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Net-immigration of developing countries: The role of economic determinants, disasters, conflicts, and political instability

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Net-immigration of developing countries: The role of economic determinants, disasters, conflicts, and political instability*

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Abstract. We provide regressions for the net immigration flows of developing countries. We show that (i) savings finance emigration and worker remittances serve to make staying rather than migrating possible; (ii) lagged dependent migration flows have a negative sign in the presence of migration stock variables; (iii) stocks of migrants in six OECD countries and in the developing countries have non-linear effects. Some of the non-linear effects vanish if indicators for disasters, conflicts and political instability are taken into account.

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1. Introduction

Clark et al. (2007) have pointed out that the literature on estimation of the determinants of migration is surprisingly short. We try to improve this literature in three ways for regressions for net immigration flows (immigration minus emigration). (i) Recent data on migration stocks in six OECD countries by country of origin make it possible to include stocks into migration regressions. This has not been done so far. It allows us to show that there may be threshold values in the migration stock variable in regard to net immigration for developing countries. (ii) There are only a few papers (Mayda 2007, Naudé 2008, Ziesemer 2008a, b) on net immigration of developing countries that use lagged dependent variables and the adequate dynamic panel data method dealing with it. In Mayda's paper on bilateral data the only regressor that survives the introduction of the lagged dependent variable is the income difference between destination and origin countries. Naudé (2008) and Ziesemer (2008a, b) find significantly negative coefficients of lagged dependent variables without employing migration stock data. We employ lagged dependent flows, migration stocks and other variables and show that the sign of the lagged dependent variable remains negative. (iii) There are only two papers (Ziesemer 2008a, b) that use remittances as a regressor although '… direct returns to the nonmigrating family from the migration of a family member are his or her remittances.' (Stark and Bloom 1985). We show that remittances also play a significant role when the regressors mentioned before and savings as an indicator of wealth are statistically significant. (iv) Non-linearities appear when only economic variables are included. (v) When including also variables of disasters, conflict and political instability some of the nonlinearities vanish.

2. Empirical and theoretical considerations regarding related literature

In this section we briefly motivate the regressors used when explaining net immigration of developing countries. The most frequently used variable in migration regressions is the income or wage difference between areas of destination and origin since Todaro (1969). The income difference is the incentive to migrate. The researchers' problem of not knowing the country of destination is often circumvented by using the income of the USA or the OECD as a proxy.[1] Of course, many migrants go to other countries than those of the OECD, but OECD countries are the end of the chain of destinations such as those from Pakistan to India to the USA, or from Latin American countries via Mexico to the USA, or from the former USSR to Poland and Hungary and from there to Western European countries (see Ratha and Shaw 2007). The income differential has been used by Rotte et al. (1997) for migration of asylum seekers to Germany from 17 countries, 1985-1994; by Vogler and Rotte (2000) for migration from 86 Asian and African countries to Germany, 1981-1995; by Clark et al. (2002, 2004, 2007) for migration from 81 countries to the USA, 1971-1998; by Pedersen et al. (2006) for the migration of 129 source countries to 26 OECD countries. The wage difference has been used by Hatton and Williamson (2003) for net-out-migration from 21 African countries 1977-1995.

Lagged dependent flow variables in migration regressions have been used to proxy for the stock of migrants and the size of the network for which no data were available. They are considered to be a weak substitute for the availability of stock data. When stock variables were included the sign of the lagged dependent variable was positive (see Hatton 1995, for UK emigration data 1870-1913). In Naudé (2008) and Ziesemer (2008a, b) the sign of the lagged dependent migration flow variable of developing countries is negative, but they do not include

[1] With the better availability of bilateral data this can be improved. But bilateral data are not available for example for remittances. They are currently constructions transforming balance of payments data of countries into bilateral information by use of models (see Ratha and Shaw 2007).

stock variables. This raises the question whether or not it will remain negative when stock variables are included to indicate the network effect and the lagged dependent variable may reflect the effect of behaviour after having helped a migrant earlier? After having helped migrants five years earlier, the network is larger if it did not shrink for other reasons (see Light et al. 1993) and therefore could help more people migrating. But financial means of those who did help may be more stressed and the necessity to migrate may also be negatively correlated with those five years earlier. Thus, the expected sign is a priori unclear.

