

# Governance Quality and Net Migration Flows

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## Motivation:

*“Yet what distinguishes Italy from its peers is not the absolute number of its exiled graduates [...], but that it has a net “brain drain”, something more typical of a developing economy. In other words, the number of educated Italians leaving the country exceeds the number of educated foreigners entering it.”*

*“No Italian jobs”, The Economist, Jan 6<sup>th</sup> 2011*

# The Role of the Quality of Institutions (QI)

*"Italy's "nepotism" fuels supply of young, middle class and educated émigrés"*

The Guardian, July 15<sup>th</sup>, 2011

- *Preference-Push*: QI at origin → emigration as a response to bad institutions (Hirschman, 1970)
- *Preference-Pull*: QI at destination → willingness to migrate to countries with good institutions
- *Rent Seeking*: QI at origin → high-skilled benefiting from poor institutions and emigrating less (Mariani, 2007)
- *Forced-Retention*: QI at origin → large emigration costs with bad institutions. Skill differences in retention policies (McKenzie, 2007)

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# This Paper

## Analyze the effect of Quality of Institutions on the Migration Balance

- net bilateral migration flows per skill level
- construct single indicator for QI
- look at different migration corridors (North-South)
- use IV strategy to tackle endogeneity

## Findings

- QI affects net migration flows both for HS and LS
- Responsiveness of LS higher than HS
- Outflows: HS more interested in QI
  - HS more involved in rent seeking
  - more difficult to leave a country with low QI for HS

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# Contribution:

## Macro data to identify size and structure of migration flows

- Mayda (2010): push factors have small impact compared to geographic variables and pull factors
- Docquier et al. (2007): by educational level → HS less sensitive to geographic variables and more to economic factors
- Grogger and Hanson (2011): pattern of positive selection and positive sorting

## Effect of Migration on Governance

- Docquier and Rapoport (2003): high emigration rates increase incentive to improve QI
- Li and MCHale (2005): impact of skilled migrants on sending countries
- Spilimbergo (2009): foreign trained individuals promote democracy in home country

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- 1 Introduction
- 2 Empirical Strategy
- 3 Data
- 4 Results
- 5 Conclusions

# Micro-founded empirical strategy

## Random Utility Model (RUM) of migration

- individual born in country  $i$  decides whether to stay in  $i$  or to migrate to  $j$
- utility of staying in  $i$  is:

$$u_{ij} = \alpha (w_i - \tau l_i) + \beta l_i + \varepsilon_{ij} \equiv \bar{u}_{ij} + \varepsilon_{ij}$$

- utility of migrating to  $j$  is:

$$u_{ij} = \alpha w_j + \beta l_j - C_{ij} + \varepsilon_{ij} \equiv \bar{u}_{ij} + \varepsilon_{ij}$$

- with:

$$C_{ij} = \delta \ln d_{ij} - \epsilon \ln N_{ij} - \rho \ln M_{ij} - \lambda l_i \quad (1)$$

- where:

- $\alpha$  is the marginal utility of income
- $\beta$  is *Preference Push (or Pull)* channel
- $\tau$  is the *Rent Seeking* channel
- $\lambda$  is the *Forced Retention* channel

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# Micro-founded empirical strategy

- The bilateral migration outflow from  $i$  to  $j$  is:

$$\ln M_{ij} = \alpha (w_j - w_i) + \beta l_j - (\beta - \alpha\tau - \lambda) l_i - \delta \ln d_{ij} + \epsilon \ln N_{ij} + \rho \ln M_{ij} + \ln M_{ji} \quad (2)$$

- The migration balance of  $i$  with respect to  $j$  is defined as the log ratio of immigrants to emigrants:

$$\ln \frac{M_{ji}}{M_{ij}} = 2\alpha (w_i - w_j) + (2\beta - \alpha\tau - \lambda) (l_i - l_j) + \epsilon \ln \frac{N_{ji}}{N_{ij}} + (1 - \rho) \ln \frac{M_{ji}}{M_{ij}} \quad (3)$$

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# Micro-founded empirical strategy

## Problems to estimate (3):

Issue: Selection of inflows and outflows

Solution: we proceed similar to Helpman et al. (2008):

- 1 run a selection equation for inflow and outflow separately and get two IMRs
- 2 run a simple OLS using the difference between the two IMR to control for selection in (3)
- 3 as predicted by the model, we use symmetric bilateral factors ( $C_{ij}$ ) as exclusion restriction

