

# **Institutions and Visa Regimes**

Kamila Gracheva (HSE), Leonid Polishchuk (HSE), Koen Schoors (U Ghent), Alexander Yarkin (HSE)

Applied Micro Lunch

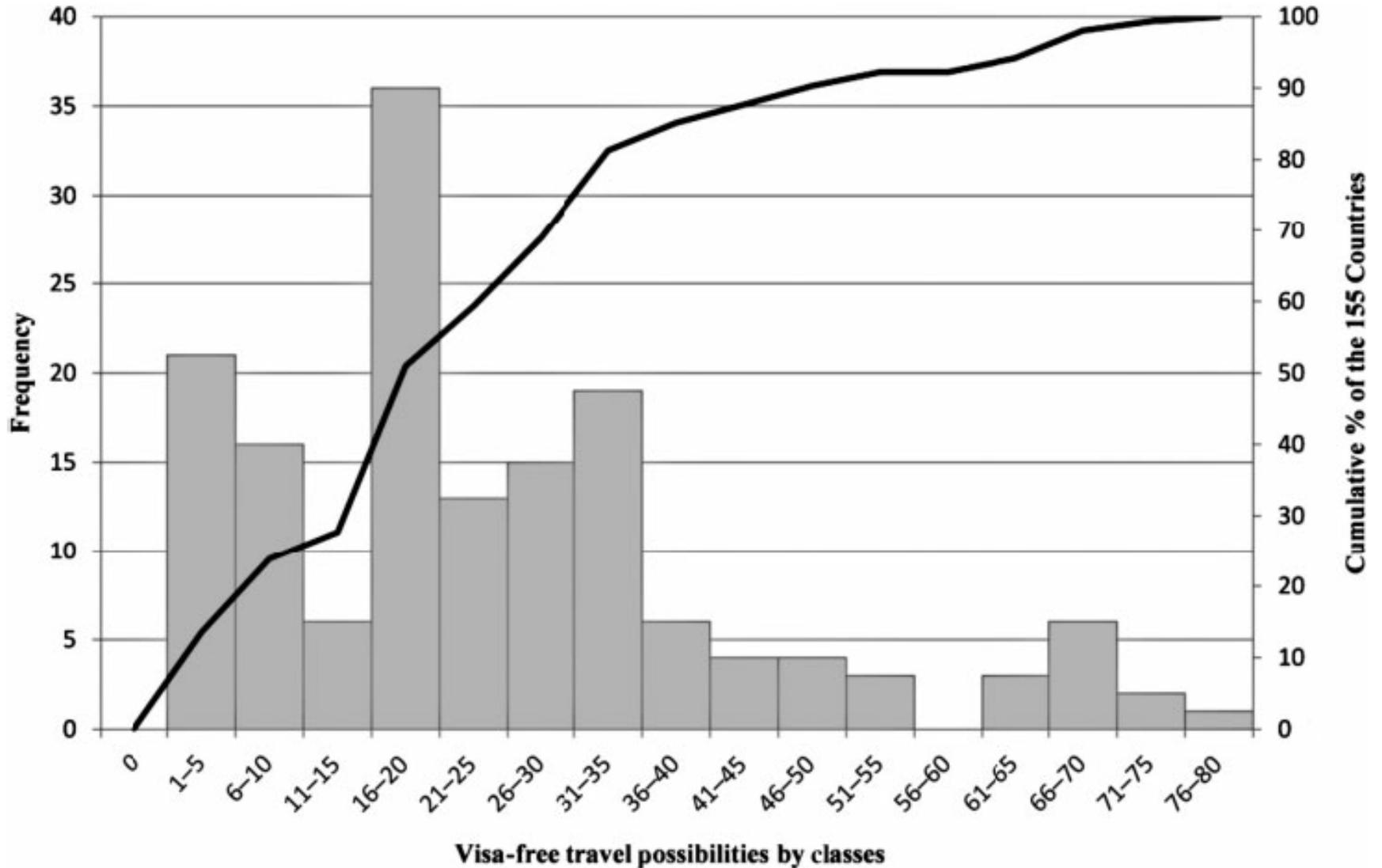
November 4, 2016

# Mobility Divide

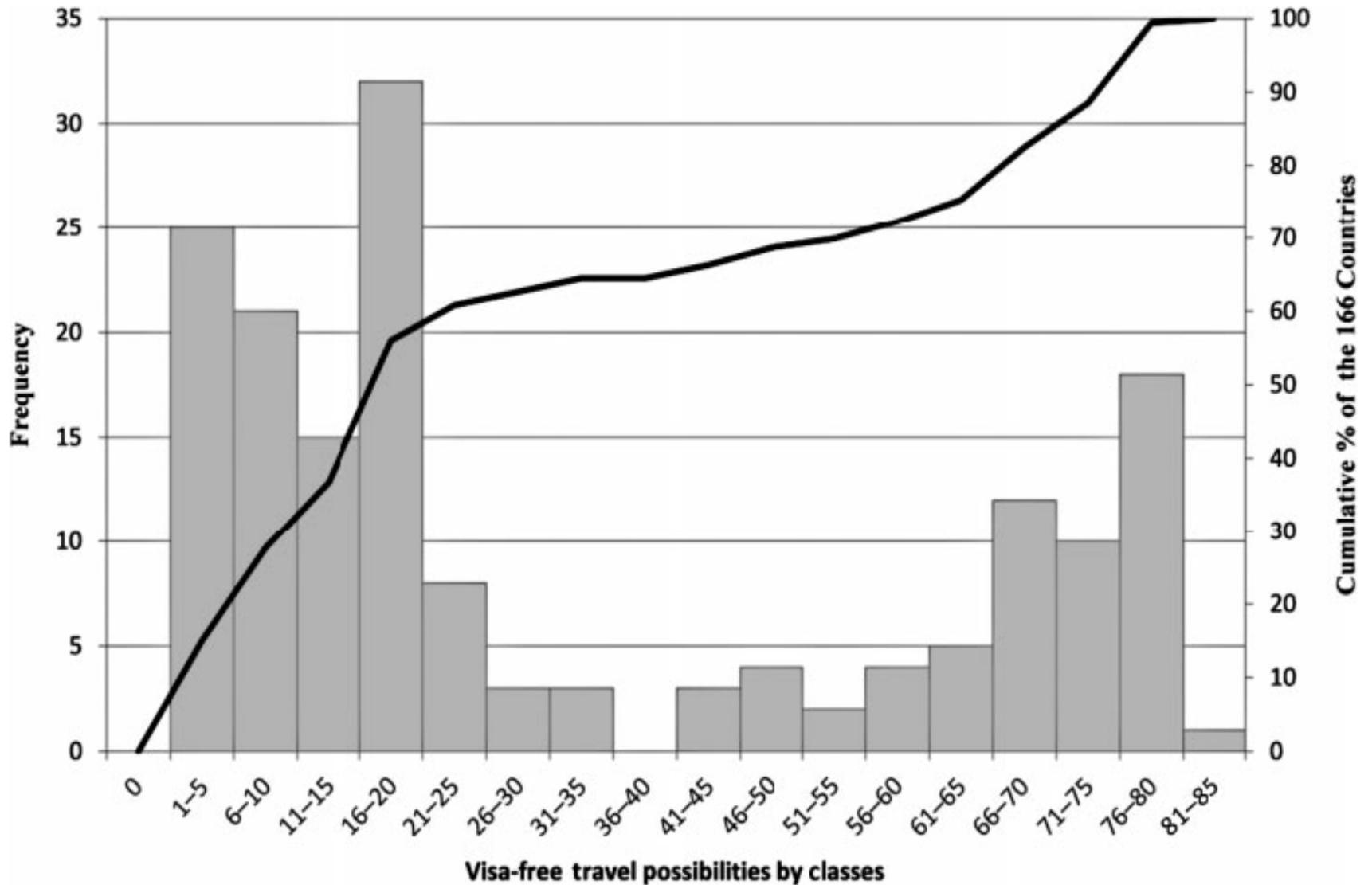
Policies on cross-border movement of people are in stark contrast with international mobility of capital, goods and information, where barriers have been steadily declining across the world.