The modern theory of migration has argued that one of the major motives for migration is the avoidance of capital market imperfections (Rapoport and Docquier 2006). Remittances are compensation or return to those family members left behind in the country of origin. One of the intentions of the family that sends a migrant is to use the remittances to finance investment and consumption expenditures at home. Moreover, remittances serve as source of foreign exchange (Massey 1988) and diversify against income risk Massey (1993). Therefore remittances should have the effect to allow family members either to stay at home and invest there or to finance other family members' migration using remittances besides domestic income or savings. If the first of these ideas dominates, the expected sign is positive for the regression of net immigration of the country of origin on remittances. If the second one dominates we expect a negative impact of remittances on net immigration.

Migration generates costs paid from wages, other income or wealth (cumulated savings). Based on economic theorizing one would expect that wealth is used to finance migration transaction costs whenever income is insufficient to cover them. As we use income already in the difference with destination countries' income it turned out to be highly insignificant when added to the regressions. We add savings here as a proxy of wealth because all other variants of (cumulated) savings have turned out to be insignificant. The individual decision of selling life stock before the migration – frequently cited in the household panel data literature - will not appear in the macro data because the buyer may reduce her savings by the same amount that the seller increases them through the mutation. In short, other versions of (cumulated) savings are not significant and income variables are correlated with the income difference variable.

The central task of networks of migrants is to help migrants reducing the cost of their migration. To be successful in doing so it might be necessary for the network to have a certain size. For this size the stock of migrants in the six OECD countries of destination is used as an indicator. However, this may also hold for return migration and the question then is which effect is stronger and for which we perhaps have a threshold. Again, the sign of the variable is a priori unclear. Similarly, Rotte et al. (1997) and Vogler and Rotte (2000) use the stock of the population from the sending country in Germany. Other papers have not used this variable yet, but rather they use the stock of migrants in the destination country by country of origin (see Hatton and Williamson 2005, Clark et al. 2002, 2004, 2007). We add the stock of migrants in the developing countries. We also use variables for disasters, conflicts and political instability in order to capture forced migration. In economic and econometric ex-ante considerations these latter variables are part of the residuals. It may be interesting though to look at their effects ex-post.

The regression equation we get from this line of thought is as follows:

$$nm/l = c_1 + c_2 nm(-5)/l(-5) + c_3(\log(oec)-\log(gdppc)) + c_4 wr/gdp + c_5 savgdp + c_6 migst/l + c_7 sm/l + c_8 dta/l + c_9 fdph/l + c_{10} fdps/l + c_{11} d(\log(pol)) + c_{12} d(bdhi-bdlo) + u \qquad (1)$$

nm is net migration, *l* the labour force, *oec* the GDP per capita of the OECD countries, *gdppc* that of the developing country, *savgdp* the percentage of gross savings as a share of GDP multiplied by hundred, *wr* worker remittances, *migst* the stock of migrants in the six OECD countries by country of origin, *sm* the international stock of migrants in the developing country, *dta* the number of persons totally affected by disasters, *fdph* and *fdps* the forcibly displaced persons coming to (home) and stemming from (source) the developing country, *pol* an indicator of the political situation in the country, *bdhi* and *bdlo* the number of battle deaths from high and low estimates respectively and *u* a residual.[2] In order to correct for country size we express some of the variables as percentage of the GDP or of the labour force. More lags, logs and squares and other variants of specifications are indicated in Table1 containing the results.

3. Data and econometric method

We take the economic data from the World Development Indicators. The only exception are the Worldbank data on migrations stocks in six OECD countries (USA, Canada, Australia, UK, France and Germany) named Docquier (1975-2000)[3]. These stock data are only rough proxies for the migration stocks by country of origin because many other countries of destination host migrants as well. Data of net immigration flows of and international migration stocks in the developing countries are estimated by the United Nations Population Division and are available for five year intervals. In the World Development Indicators these data appear as absolute numbers requiring correction for country size. We express migrants as a share of the labour force, because more than 75% of those going to the USA are in the age group of 14-65 (Clark et

[2] Naudé (2008) uses number of disasters rather than number of people affected and instead of battle deaths he uses number of years of conflicts. We think that the seriousness of the events is taken into account better in the variants of the variables we use.