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# Data

## Migration Data:

- Docquier et al. (2012): 195x195 matrix of bilateral migration stocks by skill group (college graduates vs less educated individuals, 1990 & 2000)
- From this dataset we compute:
  - the log net migration flows,  $\ln \frac{M_{ij}}{M_{ji}}$
  - the log of diasporas,  $\ln \frac{N_{ij}}{N_{ji}}$

## Distance Variables:

- From CEPII:
  - Distance (log)
  - Colonial Links
  - Common Official Language
  - Border Sharing

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## Quality of Governance:

- Kaufman et al. (2009):
  - Voice and Accountability
  - Political Stability
  - Government Effectiveness
  - Regulatory Quality
  - Rule of Law
  - Control of Corruption
- Principal Component Analysis (PCA) to reduce the dimension of the governance indicators and get a unique synthetic indicator of QI

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## Wage rates by educational level:

- Estimated using:
  - GDP per capita from World Bank Indicators
  - Structure of the labor force from Docquier et al. (2012)

## Relative productivity of workers:

- Correct for the true productivity of migrants in destination countries:
  - relative productivity of migrants and natives in each country (Coulombe and Tremblay, 2009): college graduates from Angola or Portugal have a productivity level of 0.73 & 0.85 of Canadian graduates.
  - We adjust balances to account for the imperfect comparability between entries and exits

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  - We adjust balances to account for the imperfect comparability between entries and exits

# Stylized Facts

Figure 1: Quality of Institutions

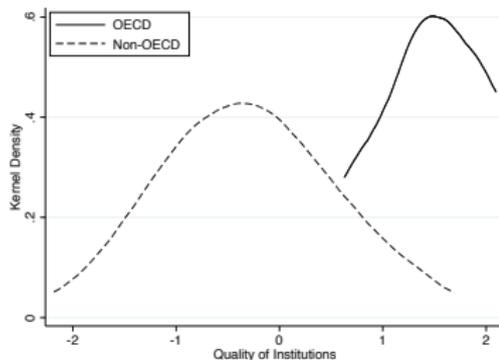
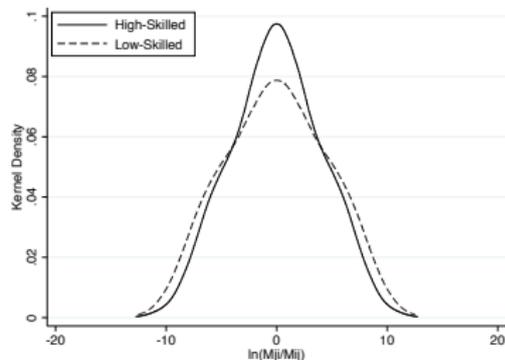


Figure 2: Balance



▸ Descriptives

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# Stylized Facts

Figure 3: H-S Balance and  $\Delta$ PCA

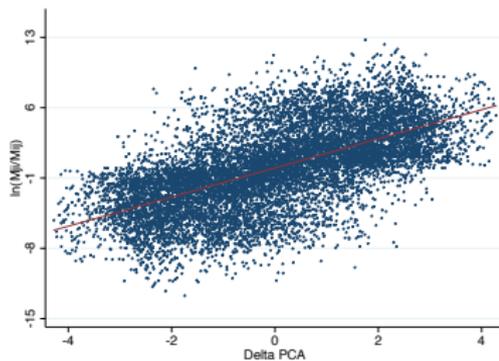
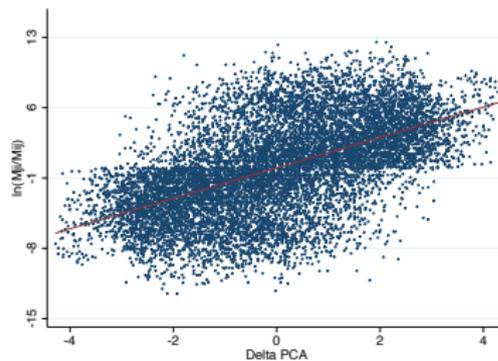