Visa policies are evolving in various directions – from liberalization and visa waivers to tightening visa controls, creating a global “mobility divide” (Mau, 2015).

# Global mobility 1960



# Global mobility 2010



# Costs and Benefits of Visas

Costs of imposing strict visa barriers:

- trade and business
- tourism and travel industry

Benefits:

- Lower pressure on the labor market and social services
- security and safety

Visa rules reflect perceived cost-benefit balance of receiving visitors from a given country.

# What Affects Visa Barriers?

Factors shown to affect visa barriers (Neumayer, 2006; Hobolth, 2012, Docquier, 2014, Avdan, 2014): tourism flow and bilateral trade, geography, concerns about terrorism, politically motivated violence and illegal migration

Empirical analysis shows significance of:

- GDP per capita of the sending country (lower barriers)
- Tourism/business ties (lower barriers)
- Percent of Muslim population in a SC (higher barriers)
- Diasporas in the receiving countries (higher barriers)
- Risks of political instability and conflicts in the SC (higher barriers)
- Political freedom in the SC (lower barriers)

# Institutions Matter?

Do institutions matter in shaping visa barriers? Probably so, because they matter for just about anything else ...

- Is it true that better formal institutions make citizens of the country more welcome abroad? Ditto informal institutions (social capital)?
- After all, institutions are *domestic* rules of the game – why should they remain relevant for international travel?

Short answer: Institutions have spillover effects felt beyond national borders

# Unbundling institutions

- **Institutions-services** (public goods and production inputs) create enabling conditions for private sector, improve productivity and welfare
  - Hence institutions-services have a *retention effect*, making emigration less likely (and in fact attracting immigrants from the rest of the world)
- **Institutions-rules** (protection of property rights, upholding the rule of law, etc.) prevent rent-seeking and other kinds of unproductive behavior.
  - With international mobility, improvement of domestic protection of property rights could lead to a *spillover* of rent-seeking abroad

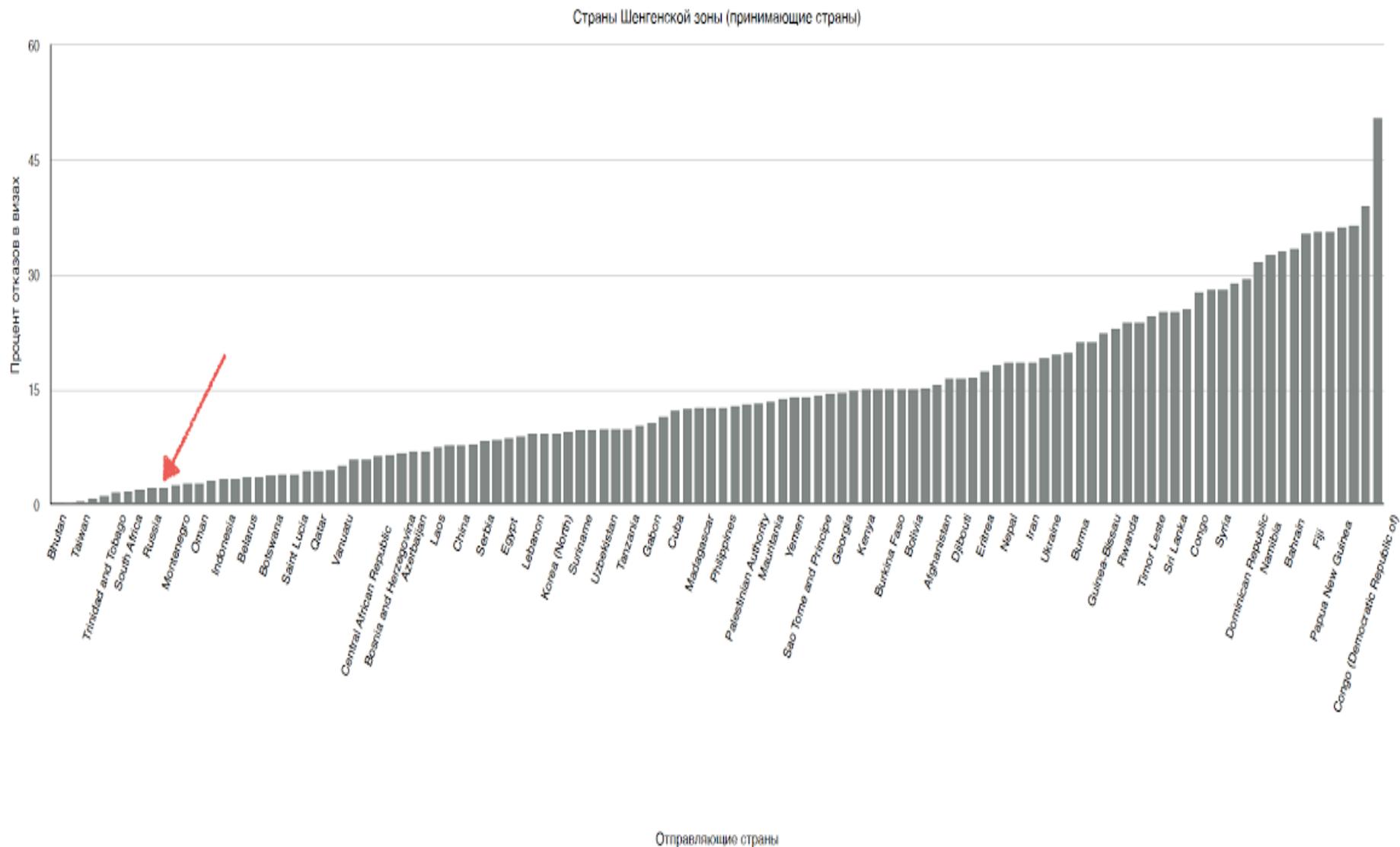
# Better Institutions-Rules – Higher Barriers?