[3] http://siteresources.worldbank.org/INTRES/Resources/469232-1107449512766/Docquier_1975-2000_data_Panel.xls.

al. 2004). Worker remittances received are from the IMF Balance of Payments Statistics Yearbook and contain payments to workers who are (intended to be) employed for more than one year. GDP per capita data in constant US dollars with the base year 2000 stem from the National Accounts. Gross savings are calculated as gross national income less total consumption, plus net transfers and net factor income from abroad.

The CRED EM-DAT[4] database provides data for the total number of people affected by disasters, *dta*. Types of disasters included are complex disasters, drought, earthquake (seismic activity), epidemic, extreme temperature, flood, industrial accident, insect infestation, mass movement dry, mass movement wet, miscellaneous accident, storm, transport accident, volcano, wildfire.

Data on forcibly displaced persons by home and source, *fdph* and *fdps*, are available from the Centre for Systemic Peace.[5] There also the polityIV data are available, which attribute a value of -10 to +10 to every country-year situation for the indicator polity2, *pol*.

Data on high and low estimates of the number of battle deaths by country and year, *bdhi* and *bdlo*, are taken from Lacina and Gleditsch (2005).[6]

We estimate the migration regressions for three samples of countries (excluding OECD countries), those above $1200 and those below it, and a joint sample (see appendix for the names of the countries). These groups have performed quite differently in the past. The richer sample had growth rates of the GDP per capita above 2% and therefore higher ones than the OECD and the poorer sample had growth rates below 1% and was therefore diverging from the OECD.

[4] http://www.emdat.be/. Emergency Events Database of Centre for Research on the Epidemiology of Disasters.
[5] http://www.systemicpeace.org/inscr/inscr.htm (see Marshall and Jaggers 2009). There we also found data on major episodes of political violence (MEPV) from ethnic, civil and international conflicts. The indicators *actotal* and *totalac* are aggregates form subcomponents which have been given values from 1 to 10 (see Marshall 2009) . They are highly correlated with the data on forcibly displaced persons and with the number of battle deaths and therefore will not appear in the regressions shown. Similarly, we could not find any effect for refugees by country of origin and country of asylum, probably because they are included in the international stock of migrants.
[6] http://www.prio.no/CSCW/Datasets/Armed-Conflict/UCDP-PRIO/

Moreover, the poorer countries may have more emigration when getting richer, whereas the richer countries may be expected to have less (see Clark et al. 2007).

Because migration data are available only in five year intervals we will have a time dimension of only four or five periods. For dynamic panels with a relatively short time dimension the preferred method is the system GMM estimator, with or without the use of the orthogonal deviation method of Arellano-Bover (1995).[7] The latter is a variant of a systems GMM estimator, which uses one equation in levels and replaces the first difference equation of the systems GMM estimator by orthogonal deviations. Instruments are listed in the appendix.

The migration stock data are available for six five-year periods, from 1975 to 2000. As we will use five and ten years lags and the orthogonal deviation methods takes another five-year lag, the time dimension will ultimately be reduced to three periods. This then covers the period 1990-2000. This is a fairly 'normal' period after the 'lost decade' following the 1981-83 debt crisis and before the crises of the second millennium, the ICT bust and the financial crisis of 2007-2009.[8] Because of missing data in the unbalanced panel the number of countries is fairly small. It has decreased from 52 and 56 respectively to merely 18 for each sample. Therefore we also estimate the migration regression for the joint sample. The two small samples can also be seen as a disaggregation of the large ones. As they all have similar results this indicates also their robustness. As the results are very similar for all three samples, we run the regressions with the data for disaster, conflict and political instability only for the large sample. In economic ex-ante considerations one would take these events as shocks and leave them in the residuals. In ex-post analyses though one may want to see what their impact on migration was. Therefore regressions

[7] See also Baltagi (2008, chap.8).

[8] By implication, other studies often covering longer periods can do so if they do not employ lagged dependent variables and the even further lagged instruments, which costs two 5-year observations and if they do not use the migration stocks in the six OECD countries which are available not since 1960 but only since 1975.