Figure 4: L-S Balance and  $\Delta$ PCA



# Results:

<b>PANEL A: High Skilled Balance</b>						
	(1)	(2)	(3)	(4)	(5)	(6)
Δ Control of Corruption	0.265*** (0.010)					
Δ Rule of Law		0.218*** (0.009)				
Δ Pol. Stability			0.142*** (0.009)			
Δ Voice and Account.				0.179*** (0.008)		
Δ Governm. Effectiveness					0.283*** (0.010)	
Δ Regul. Quality						0.240*** (0.009)
Δ Wage	0.000 (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.004*** (0.000)	0.000 (0.000)	0.001** (0.000)
Δ Population	-0.005* (0.003)	0.003 (0.003)	0.004 (0.004)	0.009*** (0.003)	-0.017*** (0.003)	-0.013*** (0.003)
Δ Diaspora	0.547*** (0.009)	0.563*** (0.009)	0.580*** (0.009)	0.569*** (0.009)	0.552*** (0.009)	0.566*** (0.009)
Δ <i>IMR</i>	-0.142** (0.070)	-0.063 (0.074)	-0.418*** (0.081)	0.050 (0.080)	-0.043 (0.071)	-0.095 (0.072)
Constant	0.000 (0.009)	0.000 (0.009)	0.000 (0.009)	0.000 (0.009)	0.000 (0.009)	0.000 (0.009)
R <sup>2</sup>	0.46	0.45	0.44	0.45	0.46	0.45
Observations	30,800	31,506	29,070	31,506	30,800	30,800

Standard errors in parentheses. \* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

# Results:

<b>PANEL B: Low Skilled Balance</b>						
	(1)	(2)	(3)	(4)	(5)	(6)
Δ Control of Corruption	0.291*** (0.014)					
Δ Rule of Law		0.255*** (0.014)				
Δ Pol. Stability			0.153*** (0.014)			
Δ Voice and Account.				0.254*** (0.011)		
Δ Governm. Effectiveness					0.323*** (0.014)	
Δ Regul. Quality						0.219*** (0.013)
Δ Wage	0.030*** (0.001)	0.032*** (0.001)	0.039*** (0.002)	0.039*** (0.001)	0.031*** (0.001)	0.036*** (0.002)
Δ Population	-0.023*** (0.004)	-0.015*** (0.004)	-0.014*** (0.005)	-0.006 (0.004)	-0.038*** (0.004)	-0.037*** (0.004)
Δ Diaspora	0.436*** (0.011)	0.460*** (0.011)	0.438*** (0.012)	0.472*** (0.011)	0.467*** (0.011)	0.462*** (0.011)
Δ <i>IMR</i>	0.835*** (0.110)	1.003*** (0.114)	0.735*** (0.122)	1.231*** (0.115)	1.221*** (0.116)	1.067*** (0.117)
Constant	0.000 (0.012)	0.000 (0.012)	0.000 (0.013)	0.000 (0.012)	0.000 (0.012)	0.000 (0.012)
R <sup>2</sup>	0.33	0.32	0.32	0.32	0.33	0.32
Observations	29,070	30,102	27,390	30,102	29,070	29,070

Standard errors in parentheses. \* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

## Results:

Table: Net migration Flows and PCA

Sample	(1) All to All	(2) Non-Adjusted	(3) WLS	(4) South-North	(5) North-South	(6) South-South	(7) North-North
<b>PANEL A: High Skilled</b>							
$\Delta$ PCA	0.260*** (0.010)	0.306*** (0.011)	0.251*** (0.009)	0.317*** (0.039)	0.317*** (0.039)	0.202*** (0.011)	0.136 (0.227)
$\Delta$ Wage	0.001*** (0.000)	0.002*** (0.000)	0.001** (0.000)	-0.001 (0.001)	-0.001 (0.001)	0.002*** (0.000)	-0.156*** (0.023)
$\Delta$ Population	-0.004 (0.003)	-0.001 (0.003)	-0.003 (0.003)	-0.049*** (0.012)	-0.049*** (0.012)	0.004 (0.003)	-0.741*** (0.084)
$\Delta$ Diaspora	0.555*** (0.009)	0.594*** (0.010)	0.532*** (0.005)	0.633*** (0.015)	0.633*** (0.015)	0.541*** (0.012)	0.136*** (0.043)
$\Delta$ IMR	0.038 (0.079)	0.108 (0.084)	0.045 (0.083)	-0.813*** (0.306)	-0.813*** (0.306)	0.116 (0.079)	-43.395*** (5.046)
Constant	0.000 (0.009)	0.000 (0.010)	0.000 (0.009)	0.052 (0.072)	-0.052 (0.072)	-0.061*** (0.009)	0.000 (0.089)
R <sup>2</sup>	0.45	0.47	0.44	0.49	0.49	0.39	0.32
Observations	29,070	29,070	29,070	4,340	4,340	23,800	930
<b>PANEL B: Low Skilled</b>							
$\Delta$ PCA	0.313*** (0.015)	0.268*** (0.015)	0.310*** (0.014)	0.535*** (0.058)	0.535*** (0.058)	0.235*** (0.015)	0.915*** (0.274)
$\Delta$ Wage	0.035*** (0.002)	0.032*** (0.001)	0.033*** (0.001)	0.028*** (0.004)	0.028*** (0.004)	0.028*** (0.002)	-0.049* (0.026)
$\Delta$ Population	-0.021*** (0.005)	-0.024*** (0.005)	-0.019*** (0.005)	-0.052*** (0.015)	-0.052*** (0.015)	-0.016*** (0.005)	0.228*** (0.064)
$\Delta$ Diaspora	0.470*** (0.012)	0.429*** (0.011)	0.452*** (0.010)	0.552*** (0.035)	0.552*** (0.035)	0.453*** (0.013)	-2.525*** (0.332)
$\Delta$ IMR	1.311*** (0.123)	1.118*** (0.121)	1.324*** (0.125)	1.490*** (0.447)	1.490*** (0.447)	0.991*** (0.124)	-31.262*** (4.563)
Constant	0.000 (0.013)	0.000 (0.013)	0.000 (0.012)	0.035 (0.090)	-0.035 (0.090)	-0.090*** (0.013)	0.000 (0.135)
R <sup>2</sup>	0.33	0.30	0.32	0.33	0.33	0.28	0.19
Observations	27,390	27,390	27,390	4,080	4,080	22,440	870