- Strong institutions-rules restrict crime, violence, rent-seeking and other forms of unproductive and/or unlawful behavior in the home country
- Potential perpetrators of such behavior ('bad guys') to seek ill-gotten gains abroad
- Strong institutions-rules have negative spillovers across the national borders and *ceteris paribus* elevate visa barriers

# Russian vs Georgian case

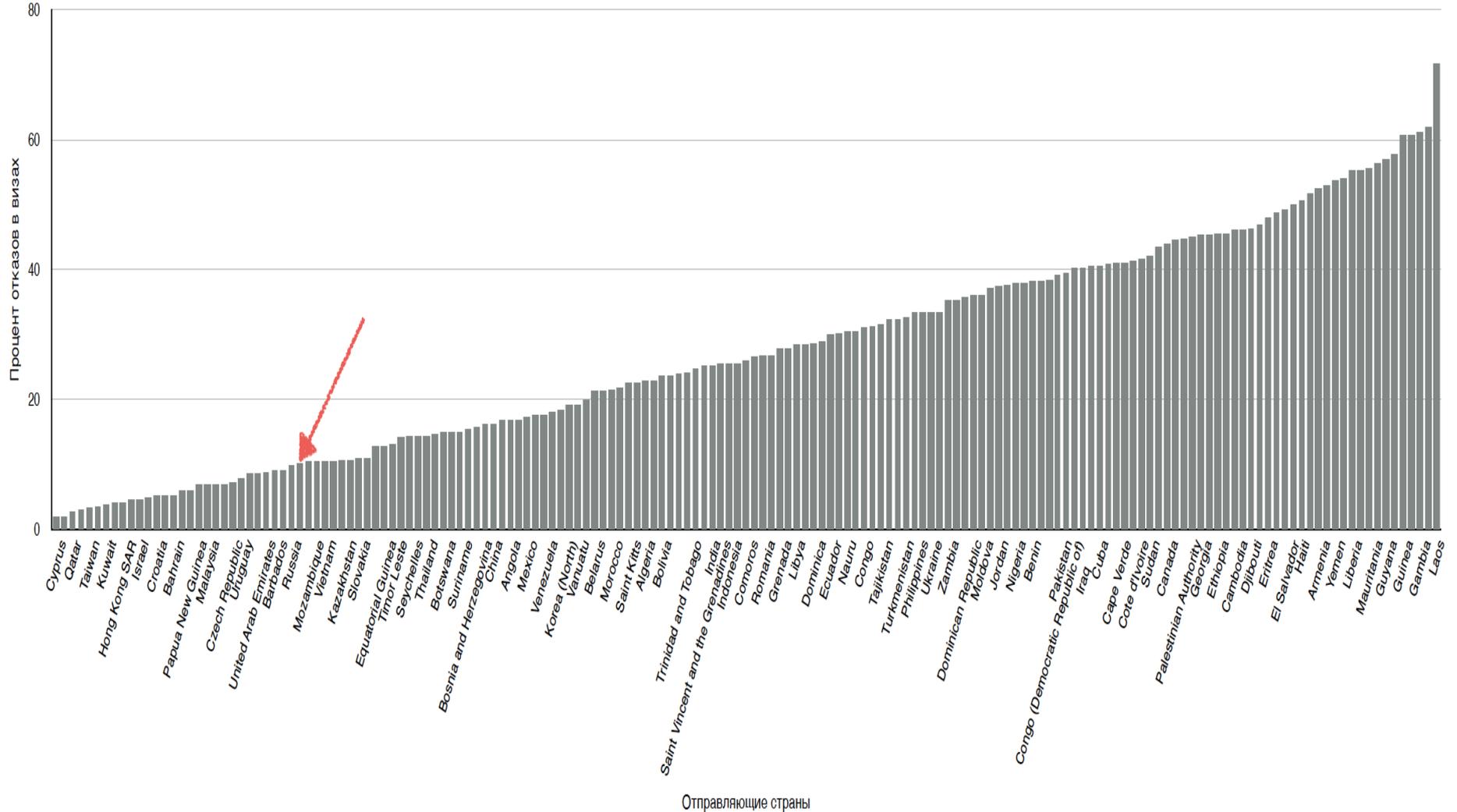
- Quality of Russian institutions steadily declined over the last decade, while Russians saw fewer restrictions in their international travel
- Quality of Georgian institutions (public administration, police reform etc.) increased during the presidency of Michael Saakashvili, but Georgians faced significantly increasing rejection rate of their Schengen visa applications (from average 8% to almost 20%)
- Possible reason: a crackdown on crime and exodus of crime godfathers (*vory v zakone*)

