Y times the Gini coefficient of income inequality G of this population:

$$G = \frac{\frac{1}{N} \sum_{i=1}^N \sum_{j=i+1}^N (y_j - y_i)}{\sum_{i=1}^N y_i} = \frac{\sum_{i=1}^N RD_i}{\sum_{i=1}^N y_i} = \frac{TRD(k=1)}{Y} \quad (2)$$

Moreover, Stark (2006) assumes, as I do, that the emigration propensity increases with the level of relative deprivation, and thus, the population's emigration rate (M/N) increases with the level of total relative deprivation. Consequently, rising income inequality leads to higher emigration rates:

$$Prob(M) = \frac{M}{N} = f(TRD) \quad \text{with} \quad \frac{\partial Prob(M)}{\partial TRD} \cdot \frac{\partial TRD}{\partial G} > 0. \quad (3)$$

I argue now that the relationship between inequality and emigration is not necessarily positive, taking into consideration social fractionalization of a country's population. Feelings of relative deprivation are assumed to be based on two sources: first, individual relative deprivation (IRD) based on intra-group comparisons within the social group an individual belongs to; and second, group-based relative deprivation (GRD) based on an inter-group comparison of the economic situation of the social group an individual belongs to and all other groups who are better off (i.e. with higher average intra-group income). I assume that this type of relative deprivation is equally perceived by all group members (equal identification with a social group). Thus, individual relative deprivation IRD_{ik} is defined as the expected mean excess income of all members of group $k \in K$ richer than individual i , whereas group-based relative deprivation GRD_{ik} is defined as the expected mean excess average income of all members of group $k \in K$ with respect to all groups with an average income higher than \bar{y}_k :

$$IRD_{ik}(y_i) = \frac{1}{n_k} \sum_{j=i+1}^{n_k} (y_j - y_i), \quad (4a)$$

$$GRD_{ik}(\bar{y}_k) = \frac{1}{N} \sum_{l=k+1}^K (\bar{y}_l - \bar{y}_k). \quad (4b)$$

Without changing the main implication, I further assume that incomes y_i of the N individuals are discretely ordered according to $y_i = \{1, 2, \dots, N - 1, N\}$ and are fractionalized in K social groups with equal and integer group sizes, i.e. $n_k = \frac{N}{K} \in \mathbb{N}$, while group formation is characterized by maximum inter-group variance, i.e.,

$$\delta(N, K) = \sum_{k=1}^K (\bar{y}_k - \bar{y})^2 = \max! \quad (5)$$

Then, total individual relative deprivation $TIRD$ within and aggregated across K social groups of size n_k with $N = \sum_{k=1}^K n_k$ is given by:

$$TIRD(N, K) = \sum_{k=1}^K \frac{n_k^2 - 1}{6} \quad (6)$$

Total individual relative deprivation $TIRD$ with N individuals fractionalized in $1 < K, < N$ groups is then strictly smaller than the total relative deprivation (TRD) in a non-fractionalized society:

$$TIRD(N, K) = \frac{1}{6K} (N^2 - K^2) \leq TRD(N, K = 1) \quad (7)$$

$$\text{with } \frac{\partial TIRD}{\partial K} = -\frac{N^2}{6K^2} - \frac{1}{6} < 0 \quad \text{and} \quad \frac{\partial TIRD^2}{\partial^2 K} = \frac{N^2}{3K^3} > 0.$$

