Refining State Capacity and its Salience: Constraining GDP and Military Spending by Political Extraction and Governmental Effectiveness.

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The Idea

A country's economy represents its "base resource capacity" = a resource potential from which the state can extract resources for policy purposes.

- Its military spending represents resources extracted from its economy; as recent research indicates (Markowitz and Fariss, 2018), the relationship between economic size and military spending extraction is substantially mediated by the state's perceived threat environment.

The state typically faces two types of constraints on its ability to translate its base resource capacity for policy pursuits: policy constraints and structural constraints.

- Policy constraints represent the extent to which the domestic political environment is conducive to resource extraction and the extent to which primary policy makers are willing (ideologically) to extract resources from the economy.

- Structural constraints represent the extent to which the political system is able to effectively manage and apply the resources it extracts for policy pursuits. These depend on governmental efficiency and the minimization of rent seeking.

Modifying the Base Resources of States

Base Resource Capacity → State Strength →

Political Extraction

Policy Constraints

Structural Constraints
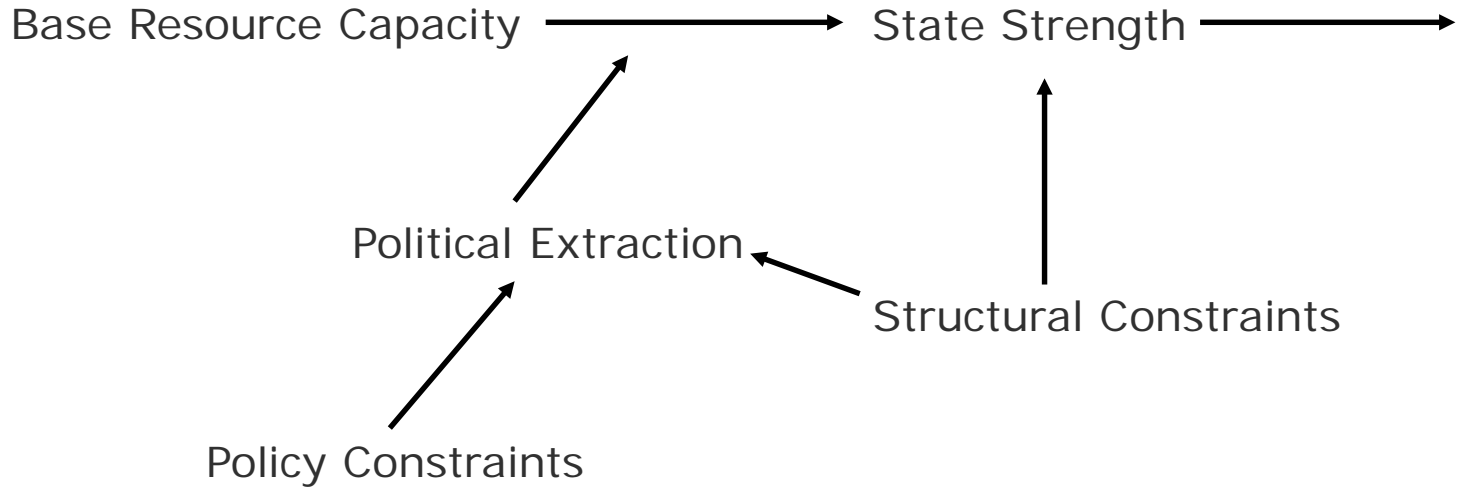
So

GDP represents base resource capacity and is not a good measure of state strength unless it is assessed in the context of the factors that may limit policy makers in their conversion of parts of the economy into policy relevant resources. Thus:
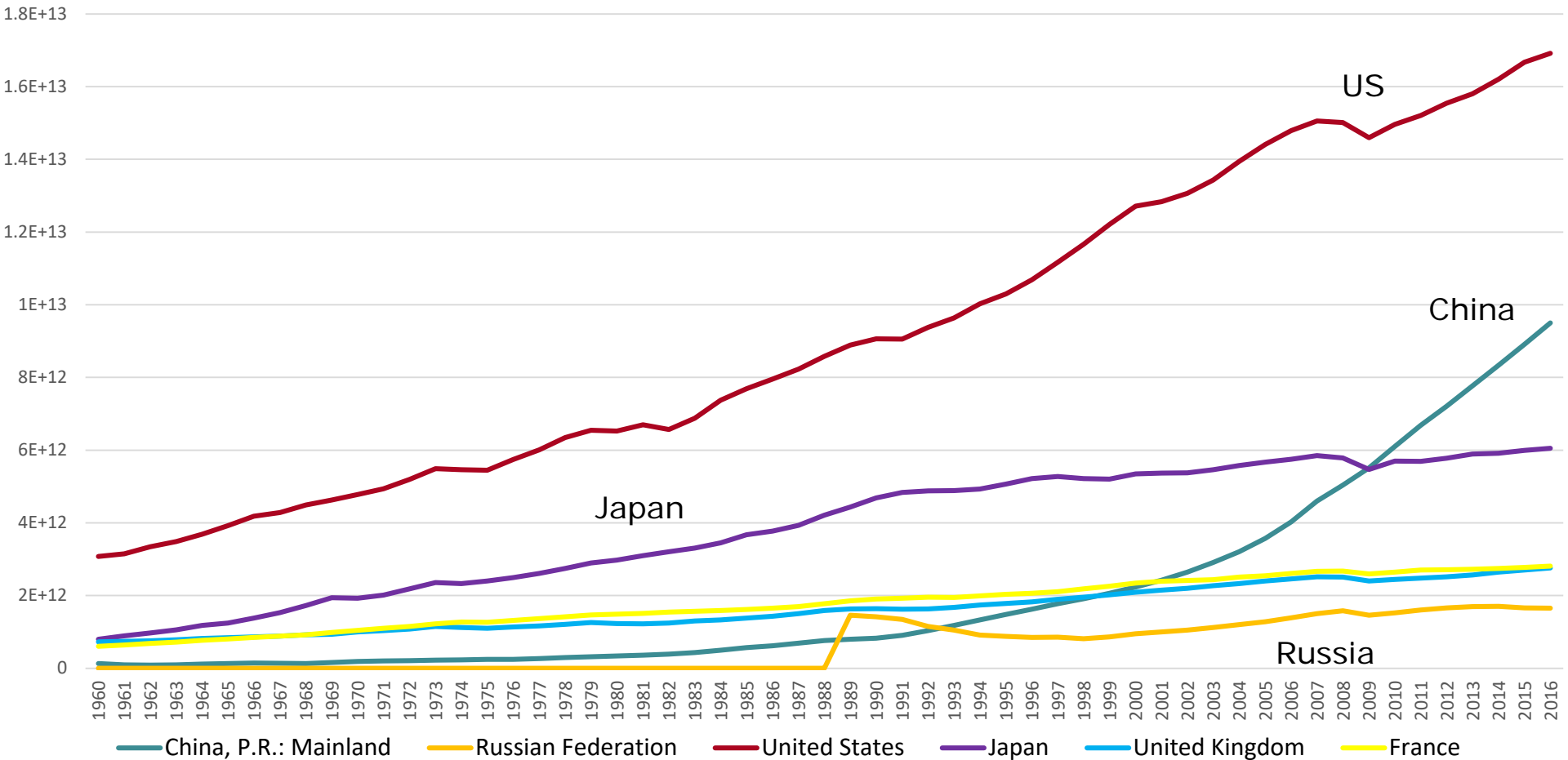