1 to 3 in Table 1 show only economic arguments, whereas regression 4 includes a variable for disasters and regression 5 variables of conflict and political instability.

4. Results

We interpret the results for the first three regressions using only economic variables in Table 1 as follows. The lagged dependent variable has a negative sign although we have included the migration stock variable. This result has also been found by Naudé (2008) for net immigration of Sub-Saharan African countries, and in Ziesemer (2008a, b) for net immigration into developing countries with GDP per capita below $1200 (at price as of 2000); neither of these authors uses migrations stocks as an additional regressor though.

The income difference has a negative impact on net immigration (see Figure A1) until the income ratio of the OECD and the sample average is about 37 in the poor sample (which is outside the sample), 61 in the rich sample, and 103 in the joint sample. Here the incentive is likely to be large enough and additional increases do not make a difference. This point is reached earlier the poorer people are. Obviously there is some heterogeneity here among the country groups with non-linearities allowing the large sample to have values outside the range of those of the smaller samples, more similar to an envelope rather than an average of the sub-sample. All papers using this argument mentioned in section 2 use a linear version of it and find the expected sign.

Worker remittances have a positive long term impact on net immigration until they reach a value of 6.1% for the poor sample and 7.4% for the rich sample and 10.3% for the total sample (see Figure A2). These values are below the panel average plus one standard deviation. Motives for staying at home and financing expenditures dominate until these values, but beyond these values remittances support emigration.

Savings ratios have a negative impact on net immigration, and more strongly so in poorer countries. In less poor countries this effect is relatively small though.

Migration stocks in the six OECD countries have an S-shaped impact on net immigration (see Figure A3). They first decrease net immigration to a decreasing extent. The minimum value occurs at 2% of the migrant stock as a share of the domestic labour force for the poor sample, at 7.1% for the rich sample and at 10.35% for the large sample. As the panel average of the migration stock is 2% for the small and 8.7% for the richer sample,[9] we can roughly say that in the neighborhood of the average sample value there is a turning point or threshold value for the migration stock to support net immigration, perhaps through return migration. The second turning point or maximum of the S-shaped curve is at a value of 5% for the poor countries where increases in migration stocks reduce net immigration again (most of the data are below a value of 0.1). For the less poor sample and the total sample this is at 51% and 53% respectively, which is still within the sample and perhaps indicates that the cubic term is more than just a smoothing of the quadratic term. Qualitatively results are similar, but quantitatively they differ quite a bit between poor and less poor countries.[10] Rotte et al. (1997) find a negative sign of the size of population from sending countries in Germany in a paper with 17 sending countries, whereas

[9] The panel average of the migration stocks as a percentage of the labour force of the country of origin is 2% for the small and 8.7% for the richer and 5% for the large sample. The standard deviation is 7.65%, 14% and 11.8% respectively. The maximum values are 85%, 77% and 85% respectively.

[10] Hatton and Williamson (2005; Table 2.5) for net immigration, 1970-2000, in a regression for 80 countries, some of which are developed countries, and Clark et al. (2002, 2004, 2007) for migration into the USA from 81 countries, 1971-1998 also use a migration stock variable. But whereas ours is the stock of migrants in the six OECD countries with origin in a developing country, they use the stock of migrants in the developing country born in a different country, which we will use in regressions 4 and 5. They find a linear, positive and linear-quadratic inverted u-shape respectively.

Vogler and Rotte (2000) find a positive sign in a paper with 86 sending countries. Such change in sign is suggestive of trying exponential terms as we did.

Regression 4 shows that the total number affected by people during disasters has a negative impact on net immigration, but to a decreasing extent as expressed by the quadratic term. In the neighbourhood of the average value for the number of affected people the sign switches and we get a negative impact, perhaps because more restrictive policies set in when numbers get higher. We also add the international stock of migrants in the developing country here. The combination of the quadratic and the cubic term lead to a positive but decreasing effect of international stock of migrants in the developing countries on net immigration. Probably this variable comes closest to capturing network effects. In comparison with the previous regressions, one consequence of adding these two variables is that ten-year lags of worker remittances get so highly insignificant that we have taken them out. Therefore eight other countries enter the regression (see the list of countries in the appendix and the detailed description of how samples change between regressions 3, 4 and 5). These countries have strongly negative net immigration, which pulls down the curve corresponding to Figure 3A, and the sum of linear coefficients gets positive. With more observations with net immigration far below the average, therefore the lower part of the S-curve is absent and only a time lag effect which is first negative and then positive is present in the enlarged sample. This is an implication of the fact that for S-curve effects one needs a panel with countries equally frequently represented in all the parts of the S-curve.

