# Factors of international migration: contemporary trends

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Laboratory for Comparative Social Research National Research University Higher School of Economics April, 24 2012 **The practical goal of this research is** to identify the socio-economic, socio-cultural and political characteristics of the countries that affect the migration inflow.

In order to achieve this goal I intend to:

- 1. Give an overview of current situation using statistics
- 2. Disclose the determinants of migration inflow
- 3. Evaluate the explanation power of these factors in the model

Research unit – a country

Subject of the research – the determinants of the migration inflow

### Theoretical background and hypotheses

Wage / employment /levels of economic development differentials ("neo-classical economics," "push-pull", NELM)

E. Lewis, E. Lee, O. Stark, R. Skeldon

#### Hypothesis 1:

Migrants share is more likely to be higher in those countries where immigrants can raise their living standards

No one is above the law

A. Dicey, J. Raz, F. Hayek

#### Hypothesis 2:

Migrants share is more likely to be higher in societies where one is able to pursue his personal inspirations being certain that government will not be used to frustrate his efforts

### Theoretical background and hypotheses

Historical, cultural, linguistic links, localized "cultures of emigration"

E. Wallerstein, M. Kritz and H. Zlotnik

Hypothesis 3:

Migrants share is more likely to be higher in countries which have common cultural or historical links

International Migration by Educational Attainment, "brain drain"

F. Docquier and M. Abdeslam; R. Adams, Jr.

#### **Hypothesis 4:**

Highly-educated migrants have long-term goals and ambitions while low-educated migrants' motives are more simple and short-term

# Data and variables (179 countries)

#### Raising living standards (H1)

- GDP per capita
- Human Development Index difference btw sending and receiving countries
- Human Security Index difference btw sending and receiving countries
- Petroleum Exporting Countries

#### Everyone is equal before the law (H2)

- Rule of law
- Civil liberties and Political rights index
- Democracy index

#### Historical and cultural links (H3)

- Common colonial relationship
- Common official language

#### **Educational attainment (H4)**

- Common colonial relationship
- HDI difference
- Citizenship

# Generalised determinants of migration

(t-values)

Independent variables	Dependent variable: <i>share of immigrants</i> , 2010				
	Model 1	Model 2	Model 3		
Log, size of population, 2010	-0.28*** (-4,6)	-0.36*** (-5,2)	-0.29*** (-4,8)		
HDI difference between sending and receiving countries	4,47*** (3,4)	3.57** (2,7)	3.17* (2,5)		
Human Security Index difference between sending and receiving countries	4.53* (2,4)	1.34 (0,6)	1.45 (0,8)		
Rule of law	-	0.47*** (3,5)	0.72*** (3,5)		
Petroleum Exporting Countries	-	-	0.86* (2,2)		
Common colonial relationship	-	-	0.79** (2,6)		
Adjusted R <sup>2</sup>	0,36	0,41	0,45		

### Model diagnostics

outlierTest(mod1) # Bonferonni p-value for most extreme obs

No Studentized residuals with Bonferonni p < 0.05 Largest |rstudent|:

	rstudent	unadjusted	p-value	Bonferonni	р
Zimbabwe	2.590256	(	0.010676	]	NA

vif(mod1) # variance inflation factors

hdi_diff	log_pop	rule2	oil	colony
1.313624	1.121112	1.254471	1.142708	1.071433

Call: lm(formula = logit M ~ hdi diff + log pop + rule2 + oil + colony, data = world) Residuals: Min 1Q Median 3Q Max -2.49973 -0.79916 0.02268 0.73443 2.63872 Coefficients: Estimate Std. Error t value Pr(>|t|) (Intercept) -4.31712 0.33862 -12.749 < 2e-16 \*\*\* hdi\_diff 4.07680 1.06779 3.818 0.000206 \*\*\* log pop -0.29494 0.05819 -5.069 1.32e-06 \*\*\* rule2 0.49745 0.10709 4.645 8.12e-06 \*\*\* oil 0.91889 0.38668 2.376 0.018921 \* colony 0.79786 0.30040 2.656 0.008882 \*\* \_ \_ \_ Signif. codes: 0 `\*\*\*' 0.001 `\*\*' 0.01 `\*' 0.05 `.' 0.1 ` ' 1 Residual standard error: 1.102 on 132 degrees of freedom Multiple R-squared: 0.4692, Adjusted R-squared: 0.449 F-statistic: 23.33 on 5 and 132 DF, p-value: < 2.2e-16 ASSESSMENT OF THE LINEAR MODEL ASSUMPTIONS USING THE GLOBAL TEST ON 4 DEGREES-OF-FREEDOM:

Level of Significance = 0.05

Value p-valueDecisionGlobal Stat0.677010.9541 Assumptions acceptable.Skewness0.029750.8631 Assumptions acceptable.Kurtosis0.419040.5174 Assumptions acceptable.Link Function0.180940.6706 Assumptions acceptable.Heteroscedasticity0.047280.8279 Assumptions acceptable.