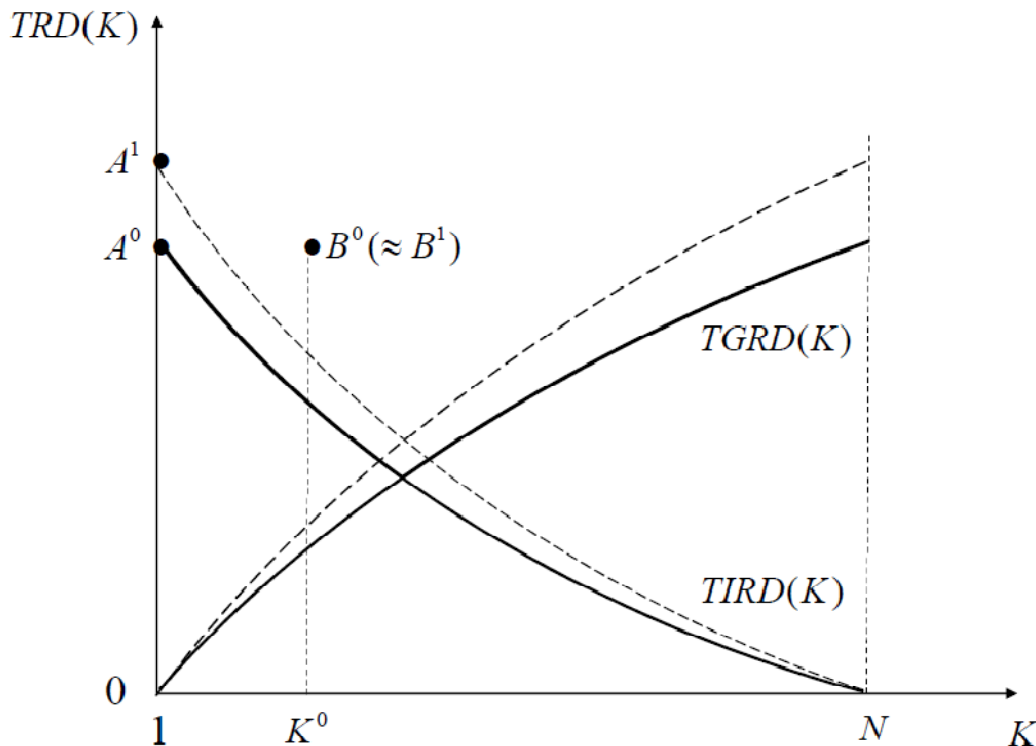
Accordingly, and given the same assumption on group size and formation, total group-based relative deprivation $TGRD$ aggregated across $K > 1$ social groups is also strictly smaller than the corresponding level of TRD for a non-fractionalized society:

$$TGRD(N, K) = \frac{N^2}{6K^2} (K^2 - 1) \leq TRD(N, K = 1) \quad (8)$$

$$\text{with } \frac{\partial TGRD}{\partial K} = \frac{N^2}{3K^3} > 0 \quad \text{and} \quad \frac{\partial TGRD^2}{\partial^2 K} = -\frac{N^2}{K^4} < 0.$$

Figure 1 displays the relationship between the level of social fractionalization (number of social groups) and the levels of both aggregates of individual and group-based relative deprivation, respectively. The $TIRD$ function is monotonically decreasing with the number of groups K , i.e. with the degree of social fractionalization. The contrary is true for total group-based relative deprivation, which is monotonically increasing with the level of social fractionalization. Obviously, the assumptions on inter-group variance and group formation determine the concrete shape of the two curves. However, loosening these two assumptions only changes the convexity (concavity) of the two curves, but not their monotone character.

Figure 1: Decomposition of total relative deprivation in a fractionalized society



The question of how relevant these two concepts of relative deprivation are in driving the perception of relative deprivation of individuals is an empirical one to be studied in the next section. But the implications so far are clear: if, within a society, all individuals perceive relative deprivation only or mainly through inter-personal comparisons within their social group, then the total level of relative deprivation ($TIRD$) is smaller the more fractionalized a society is. In this case, emigration propensities decrease with the degree of social fractionalization. If, however, perceptions of relative deprivation are rather based on inter-group comparisons, levels of total relative deprivation increase with the number of social groups. Yet, more likely is that total relative deprivation is a composite function with some weights ($1 \geq \alpha, \beta \geq 0$) given to intra-group and inter-group relative deprivation, respectively, indicating their relative importance:

$$TRD(N, K) = \alpha \cdot TIRD(N, K) + \beta \cdot TGRD(N, K) \quad \text{for } 1 < K < N. \quad (9)$$

In Figure 1, B^0 depicts the level of total relative deprivation based on a combination of weights ($0 < \alpha^0, \beta^0 < 1$) given to both types of relative deprivation at a certain degree of social fractionalization K^0 . The level of total relative deprivation in a fractionalized society can be higher or lower than the corresponding level of total relative deprivation without fractionalization, which is given by $TRD(N, K = 1; G^0)$ and represented by A^0 . In the latter case, and according to Stark (2006), unfractionalized societies with a higher population-wide inequality ($G^1 > G^0$) also have a higher level of total relative deprivation (represented by A^1) leading to a higher emigration propensity. However, in fractionalized societies with ‘double comparisons’, it is likely that weights given to intra-group and inter-group relative deprivation, respectively, change with the level of population-wide inequality. In this case, rising inequality but a compensating change in relative weights ($d\alpha/d\beta$) can ‘neutralize’ the unambiguous increase of $TIRD$ and $TGRD$ according to

$$\frac{dTRD(N, K > 1)}{dG} \approx 0 \quad \text{if } \alpha \cdot dTIRD - \beta \cdot dTGRD \approx d\beta \cdot TGRD - d\alpha \cdot TIRD, \quad (10)$$

represented by $B^0 \approx B^1$ in Figure 1. Thus, double relative deprivation combined with this kind of ‘neutralization’ effect is able to explain why more unequal societies do not necessarily have higher emigration rates.