# Schengen Refusal Rates

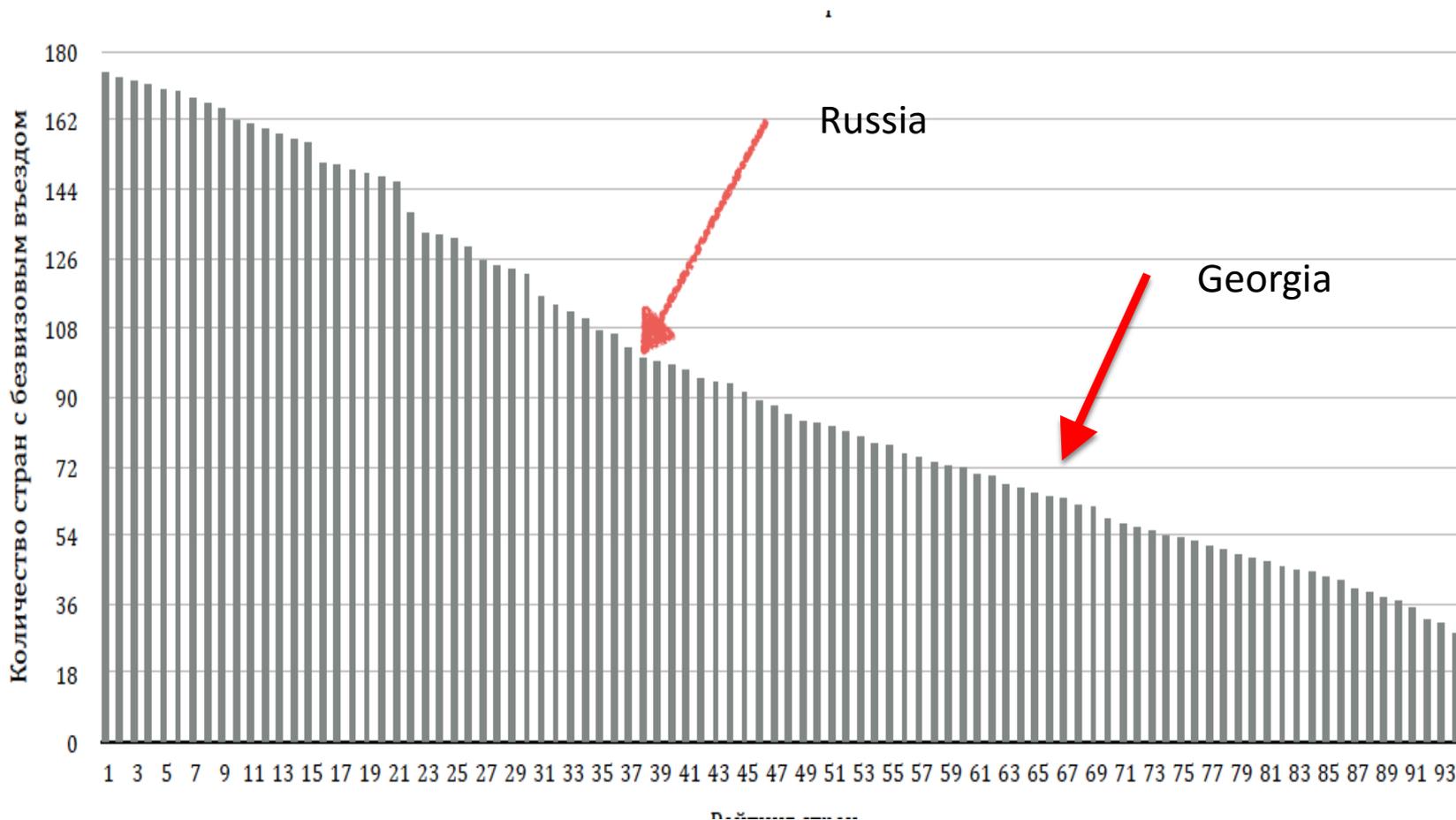


# US Refusal Rates

США (принимающая страна)



# Alternative dependent variable: Henley and Partners' Visa Restriction Index



# Role of Informal Institutions

- Informal institutions (social capital) reflect norms, values, morale, trust and trustworthiness
- Migrants are shown to bring such norms to the receiving countries (Fernández, 2010) and keep them for long periods of time.
- Social capital is also correlated with trust in and respect of official rules, which include visa requirements and other laws and regulations of the receiving country.

One could expect higher law obedience from visitors from countries rich in social capital, and hence lower visa barriers for citizens of such countries traveling abroad

# Complementarity of Formal Institutions and Social Capital

- Formal institutions and social capital often complement each other (see e.g. Tabellini 2010)
- Similar complementarity can be expected in the case of visa barriers: stronger rule of law in countries with strong moral traits is less likely to cause a noticeable export of “bad guys”
- Therefore, the impact of institutions-rules is moderated by good informal institutions

# The Model

# Institutions

## Formal institutions

- Institutions-services,  $y > 0$ , improve productivity: productive activities generate income  $y$
- Institutions-rules  $\sigma \in [0,1]$  restrict unlawful (rent-seeking) behavior: agents engaged in production keep share  $\sigma$  of their income  $y$

## Informal institutions

- Share  $p$  of population are “moral”: they are naturally averse to unlawful activities
- Share  $1 - p$  are “ethically blind”: they choose the occupation with higher payoff

# Activities

Rent-seeking can be performed either home (share  $r_h$  of population) or abroad (share  $r_a$ )

- $c \geq 0$  – cost of relocation abroad which is distributed across the population with c.d.f.  $G(c)$
- $\Delta$  – benefit from rent-seeking abroad

Consider a subset of equilibria in which unlawful behavior is more profitable than productive one. Then  $p + r_h + r_a = 1$

Payoffs:

- Productive behavior:  $\sigma y$
- Domestic rent-seeking:  $(1 - \sigma)y \cdot p/r_h$
- Foreign rent-seeking:  $\Delta - c$

# Equilibrium

Let  $n \equiv \frac{p}{r_h}$ . Then a rent-seeker chooses to go abroad, if

$$c < \Delta - y(1 - \sigma)n$$

Then a rent-seekers are divided into two groups with

$$\begin{aligned} r_h &= (1 - p)[1 - G(\Delta - y(1 - \sigma)n)], \\ r_a &= (1 - p)G(\Delta - y(1 - \sigma)n) \end{aligned}$$

Equilibrium ratio of lawful agents to rent-seekers is

$$n = \frac{p}{(1-p)[1-G(\Delta-y(1-\sigma)n)]}$$

Equilibrium exists and is unique.

# Comparative Statics

1. Equilibrium  $r_h$  *decreases* in  $\sigma$  (stronger institutions-rules suppresses domestic rent-seeking) and *increases* in  $y$  (more profitable rent-seeking at home compared to abroad)
2. Equilibrium  $r_a$  *increases* in  $\sigma$  (stronger institutions-rules increase “export of rent-seeking”) and *decreases* in  $y$  and  $p$  (social capital)
3. The lower is the stock of social capital  $p$ , the more pronounced is the increase of  $r_a$  with  $\sigma$ , i.e.  $\frac{\partial^2 r_a}{\partial \sigma \partial p} > 0$

# Processing Visa Applications

- Let  $\alpha \in (0,1)$  be the share of population that would like to travel abroad for legitimate reasons and apply for visas
- $r_a$  applicants are illegitimate
- Then  $\pi \equiv r_a / (\alpha(1 - r_a) + r_a)$  – share of illegitimate applicants in the total pool of visa applicants (increases in  $\sigma$  and decreases in  $a$  and  $p$ )

**Consular behavior:** Searching for a signal  $x \geq 0$  of inadmissibility, which is distributed with c.d.f.  $F_0(x)$  for a legitimate applicant and  $F_1(x)$  for an illegitimate one.