- State Economic Strength = GDP constrained by extraction policy (*RPE*) and structural impediments indicated by Quality of Government (*QofG*) and Control of Corruption (*Corrupt*)

In this context, a state's military spending already represents extraction from a country's economy, but its utilization is subject to structural constraints:

- State Military strength = Military Expenditures (*MilEx*) constrained by QofG and Corrupt

Base Resources: GDP for Major Powers

BASE RESOURCE CAPACITY: GDP for Major Powers, 1990-2016, in 2010 Constant US$'s (Source: World Bank)

US

China

Japan

Russia

China, P.R.: Mainland — Russian Federation — United States — Japan — United Kingdom — France

The Constraint Variables: Relative Political Extraction (Kugler et al. 2018)

Relative Political Extraction (RPE) measures the ability and willingness of governments to obtain resources from the population using tax policy. It is a relative measure, estimating (given the type of economy) the state's performance above or below what would be normally expected for it to extract from the population. To do so, the following steps are taken:

- Generate OLS estimates using the following functional specifications, which are built upon previous work of economists:

$$\frac{Tax}{GDP} = \alpha + \beta 1 (time) + \beta 2 (\frac{Mining}{GDP}) + \beta 3 (\frac{Agriculture}{GDP}) + \beta 4 (\frac{Exports}{GDP})$$
$$+ \beta 5 (GDP\ per\ capita) + \beta 6 (OECD\ Dummy) + \varepsilon$$

- Obtain the predicted values from the model.
- Calculate the RPC from the following ratio:

$$Relative\ Political\ Extraction = \frac{Actual\ Extraction}{Predicted\ Extraction}$$

The final value, obtained for each country, for each year, is a score above or below 1 (which is the expected value); states scoring over that value are overperforming; states below that value are underperforming compared to their "expected" values.