QQ Plot



t Quantiles

 $Im(logit_M \sim hdi_diff + log_pop + rule2 + oil + colony)$ 



Fitted values

Leverage

**Influence Plot** 



Hat-Values Circle size is proportial to Cook's Distance

## Most influential cases are...

From these plots, we can identify observations Andorra, Tunisia, and Zimbabwe are possibly problematic to our model

We can look at these observations to see the data they represent

	migr_pct	popul2010	rule_of_law	hdi_diff	colony	oil
Andorra	0.644	84.9	1.2318906	-0.150	0.00	0
Tunisia	0.003	10549.1	0.1126252	0.004	0.65	0
Zimbabwe	0.029	12571.1	-1.8010296	-0.345	0.07	0

# After diagnostics

Independent variables	Dependent variable: <b>share of</b> <b>immigrants</b> , 2010			
	Model <b>before</b>	Model after		
Log, size of population, 2010	-0.29*** (-4,8)	-0.24*** (-4,4)		
HDI difference between sending and receiving countries	3.17* (2,5)	5,49*** (5,1)		
Human Security Index difference between sending and receiving countries				
Rule of law	0.72*** (3,5)	0.47*** (4,6)		
Petroleum Exporting Countries	0.86* (2,2)	0.78* (2,1)		
Common colonial relationship	0.79** (2,6)	1.05*** (3,6)		
Adjusted R <sup>2</sup>	0,45	0,50		

Determinants of migration by educational attainment

(t-values)

Independent variables	Dependent variables				
	share of highly-educated immigrants	share of low-educated immigrants			
Log, size of population, 2010	-0.14 (-1,9)	-0.24*** (-3,6)			
HDI difference between sending and receiving countries	3.59** (2,7)	2.57* (2,2)			
Rule of law	0.58*** (4,42)	0.55*** (4,7)			
Petroleum Exporting Countries	0.72 (1,5)	0.56 (1,3)			
Common colonial relationship	0.32 (0,8)	0,96** (2,9)			
Citizenship	0.11** (2,8)	0,04 (1,2)			
Adjusted R <sup>2</sup>	0,34	0,38			

# *Share of immigrants VS* Absolute number of immigrants

Independent variables	Dependent variables				
	Immigrants as percentage of population	Number of immigrants			
Log, size of population, 2010	-0.24*** (-4,4)	0.73*** (12,6)			
HDI difference between sending and receiving countries	5,49*** (5,1)	3.43** (2,8)			
Human Security Index difference between sending and receiving countries	1.45 (0,8)	1.49 (0,8)			
Rule of law	0.47*** (4,6)	0.46*** (4,0)			
Petroleum Exporting Countries	0.78* (2,1)	0.83* (2,2)			
Common colonial relationship	1.05*** (3,6)	0,67* (2,3)			
Adjusted R <sup>2</sup>	0,50	0,64			

# Streams of immigrants towards top 5 countries containing the largest shares of immigrants



# Streams of immigrants towards top 5 countries containing the largest numbers of immigrants



# Conclusions

**H1:** countries with high HDI attract immigrants by their potential for comfortable adaptation due to well-developed conditions in these countries, high educational standards and quality of education itself

**H2:** countries with high Rule of Law index can be attractive due to their guarantees for human rights protection. Trust issues are essential in migration processes. That is why personal and social security reasons are important requirements

**H3:** Countries with colonial linkages have not only common historical background but cultural links as well. It obviously helps for better adaptation in a receiving country.

**H4:** highly educated immigrants do not choose the same countries to migrate with the low educated immigrants

# What if...

#### Remove 19 countries with less then 1 mln. Population

Independent variables	Dependent var <i>immigrai</i>	Dependent variable: <b>share of</b> <i>immigrants</i> , 2010		
	179 cases	150 cases		
Log, size of population, 2010	-0.24*** (-4,4)	-0.39*** (-5 <i>,</i> 4)		
HDI difference between sending and receiving countries	5,49*** (5,1)	4,92*** (4,2)		
Human Security Index difference between sending and receiving countries				
Rule of law	0.47*** (4,6)	0.61*** (5,7)		
Petroleum Exporting Countries	0.78* (2,1)	0.84* (2,4)		
Common colonial relationship	1.05*** (3,6)	0.89** (2,8)		
Adjusted R <sup>2</sup>	0,50	0,48		
Zimbabwe	, Andorra, Tunisia	Zimbabwe, Ang	gola,	