2 Inequality, social fractionalization, and migration: the empirical evidence

In the following, I test two null hypotheses: first, more unequal societies have higher emigration rates, and second, social fractionalization does not have an effect on emigration. Concretely, I explore whether ethnic, linguistic and/or religious fractionalization are associated with emigration rates. Based on a cross-country dataset of 188 countries, I estimate the total emigration rate of these countries mainly based on census data around 2000 on total migration stocks compiled by Parsons et al. (2007), and population size in 2000 (World Bank 2009). Income inequality is measured by a country’s Gini coefficient also stemming from World Bank (2009). Social fractionalization is captured by three alternative measures on the number of ethnic, linguistic, or religious groups in a country, based on data collected by Alesina et al. (2003). As control variables I use a country’s standardized geographical size calculated by CEPII (see Mayer and Zignago 2006). I expect a negative

effect of this variable since large countries are predominantly characterized by some internal destinations, which make international emigration less attractive. Beyond this, it is generally not the poorest who migrate, therefore resource constraints and access to human and knowledge capital play a central role (Czaika and de Haas 2011). I control for these ‘migration capabilities’ by including two alternative endowment variables: income per capita including a squared term which captures the non-linear implication of the so-called ‘migration hump’ (Martin and Taylor 1996), and human development, proxied by UNDP’s human development index, which captures broader aspects of human capital and well-being. Since both variables are collinear, I use them separately as robustness checks. Finally, I control for the quality of political institutions (Freedomhouse 2009), which seems to be an appropriate proxy for politically motivated emigration.

Table 1: Log-linear estimation of total emigration: the role of inequality and social fractionalization

DV	Emigration rate					
	(1)	(2)	(3)	(4)	(5)	(6)
Country size	-0.460** (4.78)	-0.426** (5.21)	-0.436** (7.39)	-0.456** (4.65)	-0.442** (5.37)	-0.539** (7.41)
Human development				1.061** (2.63)	0.864** (2.19)	0.756** (2.24)
Income per capita	3.277** (3.20)	3.222** (3.02)	2.488** (2.90)			
Income per capita (sq)	-0.187** (3.07)	-0.188** (2.94)	-0.139** (2.80)			
Political rights	-0.117 (0.69)	-0.283 (1.58)	-0.078 (0.64)	0.123 (0.84)	-0.016 (0.10)	-0.009 (0.07)
Inequality	-0.427 (1.19)	-0.440 (1.16)		0.022 (0.06)	0.056 (0.15)	
No. Ethnic groups	0.469** (2.40)		0.414** (2.39)	0.472** (2.37)		0.335* (1.88)
No. Linguistic groups	-0.311** (2.50)		-0.291** (2.85)	-0.327** (2.60)		-0.245** (2.24)
No. Religious groups	-0.051 (0.29)		-0.110 (0.70)	-0.087 (0.48)		-0.076 (0.46)
No. of obs.	141	145	188	139	143	171
R2 adj	0.334	0.224	0.427	0.317	0.205	0.428

Note: *, ** significant at the 5%, 1% level. t-statistic in parentheses. All models contain a not reported constant term. All variables are included as logarithms.

Table 1 reports the estimation results indicating that income inequality does not have a significant positive effect on emigration rates. This contradicts the implication of the theoretical rationale proposed by Stark (2006), according to which a higher Gini coefficient