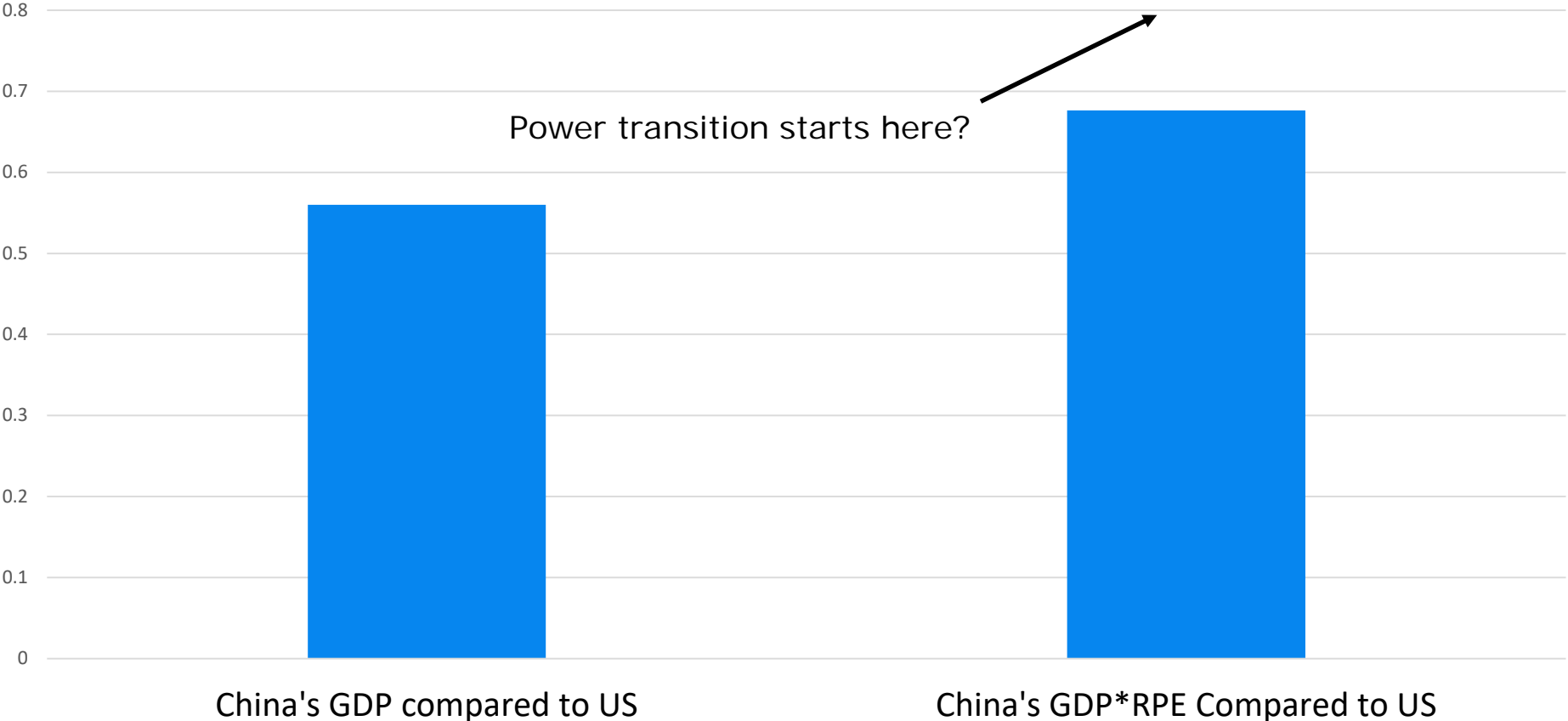# POLITICAL EXTRACTION: US, Chinese and Russian RPE Values, 1960-2015 (Source: Kugler et al. 2018).


Legend: United States — Russian Federation — China, P.R.: Mainland
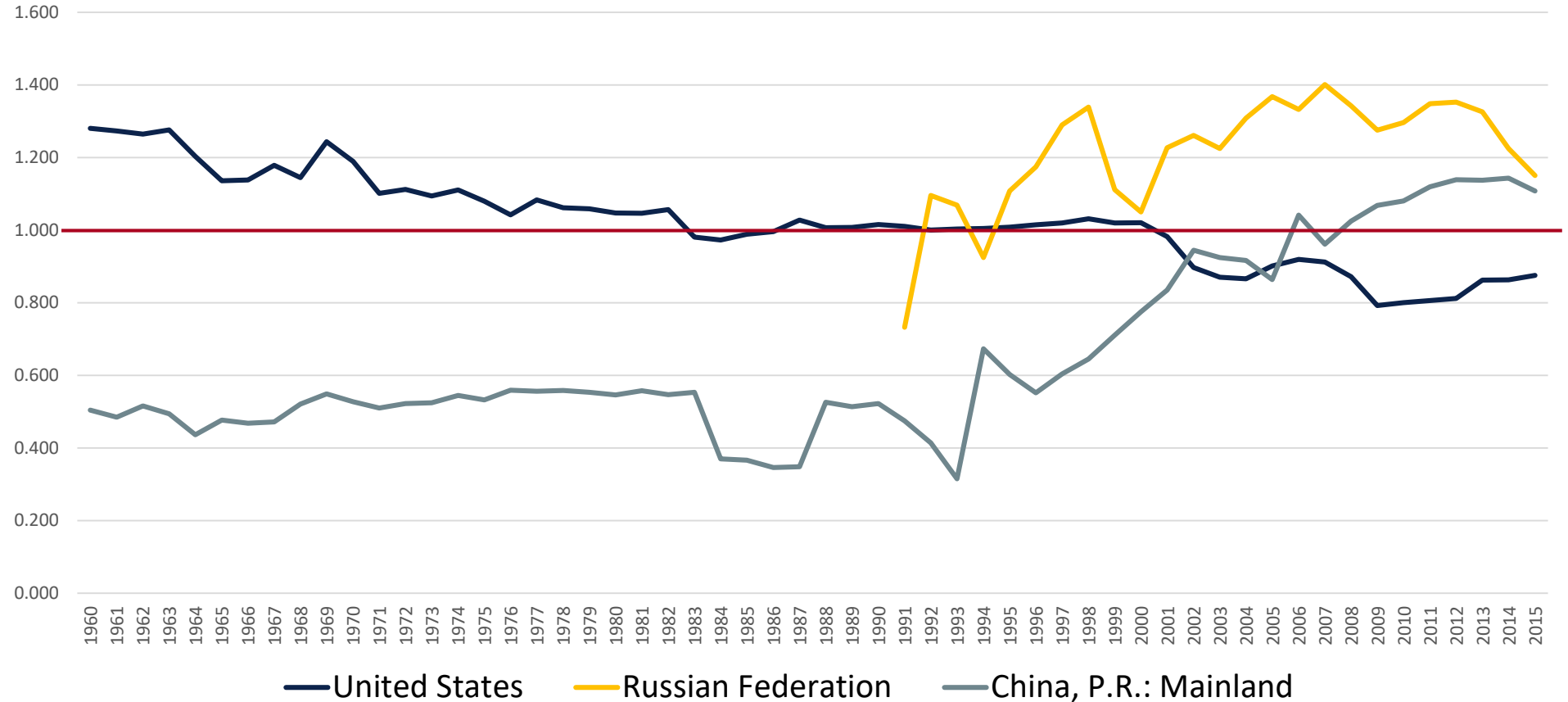
BASE RESOURCE MODIFIED BY EXTRACTION: Comparison of GDP versus GDP*RPE Values for the U.S. and China, 1960-2015.