# Thank you for attention!



Fitted values lm(logit\_M ~ hdi\_diff + log\_pop + rule2 + oil + colony)



Theoretical Quantiles lm(logit\_M ~ hdi\_diff + log\_pop + rule2 + oil + colony)



Fitted values Im(logit\_M ~ hdi\_diff + log\_pop + rule2 + oil + colony)



# New model

Independent variables	Dependent var <i>immigrar</i>	iable: <b>share of</b> n <b>ts</b> , 2010
Log, size of population, 2010	-0.24*** (-4,4)	
HDI difference between sending and receiving countries	5,49*** (5,1)	2,91** (2,9)
Human Security Index difference between sending and receiving countries		
Rule of law	0.47*** (4,6)	
Petroleum Exporting Countries	0.78* (2,1)	
Common colonial relationship	1.05*** (3,6)	0.64* (2,5)
Personal contacts index		0,04*** (9,6)
Adjusted R <sup>2</sup>	0,50	0,57

# The construction of the common colonial relationship variable

	Algeria		Portugal		Spain		Italy		Morocco		Common colonial relationship
France (destination country)	1,00	0,14	0,00	0,11	1,00	0,05	0,00	0,05	1,00	0,13	0,751
	Ukraine		Kazakhstan		Belarus		Azerbaijan		Uzbekistan		Common colonial relationship
Russian Federation (destination country)	1,00	0,30	1,00	0,22	1,00	0,08	1,00	0,07	1,00	0,08	0,669
	India		Ireland		Poland		Pakistan		Germany		Common colonial relationship
United Kingdom (destination country)	1,00	0,09	1,00	0,06	0,00	0,07	0,00	0,06	0,00	0,04	0,717

### HDI difference construction, G8 countries 1

	United Kingdom	India	China	Italy	Philippines	HDI, top-5 sending countries average
Canada (destination country), <b>HDI=0,888</b>	0,849	0,519	0,663	0,854	0,638	0,705
	Turkey	Poland	Italy	Greece	Croatia	HDI, top-5 sending countries average
Germany (destination country), <b>HDI=0,885</b>	0,679	0,795	0,854	0,855	0,767	0,793
	Algeria	Portugal	Spain	Italy	Morocco	HDI, top-5 sending countries average
France (destination country), HDI=0,872	0,677	0,795	0,863	0,854	0,567	0,751
	Albania	Romania	Morocco	Ukraine	Tunisia	HDI, top-5 sending countries average
Italy (destination country), HDI=0,854	0,719	0,767	0,567	0,710	0,683	0,741

### HDI difference construction, G8 countries 2

	China	Korea, Rep.	Philippines	Brazil	Peru	HDI, top-5 sending countries average
Japan (destination country), HDI= <b>0,884</b>	0,663	0,877	0,638	0,699	0,723	0,720
	Ukraine	Kazakhstan	Belarus	Azerbaijan	Uzbekistan	HDI, top-5 sending countries average
Russian Federation (destination country), HDI=0,719	0,710	0,714	0,732	0,713	0,617	0,697
	India	Ireland	Poland	Pakistan	Germany	HDI, top-5 sending countries average
United Kingdom (destination country), HDI=0,849	0,519	0,895	0,795	0,490	0,885	0,717
	China	El Salvador	India	Korea, Rep.	Mexico	HDI, top-5 sending countries average
United States of America (destination country), <b>HDI=0,902</b>	0,663	0,659	0,519	0,877	0,750	0,669

# Drivers of migration (theoretical overview) Global factors

- New transport and communication technologies
  - Global media project 'western lifestyles'
    - Migrant networks facilitate mobility
    - Growth of transnational communities

#### Sending Countries

- Agricultural revolution
- Environmental change
- Rural-urban migration
- Lack of urban jobs
- Lack of human security
- Violence and human rights violations

#### **Destination countries**

- Industrial restructuring
- Decline of old industries
- New services sector
- Declining fertility
- Population ageing
- New demands for labour (high- and low-skilled)

#### Отток эмигрантов



#### Marginal Model Plots





















Fitted values

#### **Added-Variable Plots**



#### Added-Variable Plots









hdi\_diff | others





rule2 | others







#### **Influence Plot**



Hat-Values Circle size is proportial to Cook's Distance

Studentized Residuals