In regression 5 we add the number of forcibly displaced persons when the developing country is the source and when it is the home of these persons. As expected, when the country is the source of the displacement this decreases net immigration and when it is the home this increases the net immigration. For the polity variable, the level does not matter but the rate of change does.

The positive change in the political situation seems to give some hope that the situation gets better in the future. The data for the variable are between -0.2 and +0.2. The panel average of this is close to zero. The resulting inverted u-shape shows a positive effect on net immigration until the growth rate of the polity variable is 5%; then the marginal impact gets negative. The last variable that matters is the difference between the growth rates of the high and the low estimate of battle deaths. This has a negative impact on the net immigration. We interpret the variable as a larger uncertainty about the number of battle death persons. If people have the same estimates as the scientists making the estimates, the increase in uncertainty plausibly reduces net immigration. In comparison to the previous regression the disaster variable becomes highly insignificant and therefore is dropped. Another major impact is that the quadratic and the cubic term of the migration stocks in the six OECD countries are no longer significant. The linear negative current effect and the positive lagged term remain intact though. The linear negative current effect and the positive lagged term remain intact though. The impact of the international stock of migrants in the developing countries, *sm*, on net immigration reaches a peak at 7% now, which is half the value of the previous regression, but this non-linearity remains intact as well.

5. Conclusion

We have presented some new empirical results. The negative sign of lagged net immigration flows show that migration dynamics have strong self-stabilizing forces which work against the strong incentive for migration from income differences between rich and poor countries. The S-shaped impact of larger migration stocks in six OECD countries on migration shows that networks first support emigration and later slow it down and perhaps support return migration and support emigration again at high values, implying two thresholds. But this result is highly sensitive to the inclusion of other variables. For policy conclusions the result in regard to remittances is important. If lower taxes and fees on remittances provide an incentive to enhance remittances they increase net immigration (and vice versa) for values of remittances as a share of GDP below the average plus one half standard deviation. The international stock of migrants in the developing countries has an inverted u-shape impact on net immigration.

When adding variables for disasters, conflicts and political instability, we find an inverted u-shape impact for the total number of people affected by disasters, or, alternatively, (i) a normal effect of forcibly displace persons; (ii) an inverted u-shape in the percentage change of the polity variable and (iii) a negative impact of more uncertainty about the number of battle deaths. With the exception of some non-linearity results the economic effects of the first three regressions are persistent to the introduction of variables for disaster, conflict and political instability. At times of conflicts and disasters they are dominated by the latter.

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Table A1: Results for migration regressions