US GDP*RPE

China GDP*RPE

China GDP*RPE — ChinaGDP — United States GDP*RPE — United States GDP
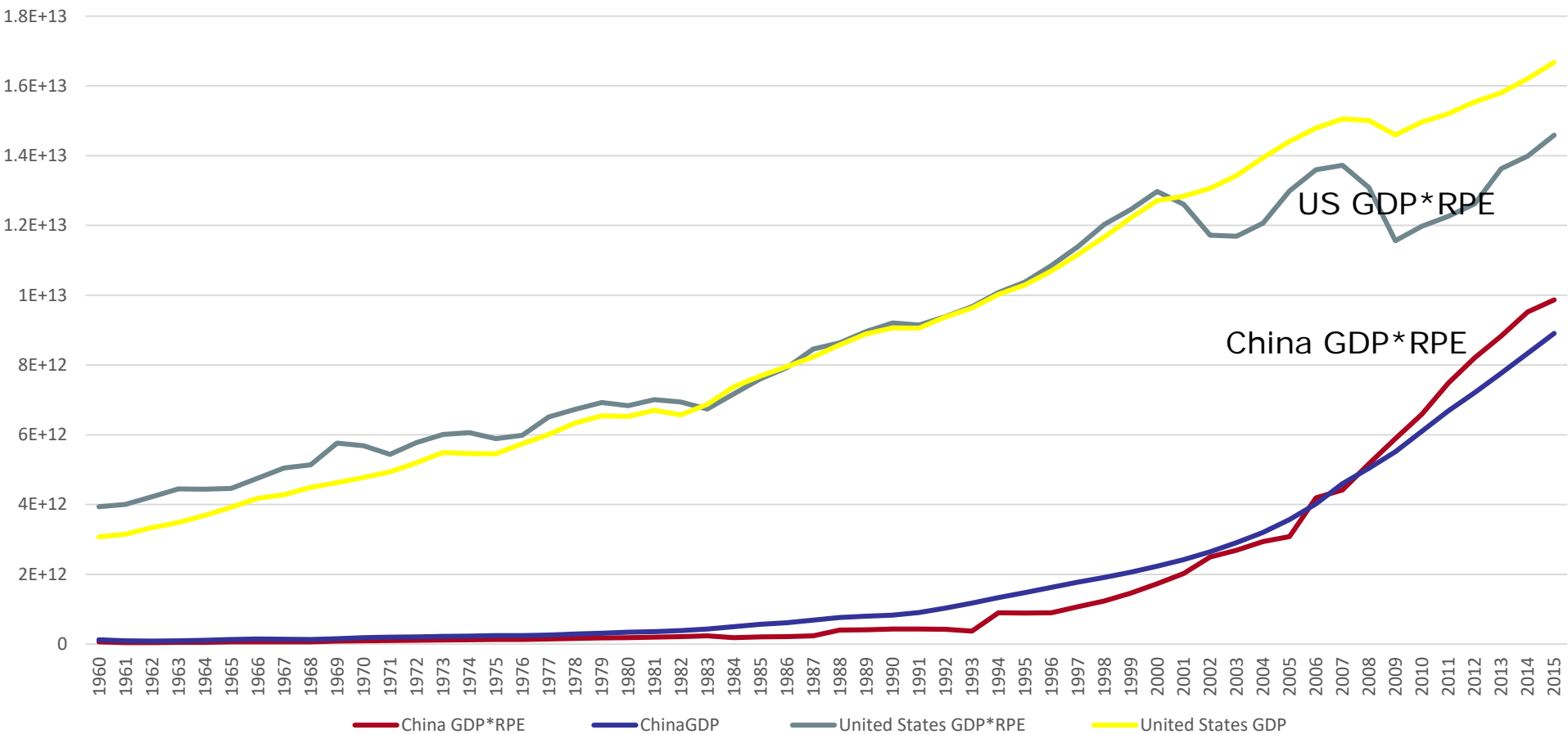
Chinese GDP and GPD*RPE, Compared to U.S., 2015.