Standard errors in parentheses. \* p&lt;0.1, \*\* p&lt;0.05, \*\*\* p&lt;0.01.



# Results:

## Problems:

- Skill-biased migration can affect institutions (Acemoglu et al., 2005)
- High emigration rates provide incentives to reduce rent-seeking (Docquier and Rappoport, 2003)

## Solution:

- IV Strategy
- Quality of institutions of neighboring countries as instrument

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## Results:

Table IV: PCA in Neighboring countries

	(1) All to All	(2) Non-Adjusted	(3) South-North	(4) North-South	(5) South-South	(6) North-North
<b>PANEL A: High Skilled</b>						
$\Delta$ PCA	0.412*** (0.015)	0.475*** (0.016)	0.667*** (0.091)	0.679*** (0.091)	0.004 (0.025)	2.568*** (0.415)
$\Delta$ Wage	0.002*** (0.001)	0.002*** (0.001)	-0.002 (0.002)	-0.002 (0.002)	0.002*** (0.000)	-0.125*** (0.022)
$\Delta$ Population	0.001 (0.003)	0.004 (0.003)	-0.027** (0.013)	-0.026** (0.013)	-0.013*** (0.004)	-0.486*** (0.082)
$\Delta$ Diaspora	0.530*** (0.005)	0.567*** (0.005)	0.615*** (0.012)	0.614*** (0.012)	0.413*** (0.006)	-0.022 (0.044)
$\Delta$ IMR	0.583*** (0.097)	0.709*** (0.103)	0.065 (0.400)	0.094 (0.400)	-0.167* (0.096)	-28.649*** (5.225)
Constant	-0.000 (0.009)	-0.000 (0.010)	0.511*** (0.128)	-0.526*** (0.128)	-0.000 (0.009)	-0.000 (0.095)
R <sup>2</sup>	0.45	0.46	0.48	0.48	0.20	0.21
Observations	29,070	29,070	4,340	4,340	19,460	930
<b>PANEL B: Low Skilled</b>						
$\Delta$ PCA	0.675*** (0.030)	0.618*** (0.030)	1.340*** (0.148)	1.333*** (0.147)	0.020 (0.044)	2.812*** (0.726)
$\Delta$ Wage	0.029*** (0.002)	0.026*** (0.002)	0.024*** (0.005)	0.024*** (0.005)	0.011*** (0.002)	-0.057* (0.031)
$\Delta$ Population	-0.009* (0.005)	-0.013** (0.005)	-0.016 (0.017)	-0.016 (0.017)	-0.024*** (0.006)	0.291*** (0.077)
$\Delta$ Diaspora	0.541*** (0.012)	0.498*** (0.012)	0.697*** (0.042)	0.696*** (0.042)	0.321*** (0.015)	-2.254*** (0.417)
$\Delta$ IMR	2.517*** (0.159)	2.282*** (0.157)	3.948*** (0.623)	3.928*** (0.621)	-0.093 (0.190)	-25.718*** (5.892)
Constant	-0.000 (0.013)	-0.000 (0.013)	0.708*** (0.147)	-0.702*** (0.147)	-0.000 (0.013)	-0.000 (0.137)
R <sup>2</sup>	0.31	0.29	0.30	0.30	0.17	0.15
Observations	27,390	27,390	4,080	4,080	18,360	870

Standard errors in parentheses. \* p&lt;0.1, \*\* p&lt;0.05, \*\*\* p&lt;0.01.