Dependent variable: Net immigration as percent of the labour force, nm/L

Regressors	*Poor sample*	*Less poor*	*Large sample*	*Large* sample	*Large sample*
NM(-5)/L(-5)	-0.314	-0.341	-0.298	-0.242	-0.345
	-0.0196	0.0000	0.0224	0.0075	0.000
LOG(OEC)-LOG(GDPPC)	-3.393	-0.314	-0.300	-0.371	-0.151
	0.003	0.009	0.023	0.028	0.008
(LOG(OEC)-LOG(GDPPC))^2	0.818	0.038	0.032	0.085	0.021
	0.009	0.042	0.032	0.084	0.007
(LOG(OEC)-LOG(GDPPC))^3	-0.064	-	-	-0.006462	-
	0.003	-	-	0.1577	-
WR/GDP	2.077	-	-	-	-
	0.004	-	-	-	-
(WR/GDP)^2	-24.262	-	2.062	1.435	1.076
	0.016	-	0.183	0.005	0.133
WR(-5)/GDP(-5)	-	2.571	1.845	0.484	0.581
	-	0.000	0.000	0.035	0.029
(WR(-5)/GDP(-5))^2	22.007	-17.395	-13.903	-	-
	0.000	0.000	0.000	-	-
WR(-10)/GDP(-10)	3.171	-	-	-	-
	0.000	-	-	-	-
(WR(-10)/GDP(-10))^2	-40.594	-	2.875	-	-
	0.000	-	0.042	-	-
SAVGDP(-2)	-	0.0036	-	-	-
	-	0.0051	-	-	-
SAVGDP(-3)	-0.002	-0.0037	-0.001	-0.0014	-0.001
	0.000	0.009	-1.872	0.0001	0.072
MIGST/L	-	-2.690	-3.304	-2.220	-0.832
	-	0.000	0.000	0.016	0.003
MIGST(-5)/L(-5)	-10.661	2.396	2.839	2.690	1.196
	0.007	0.000	0.000	0.0003	0.000
(MIGST/L)^2	153.694	4.730	5.323	3.063	-
	0.023	0.001	0.000	0.026	-
(MIGST(-5)/L(-5))^2	208.278	-2.380	-2.640	-2.692	-
	0.010	0.000	0.000	0	-
(MIGST/L)^3	3100.415	-2.691	-2.827	-	-
	0.062	0.010	0.002	-	-
(SM(-5)/L(-5))^2	-	-	-	0.418	0.477
	-	-	-	0.000	0.000
(SM/L)^3	-	-	-	-0.185	-0.468
	-	-	-	0.000	0.010
DTA/L	-	-	-	-0.176	-
	-	-	-	0.067	-
(DTA/L)^2	-	-	-	0.278	-
	-	-	-	0.160	-
FDPS/L	-	-	-	-	-685.935
	-	-	-	-	0.000
FDPH/L	-	-	-	-	430.608
	-	-	-	-	0.149
D(LOG(100+POL))	-	-	-	-	1.667
	-	-	-	-	0.011

D(LOG(100+POL))^2	-	-	-	-	-19.201
	-	-	-	-	0.009
D(LOG(1+BDHI))-D(LOG(1+BDLO))	-	-	-	-	-0.004
	-	-	-	-	0.009

Table A1 continued

Period	1990-2000	1990-2000	1990-2000	1990-2000	1990-2000
Countries	18	18	35	43	39
Observations	34	39	73	97	91
S.E. of regression	0.009	0.023	0.022	0.022	0.019
J-statistic	10.500	18.980	26.208	22.186	23.322
Instrument rank	26	29	29	39	39
Sargan-Hansen p-value	0.57	0.33	0.051	0.51	0.5

p-values below coefficients

Transformation: Orthogonal Deviations.

2SLS instrument weighting matrix

Cross-section weights (PCSE)

Appendix: Countries in the samples

Countries with GDP per capita above $1200 (2000) for which we have observations in the regressions presented in Table 1 are:
Belize, Brazil, China, Colombia, Dominican Republic, Egypt, El Salvador, Jamaica, Jordan, Malta, Mexico, Morocco, Panama, Togo, Trinidad and Tobago, Tunisia, Turkey.

Countries with GDP per capita below $1200 (2000) for which we have observations in the regressions presented in Table 1 are:
Bangladesh, Benin, Bolivia, Cameroon, Ghana, India, Indonesia, Madagascar, Mali, Mauritania, Niger, Nigeria, Pakistan, Philippines, Senegal, Sri Lanka, Vanuatu.

The large sample consists of all countries listed in the two groups above.
Both samples originally consisted of more than 50 countries defined by the availability of having data for remittances, aid and GDP. But for this regression there are only a limited number of observations available making the actual samples much smaller.

Countries in regression 4 but not in regression 3: Cape Verde, Algeria, Ecuador, Guatemala, Honduras, Namibia, Rwanda, Yemen.

Countries in regression 4 but not in regression 5: Belarus, Cape Verde, Malta, Vanuatu.

Countries in regression 5 but not in 3: Algeria, Ecuador, Guatemala, Honduras, Namibia, Rwanda, Yemen.