Assume FOST:  $F_0(x) > F_1(x)$  and monotone likelihood ratio, i.e. that  $f_1(x)/f_0(x)$  monotonically increases in  $x$ .

# Consular Decisions

Visa application is rejected if a posterior probability  $P(\text{Rent} - \text{seeker}|x)$  exceeds a certain “alarm threshold”  $\delta$ :

$$\frac{\pi f_1(x)}{\pi f_1(x) + (1 - \pi)f_0(x)} > \delta$$

- The cutoff level  $x^*(\pi)$  decreases in  $\pi$ , and so the a priori probability of visa refusal (Visa Refusal Rate in what follows):

$$\pi(1 - F_1(x^*(\pi))) + (1 - \pi)(1 - F_0(x^*(\pi)))$$

increases in  $\pi$

- Therefore, the visa refusal rate increases in  $\sigma$  and  $p$  and decreases in  $y$ .

# Testable Predictions

The above model leads to the following testable predictions:

- Visa barriers increase with the quality of domestic institutions-rules and decrease with the quality of domestic institutions-services
- Visa barriers decline with the stock of domestic social capital (norms and values)
- Decrease in norms and values amplifies the increase of visa barriers caused by the strengthening of institutions-rules

# Empirical results

# Data on Visa Barriers

- European Visa Database: annual visa refusal rates by Schengen countries 2006 – 2011 (Hobolth, 2014)
- Ibid for the US and UK
- Henley and Partners' Passport Power (Visa Restriction) Index (2005-2015): for each country gives a number of RC with no visa requirements for
- Kamila Gracheva's database of bilateral visa regimes

# Data on Institutions

## Formal institutions

- **Institution-rules:**
  - Rule of Law (WGI)
  - Control of Corruption (WGI)
  - Property rights (Frazer Institute)
- **Institutions-services**
  - Government efficiency (WGI)
  - Regulatory quality (WGI)

## Informal institutions (all from Wave 5 (years 2005-2009) of the World Values Survey)

- General level of distrust
- two first principal components of measures of values:
  - PC1: amorality
  - PC2: improper behavior

# Principal component analysis of social norms (WVS / Wave 5)

- Unselfishness
- DisObedience
- DisTrust
- Helpful
- Improper behavior
- Claiming government benefits you are not entitled to
- Avoiding paying fare on public transport
- Cheating on paying taxes
- Accepting a bribe

PC1 = amorality; PC2 = improper behavior

# Control Variables

- GDP level per capita in sending country  $i$ , WB (GDPpc)
- Distance between countries in kilometers
- Tourism activity in sending country  $i$ , WB (TourExp)
- Political Risks and Civil Liberties; Voica and Accountability, polity 4 – for democracy/autocracy
- Political Stability and Absence of Violence/Terrorism, WB WGI
- Muslim population (Hobolth, 2014)
- Diasporas in the RC (Hobolth, 2014)
- RC fixed effects, Year fixed effects

VARIABLES	(1) baseline model	(2) log baseline model	(3) fixed effects
gdppc	-0.000128*** (1.11e-05)		
distancekm	4.89e-05 (3.83e-05)		
touexp	-0** (0)		
migrants	1.88e-06 (1.52e-06)		
muslim_percent	0.0505*** (0.00510)	0.0623*** (0.00486)	0.0665*** (0.00488)
polstabterr	-3.552*** (0.238)	-2.620*** (0.227)	-2.528*** (0.220)
PolRigh_CivilLib	-0.685*** (0.107)	-0.933*** (0.0984)	-0.875*** (0.0973)
lGRPpc		-2.401*** (0.163)	-2.323*** (0.160)
lDistKM		0.857*** (0.158)	1.216*** (0.191)
lTourExp		-0.238*** (0.0464)	-0.381*** (0.0520)
lMigrants		0.113* (0.0659)	0.387*** (0.0776)
Constant	12.62*** (0.504)	30.08*** (2.024)	24.50*** (2.312)
Observations	6,951	6,815	6,815
R-squared	0.140	0.182	0.235
Receiving FE	NO	NO	YES
Year FE	NO	NO	YES

VARIABLES	(1) Institutions	(2) social capital
IGRPpc	-2.422*** (0.189)	-5.758*** (0.381)
IDistKM	1.054*** (0.194)	2.269*** (0.295)
ITourExp	-0.409*** (0.0522)	-0.0178 (0.0497)
IMigrants	0.409*** (0.0776)	0.566*** (0.116)
muslim_percent	0.0574*** (0.00503)	0.0406*** (0.00881)
polstabterr	-3.275*** (0.246)	1.816*** (0.471)
PolRigh_CivilLib	-0.767*** (0.115)	0.0150 (0.171)
aver_inst_services	-4.349*** (0.614)	-0.369 (1.062)
aver_inst_rules	5.027*** (0.574)	4.854*** (0.872)
DisObedience		14.68*** (1.559)
DisTrust_bin		8.576*** (1.101)
Trust_ord		-2.444*** (0.332)
ImProper		-7.721*** (0.980)
Avoid		3.489*** (0.650)
Bribe		2.318*** (0.640)
Observations	6,815	3,175
R-squared	0.243	0.339

VARIABLES	(1) principal components	(2) interactions
lGRPpc	-5.567*** (0.330)	-4.936*** (0.371)
lDistKM	1.406*** (0.271)	0.730*** (0.279)
lTourExp	-0.136*** (0.0514)	-0.0772 (0.0473)
lMigrants	0.542*** (0.122)	0.496*** (0.119)
muslim_percent	0.0583*** (0.00802)	0.0421*** (0.00918)
Polstabterr	1.835*** (0.465)	1.371*** (0.474)
PolRigh_CivilLib	-1.016*** (0.157)	-0.877*** (0.163)
aver_inst_services	-1.547 (1.030)	-3.514*** (1.196)
aver_inst_rules	2.576*** (0.854)	4.990*** (1.068)
DisTrust_bin	16.70*** (1.267)	13.83*** (1.483)
Amorality	-0.387*** (0.140)	-0.0116 (0.184)
Improper	0.709*** (0.225)	0.412 (0.269)
InstRules_x_amorality		1.242*** (0.276)
InstRules_x_improper		0.764** (0.297)
Observations	3,175	3,175
R-squared	0.295	0.301
Receiving FE	YES	YES
Year FE	YES	YES

# Empirical Hurdles

**Selection problem.** Citizens trying to get access to Schengen may try to apply to member states with lower refusal rates.