# Results:

## Puzzle:

- Why is  $2\beta_l - \alpha_l\tau_l - \lambda_l > 2\beta_h - \alpha_h\tau_h - \lambda_h$ ?
- Either  $\alpha_h\tau_h > \alpha_l\tau_l$  (high skilled more involved in rent seeking)
- Or  $\lambda_h > \lambda_l$  (forced retention for high-skilled)
- No data to disentangle the effects
- Use migration outflows to better understand the mechanisms at work
- Use PPML for the zeros

# Results:

## Effects on Outflows:

- QI at Origin has negative impact
- QI at Destination has positive impact
  - more for HS than for LS
  - particularly important for developing countries→FDI?

[▶ Tables](#)

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## Evidence:

- High-Skilled more attracted by quality of institutions abroad
- HS might benefit from bad governance (no *Rent Seeking*)
- HS have more difficulties to leave the origin country (no *Forced Migration*)

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- HS might benefit from bad governance (no *Rent Seeking*)
- HS have more difficulties to leave the origin country (no *Forced Migration*)

# Conclusions

## Findings

- QI impact net migration flows both for HS and LS
- Although HS have stronger preferences for QI, their response is milder
  - they are more involved in rent seeking than LS
  - easier for LS to leave a country with low QI

## Policy:

- For poor countries:
  - good institutions attract high-skilled from both developing and developed countries (FDI?)

# Conclusions

## Findings

- QI impact net migration flows both for HS and LS
- Although HS have stronger preferences for QI, their response is milder
  - they are more involved in rent seeking than LS
  - easier for LS to leave a country with low QI

## Policy:

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# Thank you!

## Micro-founded empirical strategy

- probability that an individual born in country  $i$  will move to country  $j$ :

$$\Pr \left[ u_{ij} = \max_k u_{ik} \right] = \frac{\exp [\bar{u}_{ij}]}{\sum_k \exp [\bar{u}_{ik}]},$$

- the bilateral ratio of migrants in country  $j$  to the non-migrants is given by:

$$\frac{M_{ij}}{M_{ii}} = \frac{\exp [\bar{u}_{ij}]}{\exp [\bar{u}_{ii}]} = \frac{\exp [\alpha w_j + \beta l_j - C_{ij}]}{\exp [\alpha (w_i + \tau l_i) + \beta l_i]}$$

- the log ratio of emigrants from  $i$  to  $j$  to residents of  $i$  is given by the following expression

$$\ln \left[ \frac{M_{ij}}{M_{ii}} \right] = \alpha [w_j - w_i] + \beta l_j - (\beta - \alpha \tau) l_i - C_{ij} \quad (4)$$

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# Stylized Facts

**Table:** Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Net high skilled	37,830	0	2.1790	-12.7328	12.7328
Net high skilled Down.	37,830	0	2.0304	-12.2595	12.2595
Net low skilled	37,830	0	2.4536	-12.5255	12.5255
Net low skilled Down.	37,830	0	2.5422	-12.7413	12.7413
$\Delta$ Wage <sub>hs</sub>	37,442	0	41.7907	-217.4711	217.4711
$\Delta$ Wage <sub>ls</sub>	37,442	0	18.5528	-61.8990	61.8990
$\Delta$ Log Natives <sub>hs</sub>	34,040	0	3.5238	-13.8800	13.8800
$\Delta$ Log Natives <sub>ls</sub>	32,220	0	3.2456	-12.3664	12.3664
$\Delta$ Log Diaspora	37,830	0	2.7098	-13.4114	13.4114
$\Delta$ PCA	33,672	0	1.4180	-4.2800	4.2800
$\Delta$ Control of Corruption	35,910	0	1.3962	-4.2007	4.2007
$\Delta$ Rule of Law	37,442	0	1.3919	-4.1124	4.1124
$\Delta$ Political Stability	33,672	0	1.3922	-4.1294	4.1294
$\Delta$ Violence & Accountability	37,442	0	1.3957	-3.6386	3.6386
$\Delta$ Government Efficiency	35,910	0	1.3949	-4.1758	4.1758
$\Delta$ Regulatory Quality	35,910	0	1.3839	-4.5501	4.5501
Log Distance	35,532	8.7660	0.7769	4.0879	9.9010
Colonial Links	35,532	0.0109	0.1039	0	1
Common Language	35,532	0.1548	0.3617	0	1
Common Border	35,532	0.0157	0.1245	0	1