Countries in regression 3 but not in 5: Belarus, Malta, Vanuatu.
Some of the six countries which are in regressions 4 and 5 but not in 3, do not follow the standard pattern of having strongly negative net immigration first and then much less negative or even positive net immigration: Namibia, Rwanda and Ecuador. They first have four or seven periods with about zero net immigration.

Appendix: Instruments

When two lags are mentioned, this indicates the first and the last lag used for dynamic instruments. One lag indicates just a traditional instrument.

Instrument list for the poor sample: NM(-10)/L(-10), NM(-15)/L(-15), ((LOG(OEC)-LOG(GDPPC)),-1,-1), ((LOG(OEC)-LOG(GDPPC))^2,-1,-1), ((LOG(OEC)-LOG(GDPPC))^3,-1,-1), (WR(-1)/GDP(-1)), ((WR/GDP)^2,-1,-2), WR(-10)/GDP(-10), (WR(-5)/GDP(-5))^2, (WR(-10)/GDP(-10))^2, SAVGDP(-3), (MIGST(-5)/L(-5)), (MIGST(-5)/L(-5))^2, (MIGST(-10)/L(-10))^2, (MIGST(-5)/L(-5))^3.

Instrument list for the less poor sample: NM(-10)/L(-10), ((LOG(OEC)-LOG(GDPPC)),-1,-3), ((LOG(OEC)-LOG(GDPPC))^2,-1,-3), WR(-5)/GDP(-5), (WR(-5)/GDP(-5))^2, (WR(-10)/GDP(-10))^2, SAVGDP(-2), SAVGDP(-3), MIGST(-5)/L(-5), MIGST(-10)/L(-10), (MIGST(-5)/L(-5))^2, (MIGST(-10)/L(-10))^2, (MIGST(-5)/L(-5))^3.

Instrument list for the large sample (regression 3): NM(-10)/L(-10), NM(-15)/L(-15), ((LOG(OEC)-LOG(GDPPC)),-1,-2), ((LOG(OEC)-LOG(GDPPC))^2,-1,-2), ((WR/GDP)^2,-1,-2), (WR(-5)/GDP(-5)), (WR(-5)/GDP(-5))^2, (WR(-10)/GDP(-10))^2, SAVGDP(-3), MIGST(-5)/L(-5), MIGST(-10)/L(-10), (MIGST(-5)/L(-5))^2, (MIGST(-10)/L(-10))^2, (MIGST(-5)/L(-5))^3.

Instrument list for large sample (regression 4):
NM(-15)/L(-15), ((LOG(OEC)-LOG(GDPPC)),-2,-4), ((LOG(OEC)-LOG(GDPPC))^2,-2,-3), ((LOG(OEC)-LOG(GDPPC))^3,-2,-3), (WR/GDP)^2,-2,-3), (WR(-5)/GDP(-5)), SAVGDP(-3), MIGST(-5)/L(-5), MIGST(-10)/L(-10), (MIGST(-5)/L(-5))^2, (MIGST(-10)/L(-10))^2, (MIGST(-5)/L(-5))^3, (SM(-10)/L(-10))^2, (SM(-5)/L(-5))^3, DTA(-2)/L(-2), (DTA(-2)/L(-2))^2. *Instrument list for large sample (regression5):*

NM(-15)/L(-15), ((LOG(OEC)-LOG(GDPPC)),-2,-5), ((LOG(OEC)-LOG(GDPPC))^2,-2,-4), (WR(-5)/GDP(-5)), ((WR/GDP)^2,-2,-3), SAVGDP(-3), MIGST(-5)/L(-5), MIGST(-10)/L(-10), (SM(-10)/L(-10))^2, (SM(-5)/L(-5))^3, FDPS(-1)/L(-1), FDPH(-1)/L(-1), D(LOG(100+POL(-1))), D(LOG(100+POL(-1)))^2, D(LOG(1+BDHI(-1)))-D(LOG(1+BDLO(-1))).