is associated with a higher emigration propensity due to a higher level of total relative deprivation (in a non-fractionalized society). The theoretical implications of 'double relative deprivation', however, can explain this non-significance by the fact that higher inequality is not necessarily related to an increasing level of total relative deprivation if perceptions of relative deprivation are simultaneously based on intra-group and intergroup comparisons. Social fractionalization and the formation of group identities are necessary conditions but do not make this implication valid. The empirical results suggest that social fractionalization, with double relative deprivation as an underlying behavioural link, can play a significant role in driving emigration flows. However, the direction of the effect seems to depend on the particular type of social fractionalization: for ethnic fractionalization, for instance, the number of ethnic groups has a significant negative effect on emigration rates, which implies that comparisons within this social category are rather group-based (GRD). On the contrary, intra-group relative deprivation (IRD) seems more relevant for linguistic fractionalizations, indicating that social comparisons are rather made within instead of across linguistic boundaries. For religious fractionalization, expressed by the number of religious groups in a society, no significant effect is found. This could be caused either by the irrelevance of social comparisons within or across this type of social category, or more likely, the (opposing) effects of intra-group and inter-group comparisons are relatively well-balanced. Finally, for the remaining control variables, a strong negative association of country size and migration is found, which suggests that larger countries are more likely to have some alternative internal destinations making international migration less attractive. Human well-being has a positive effect on emigration propensities, while the non-linear (concave) relationship between income per capita and emigration rates confirms the well-established concept of a transitional 'migration hump'. In all model specifications the influence of the political environment on emigration flows is not significant.

Conclusion

Inequality is not positively associated with emigration *per se*. I argue that the emigration propensity may be unaffected by rising inequality because inequality does not necessarily change the aggregate level of relative deprivation, as argued by Stark (2006). In fractionalized societies, however, feelings of relative deprivation can be based on 'double comparisons', i.e. simultaneous comparisons within and across social groups. Then, higher inequality, when 'translated' into terms of intra- and inter-group relative deprivation, does not automatically correspond with higher levels of total relative deprivation if changes in the composition of total relative deprivation (i.e. the relative weights of IRD and GRD) do compensate for higher levels of intra-group and inter-group relative deprivation. Beyond this, the degree of social fractionalization can be associated with higher or lower migration propensities, depending on the social category and the relative importance of intra-group versus inter-group comparisons. This study finds a positive relationship between ethnic fractionalization and emigration, implying that social comparisons are rather group-based and made across ethnic groups. On the other hand, social comparisons seem to be made within instead of across linguistic boundaries. However, the reason why social comparisons for different social categories (ethnicity, language, religion and others) are either characterized by intra-group or inter-group comparisons, or both, is an interdisciplinary question to be answered by future research.

References

- Alesina, A., A. Devleeschauwer, W. Easterly, S. Kurlat and R. Wacziarg (2003) 'Fractionalization', *Journal of Economic Growth* 8: 155–94.
- Czaika, M. and H. de Haas (2011) 'The Role of Internal and International Relative Deprivation in Global Migration', IMI Working Paper 35 (DEMIG Project Paper 5), University of Oxford: International Migration Institute.
- Freedomhouse (2009) *Freedom in the World*, Washington, DC: Freedomhouse.
- Liebig, T. and A. Sousa-Poza (2004) 'Migration, self-selection and income inequality: an international analysis', *Kyklos* 57: 125–46.
- Martin, P. and J. E. Taylor (1996) 'The Anatomy of a Migration Hump', in J. E. Taylor (ed.), *Development Strategy, Employment, and Migration: Insights from Models*, Paris: OECD, Development Centre.
- Mayer, T. and X. Zignago (2006) 'Notes on CEPII's distances measures', www.cepii.fr/distance/noticedist_en.pdf.
- Parsons, C. R., R. Skeldon, T. L. Walmsley and L. A. Winters (2007) 'Quantifying International Migration: A Database of Bilateral Migrant Stocks', World Bank Policy Research Working Paper No. 4165, Washington, DC: World Bank.
- Pettigrew, T. F., O. Christ, U. Wagner, R. W. Meertens, R. Van Dick and A. Zick (2008) 'Relative deprivation and intergroup prejudice', *Journal of Social Issues* 64: 385–401.
- 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.
- Stark, O. (2006) 'Inequality and migration: A behavioral link', *Economics Letters* 91: 146–52.
- Stark, O. and J. E. Taylor (1989) 'Relative deprivation and international migration', *Demography* 26: 1–14.
- Stark, O. and J. E. Taylor (1991) 'Migration incentives, migration types: the role of relative deprivation', *The Economic Journal* 101: 1163–78.
- World Bank (2009) *World Development Indicators*, Washington, DC: World Bank.
- Yitzhaki, S. (1979) 'Relative deprivation and the Gini coefficient', *The Quarterly Journal of Economics* 93: 321–4.