## Results:

Table: Outflow analysis

PANEL A: High Skilled					
	(1)	(2)	(3)	(4)	(5)
	All to All	South-North	North-South	North-North	South-South
PCA Origin	-0.270*** (0.061)	-0.186*** (0.071)	0.648 (0.463)	-0.305 (0.252)	0.019 (0.128)
PCA Destination	0.452*** (0.070)	0.121 (0.359)	0.699*** (0.197)	-0.140 (0.286)	0.561*** (0.116)
Δ Wage	-0.007*** (0.002)	-0.002 (0.002)	-0.011** (0.005)	-0.011* (0.007)	-0.016*** (0.002)
Origin Diaspora	0.599*** (0.036)	0.740*** (0.052)	0.241*** (0.054)	0.519*** (0.098)	0.445*** (0.056)
Colonial Links	0.175 (0.120)	-0.102 (0.137)	0.827** (0.369)	0.499** (0.229)	1.055*** (0.345)
Distance	-0.140 (0.086)	-0.048 (0.092)	-0.567** (0.244)	-0.183 (0.128)	-0.534*** (0.136)
Common Language	0.416*** (0.131)	0.345*** (0.115)	0.553** (0.235)	0.700*** (0.229)	0.590*** (0.180)
Common Border	0.058 (0.358)	0.326 (0.464)	0.599 (0.672)	-0.065 (0.291)	-0.286 (0.252)
Origin Residents	0.229*** (0.032)	0.204*** (0.038)	0.425*** (0.070)	0.175** (0.073)	0.309*** (0.063)
Destination Residents	0.174*** (0.041)	0.140** (0.069)	0.532*** (0.064)	0.065 (0.082)	0.298*** (0.056)
Constant	-1.928** (0.913)	-2.362* (1.241)	-4.936*** (0.987)	2.279 (1.442)	-0.734 (0.990)
R <sup>2</sup>	0.68	0.87	0.25	0.47	0.59
Observations	29,070	4,340	4,340	930	19,460

Standard errors in parentheses. \* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

## Results:

Table: Outflow analysis

PANEL B: Low Skilled					
	(1)	(2)	(3)	(4)	(5)
	All to All	South-North	North-South	North-North	South-South
PCA Origin	-0.270*** (0.075)	0.008 (0.097)	-0.678 (0.756)	-0.608* (0.339)	0.002 (0.120)
PCA Destination	0.105 (0.111)	0.316 (0.275)	0.118 (0.233)	0.246 (0.315)	0.308*** (0.101)
$\Delta$ Wage	-0.025*** (0.008)	-0.040*** (0.011)	-0.008 (0.019)	-0.020 (0.016)	-0.004 (0.012)
Origin Diaspora	0.620*** (0.047)	0.733*** (0.046)	0.461*** (0.093)	0.231*** (0.071)	0.535*** (0.063)
Colonial Links	-0.454 (0.280)	-0.355* (0.208)	0.537 (0.486)	0.518 (0.404)	0.085 (0.466)
Distance	-0.009 (0.150)	-0.101 (0.119)	-0.075 (0.322)	-0.387*** (0.134)	-0.361*** (0.139)
Common Language	-0.084 (0.197)	0.116 (0.127)	0.283 (0.490)	-0.185 (0.418)	-0.096 (0.213)
Common Border	0.957 (0.624)	1.250*** (0.240)	0.091 (0.717)	0.602 (0.444)	0.082 (0.242)
Origin Residents	0.019 (0.037)	0.109*** (0.033)	0.176*** (0.067)	0.234*** (0.080)	-0.084 (0.058)
Destination Residents	0.197*** (0.040)	0.221*** (0.047)	0.337*** (0.105)	0.256*** (0.084)	0.054 (0.060)
Constant	-0.473 (1.916)	-3.172*** (0.801)	-1.833 (2.059)	2.214 (1.924)	6.708*** (0.834)
R <sup>2</sup>	0.67	0.98	0.09	0.21	0.26
Observations	29,069	4,340	4,339	930	19,460

Standard errors in parentheses. \* p&lt;0.1, \*\* p&lt;0.05, \*\*\* p&lt;0.01.