Difference between GDP and GDP*RPE, in Percentages, Selected Countries, 1996 and 2015.

China Russia US India Brazil Nigeria Hungary

■ 1996 ■ 2015
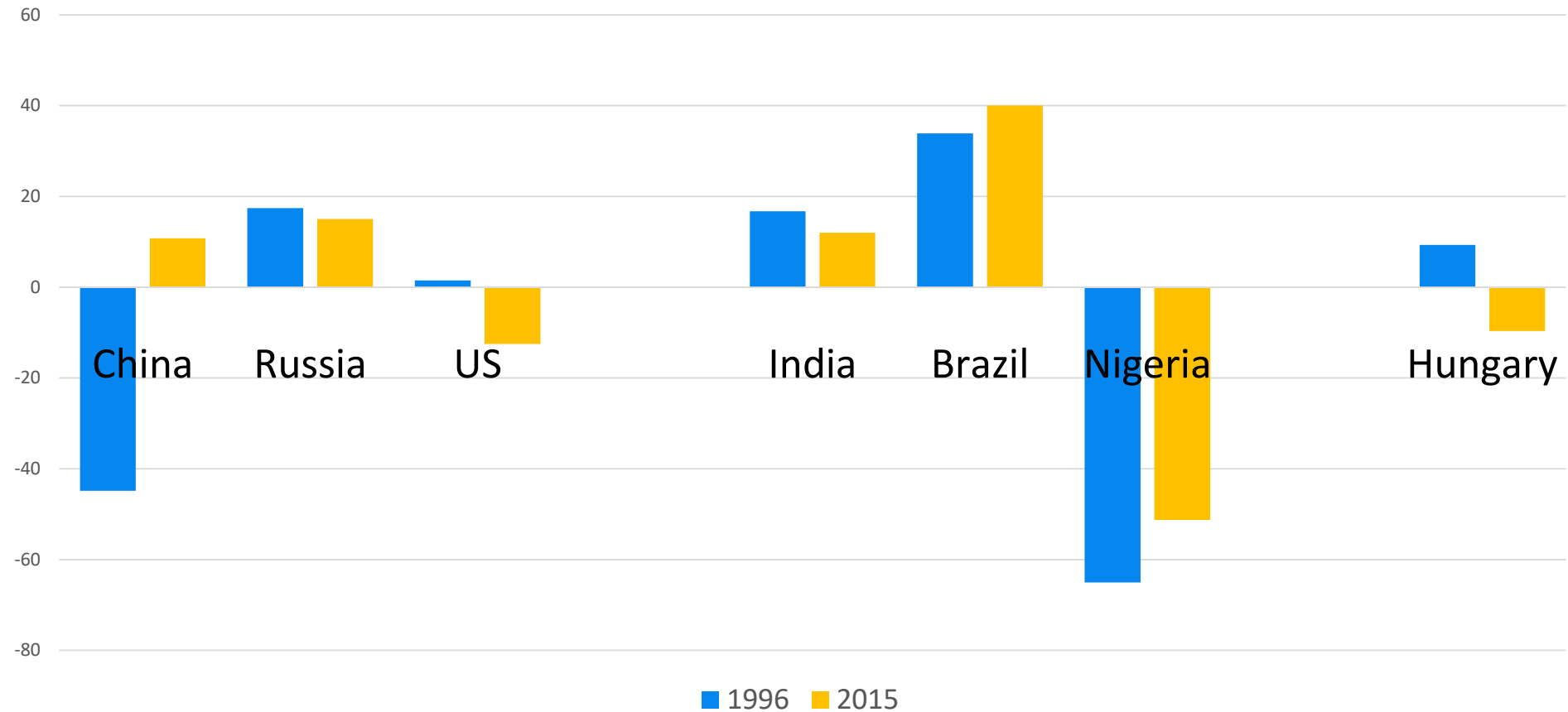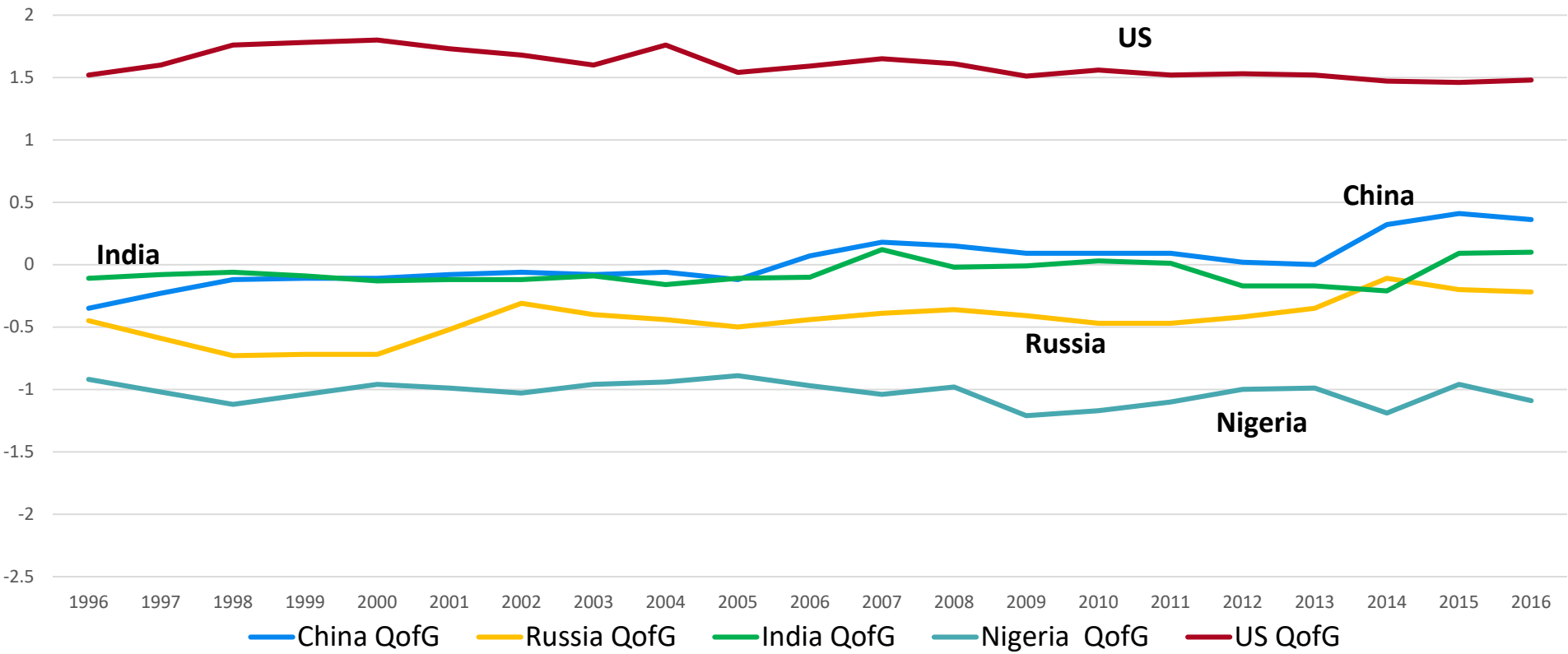
The Constraint Variables: Govt. Effectiveness