Possible “solution”: Passport Power Index (Henley and Partners)

# Alternative dependent variable: Henley and Partners' Visa Restriction Index

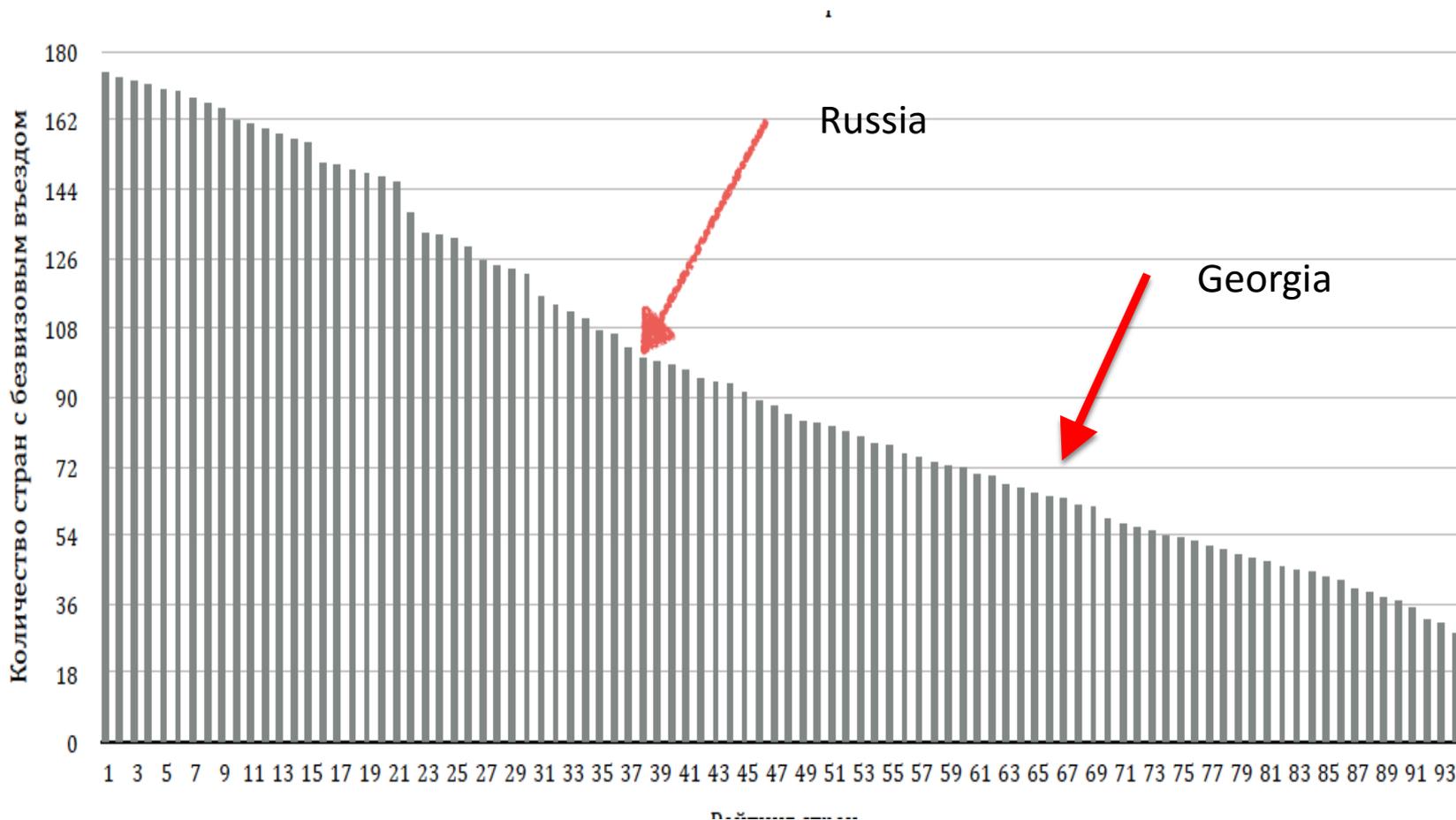


Table 2. Passport strength, institutions and social norms

	(1)	(2)	(6)
<b>Institutions</b>			
Rule of Law		<b>-54.44***</b> (3.556)	1.73 (5.003)
Control of Corruption		<b>30.41***</b> (3.729)	-5.35 (4.624)
Government Efficiency		<b>19.53***</b> (3.939)	-4.04 (3.789)
Regulatory Quality		<b>26.57***</b> (2.898)	16.70*** (2.200)
<b>Trust</b>			
distrust_bin			154.08*** (10.796)
<b>Social Values</b>			
PC1: amorality			-0.41 (0.541)
PC2: improper behavior			12.42*** (1.052)
<b>Interaction Rule of Law x Values</b>			
RoL x PC1 amorality			<b>-5.45***</b> (1.409)
RoL x PC2 improper behaviour			<b>-6.62***</b> (0.913)
<b>Control Variables</b>			
ln(GDPpc)	18.05*** (1.239)	7.64*** (1.346)	9.11*** (1.697)
ln(DistKm)	5.74*** (1.067)	-2.27** (1.060)	10.91*** (2.140)
ln(TourExp)	0.28 (0.657)	1.35** (0.619)	5.48*** (0.866)
Political Stability & Terrorism	14.09*** (1.057)	11.11*** (1.016)	20.20*** (1.595)
Polity IV	1.58*** (0.210)	0.90*** (0.147)	2.30*** (0.133)
Schengen country fixed effects	Yes	Yes	Yes

Institutions-rules

Institutions-services

Interaction effect

# Empirical Hurdles

**Slow change in institutions.** It makes an identification of the effect with diff-in-diff more difficult if not impossible. Very low number of countries with significant institutional changes over the 2006-2011 period.

Possible solution ?