Appendix:
Figures of non-linear partial regression impacts within the data range

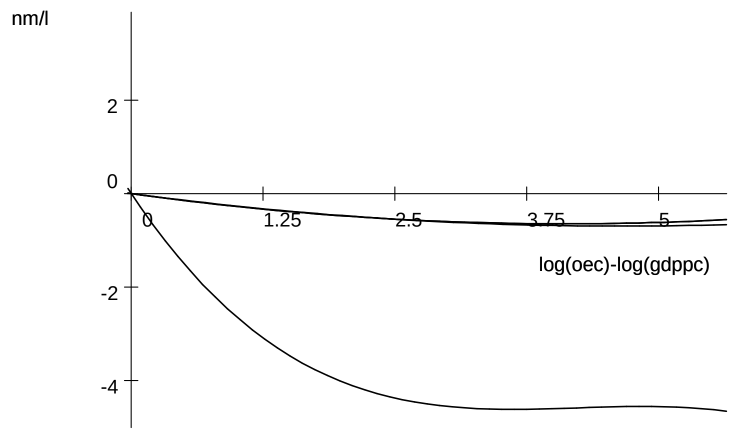

Figure A1: The impact of income differences on net immigration: The lowest curve is for the poor sample, the highest for the rich sample.

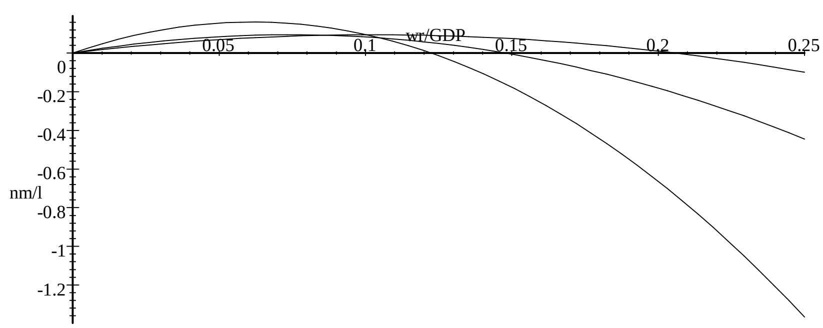

Figure A2: Impact of remittances on net immigration: The steepest curve is for the poor sample, the flattest for the large sample.

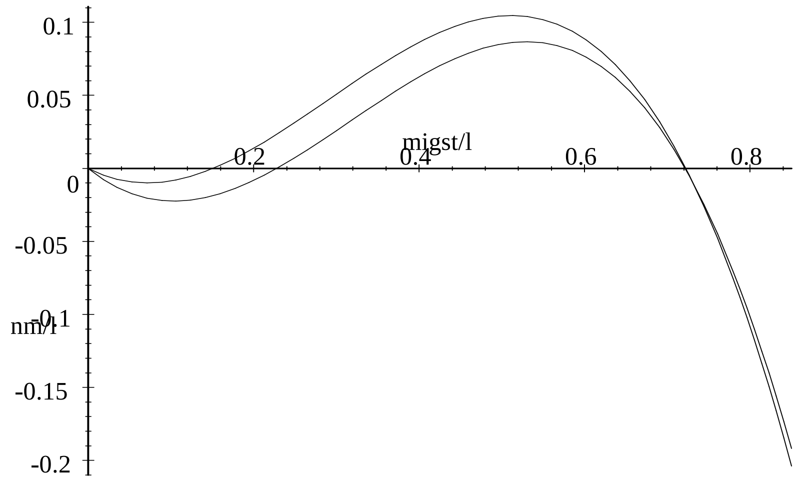

Figure A3a: The impact of the OECD-6 migration stock on net immigration: The higher curve (until 0.72) represents the less poor sample and the lower curve the large sample.

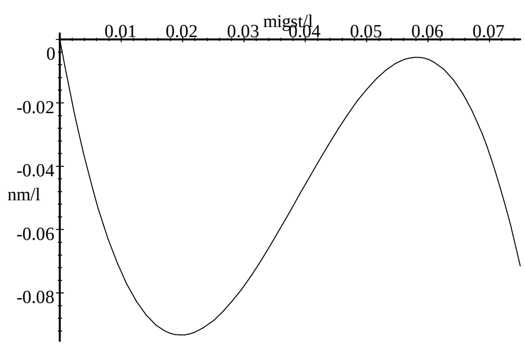

Figure A3b: The impact of the OECD-6 migration stock on net immigration in the poor sample.

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