The World Bank's Government effectiveness index is used as a structural constraint of state resources. We assume that the more effective the government, the more effectively it can utilize the resources it has extracted from society for its policies.

The World Bank defines this index as: "perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies."

For concepts, sources, and measures, see:
https://info.worldbank.org/governance/wgi/pdf/ge.pdf and
http://info.worldbank.org/governance/wgi/index.aspx#home

**STRUCTURAL CONSTRAINT: Government Effectiveness Index, Selected Countries, 1996-2016 (Source: World Bank)**

The Constraint Variables: Corruption/Rent-Seeking

The World Bank's Control of Corruption index is used as a structural constraint of state resources. We assume that the more effective the government is in controlling corruption, the more effectively it can utilize the resources it has extracted from society for its policies.

The World Bank defines this index as: "Control of corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests."

The components of the index can be accessed at:
http://info.worldbank.org/governance/wgi/#doc

STRUCTURAL CONSTRAINT: Control of Corruption, Selected Countries, 1996-2016 (Source: World Bank).
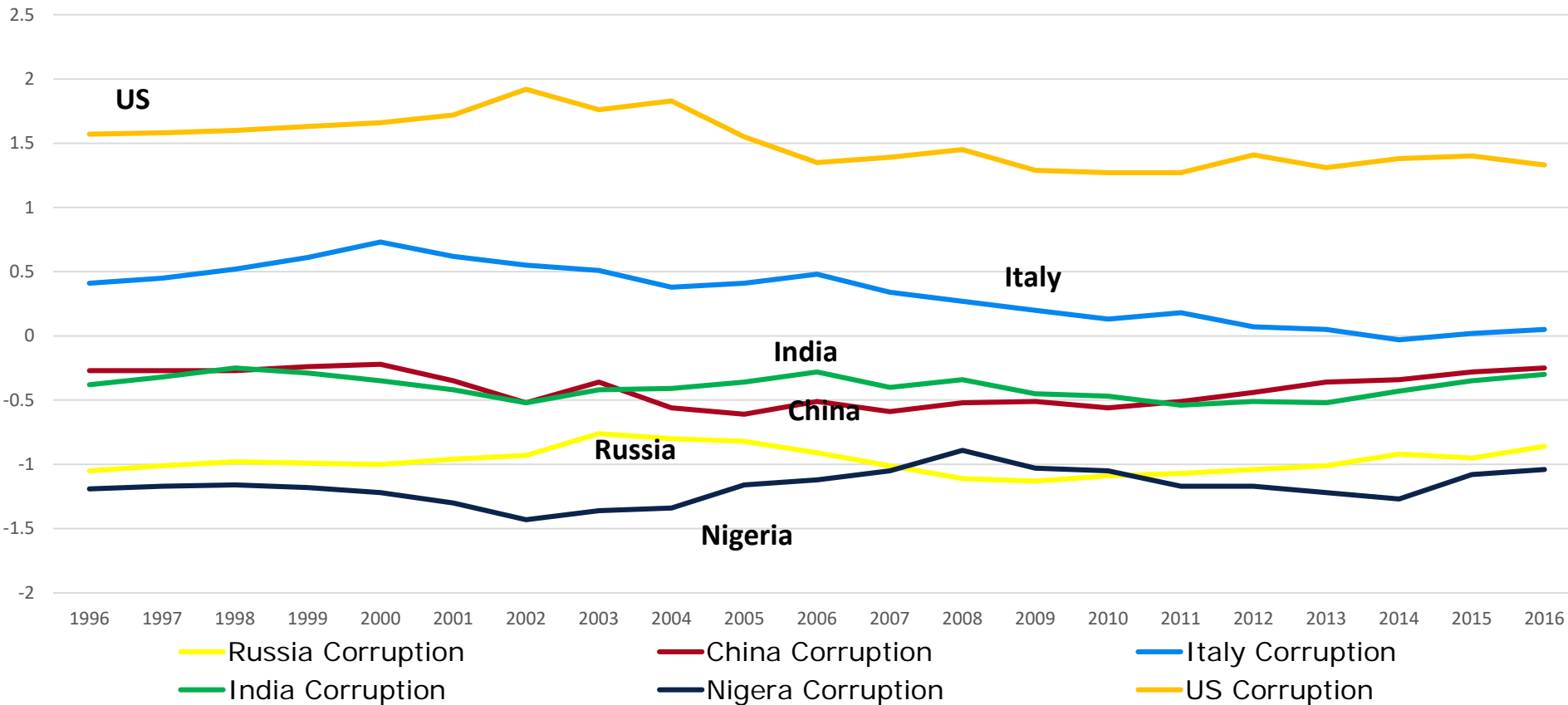
# Integrating Measures: GDP, RPE, with QofG and Control of Corruption

Constraining GDP*RPE with Scaled Measure of Quality of Governance Index, for the U.S., China, and Russian Federation, 1996-2015.
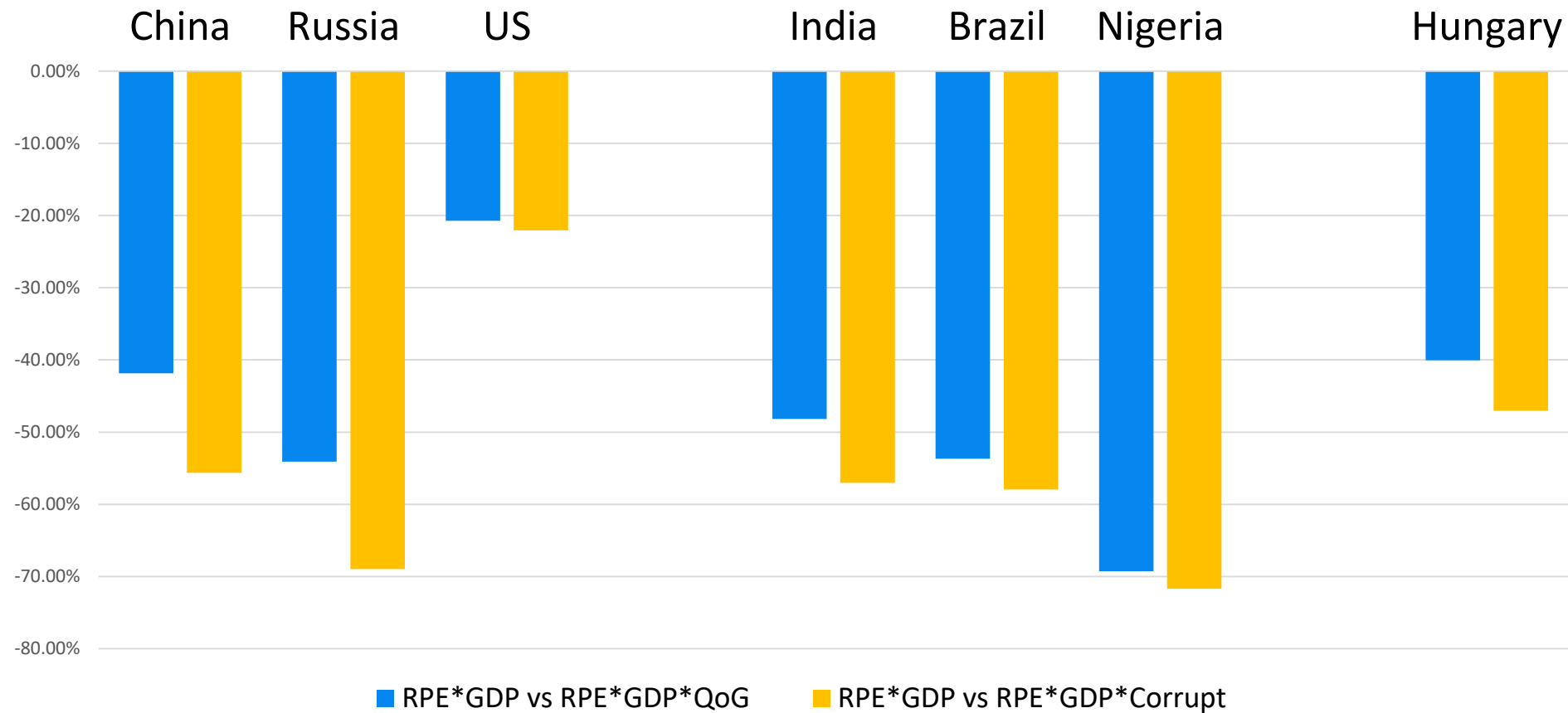