# Next Steps

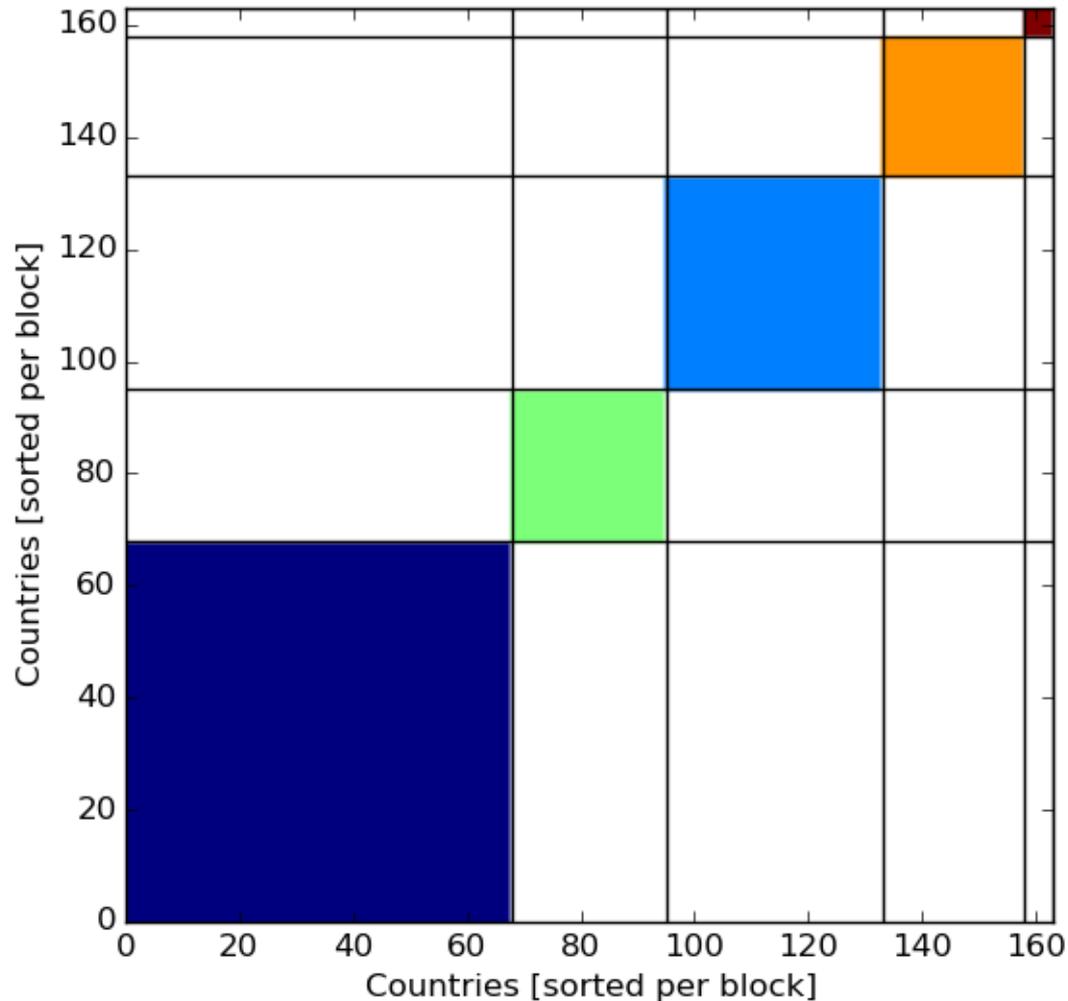
1. Instrumenting institutions-rules and institutions-services with the colonial data from Acemoglu and Johnson (2005) paper:
  - Settlers mortality and population density for institutions-rules
  - Identity of the colonizing power for institutions-services
2. Dealing with visa applicants selection among different Schengen countries' "gates" to Europe
3. ...

**Thank you for your  
attention!**

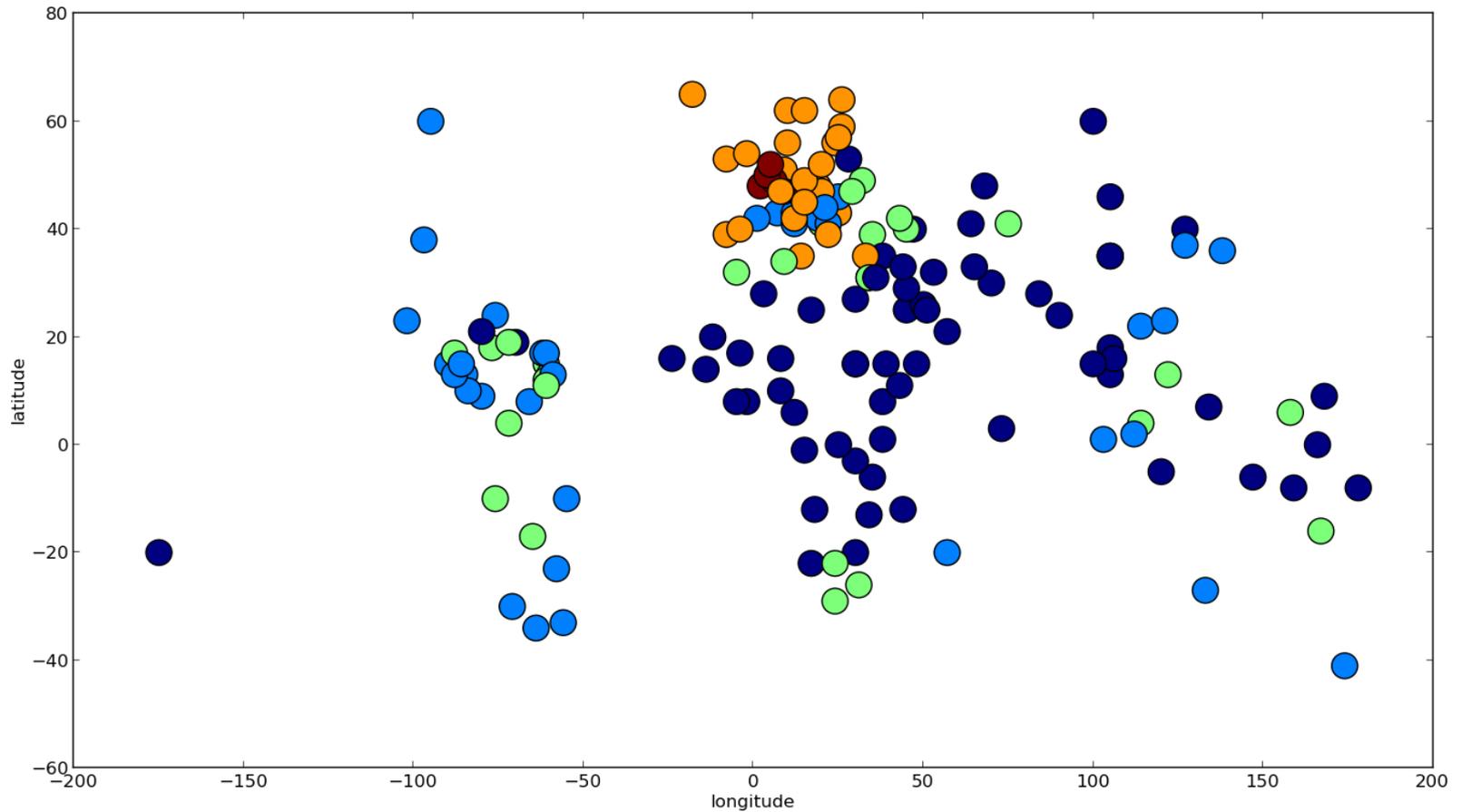
# **Network Analysis of Visa Regimes (with B. Vandermarliere)**

Blocks of countries are identified by a network analysis, as per Holland, Laskey, and Leinhardt (1983) whereby two countries are connected by a directed arc if one country imposes a visa regime to the other. Markov Chain Monte Carlo technique reveals a hierarchical set of blocks of country groups ordered in respect of visa-free access to other countries

# 5 blocks of countries with a 'fundamentally' different migration restriction



# The blocks on the map



# The interpretation of the blocks

visa requirement = red, no requirement = green

**Block 5:** Core of Schengen

**Block 4:** rest of Schengen

Complete internal openness,  
Very high mutual openness to block 3  
Can travel to 2, but not vice versa

**Block 3:** around US and America's,  
Very open internally & to Schengen,  
but not to rest of world,  
can travel to most countries  
except to isolated block 1

**Block 2:** relative internal openness,  
relative openness to rest of world,  
but visa requirement to travel out  
to rest of world (horizontal red)

**Block 1:** ask visa from one another & from anyone else & need visa for about every country

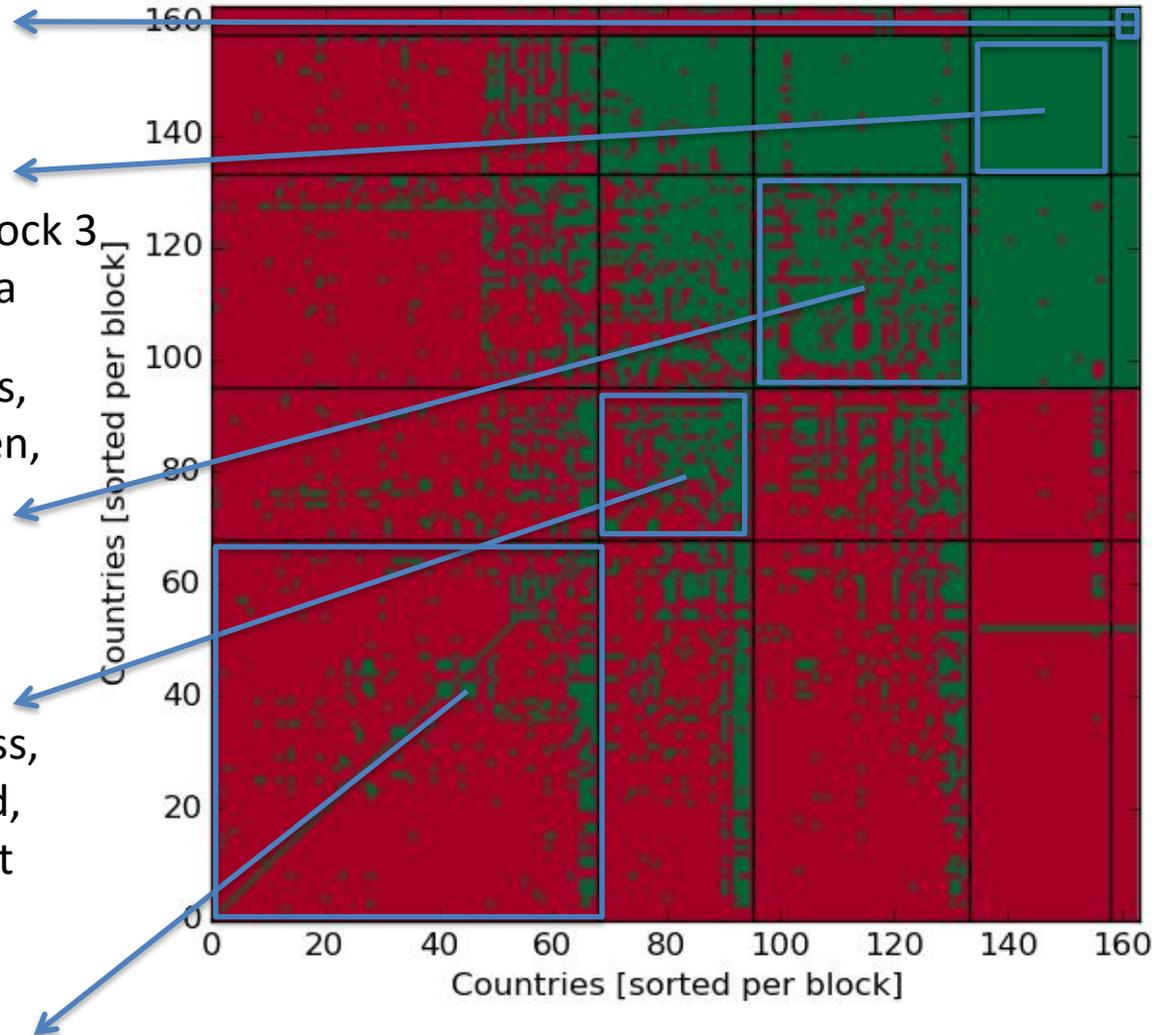


Table 4 Explaining the membership of countries to visa blocks by institutions

	(1)	(2)	
<b>Institutions</b>			
Rule of Law		<b>-3.05***</b> (0.695)	Institutions-rules
Control of Corruption		1.33** (0.548)	
Government Efficiency		0.62 (0.687)	Institutions-services
Regulatory Quality		1.92*** (0.597)	
<b>Control Variables</b>			
ln(GDPpc)	0.34* (0.190)	0.09 (0.260)	
ln(DistKm)	-0.13 (0.156)	-0.48** (0.186)	
ln(TourExp)	0.05 (0.095)	0.09 (0.089)	
Political Stability & Terrorism	0.49*** (0.183)	0.60*** (0.224)	
Polity IV		-0.01 (0.011)	
Observations	90	90	
Pseudo R-squared	0.137	0.300	
P(Chi <sup>2</sup> )	0.000	0.000	

# Conclusions

Formal and informal institutions matter for visa barriers, although in different and sometimes counterintuitive ways

Formal and informal institutions complement each other as factors of visa barriers

Improvement of institutions-services, such as government effectiveness, lowers the barriers

Improvement of institutions-rules could make barriers higher, if there is a lack of morality and other traits in the sending country