Legend: China — Russia — United States
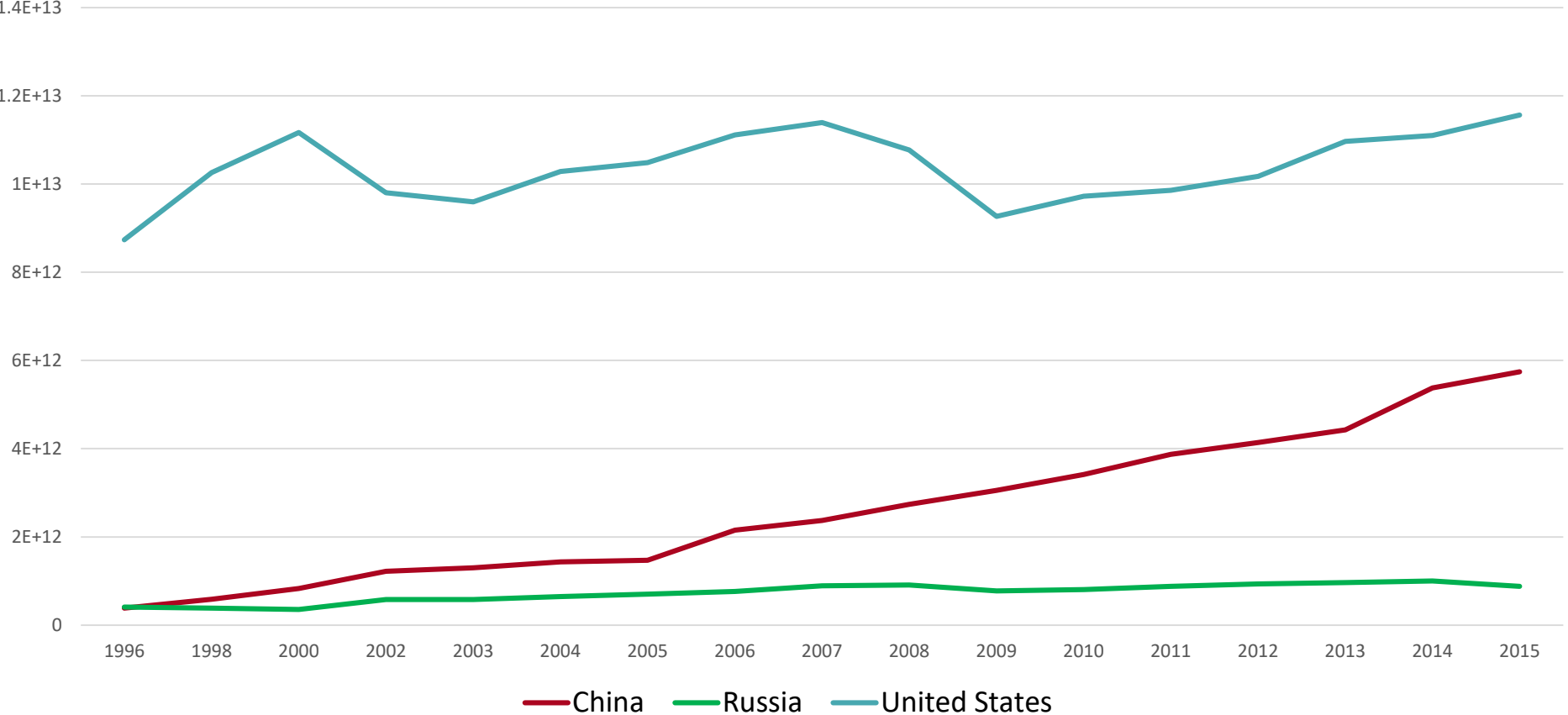
Percent Difference Between RPE*GDP vs RPE*GDP*QofG, 1996 and 2015.
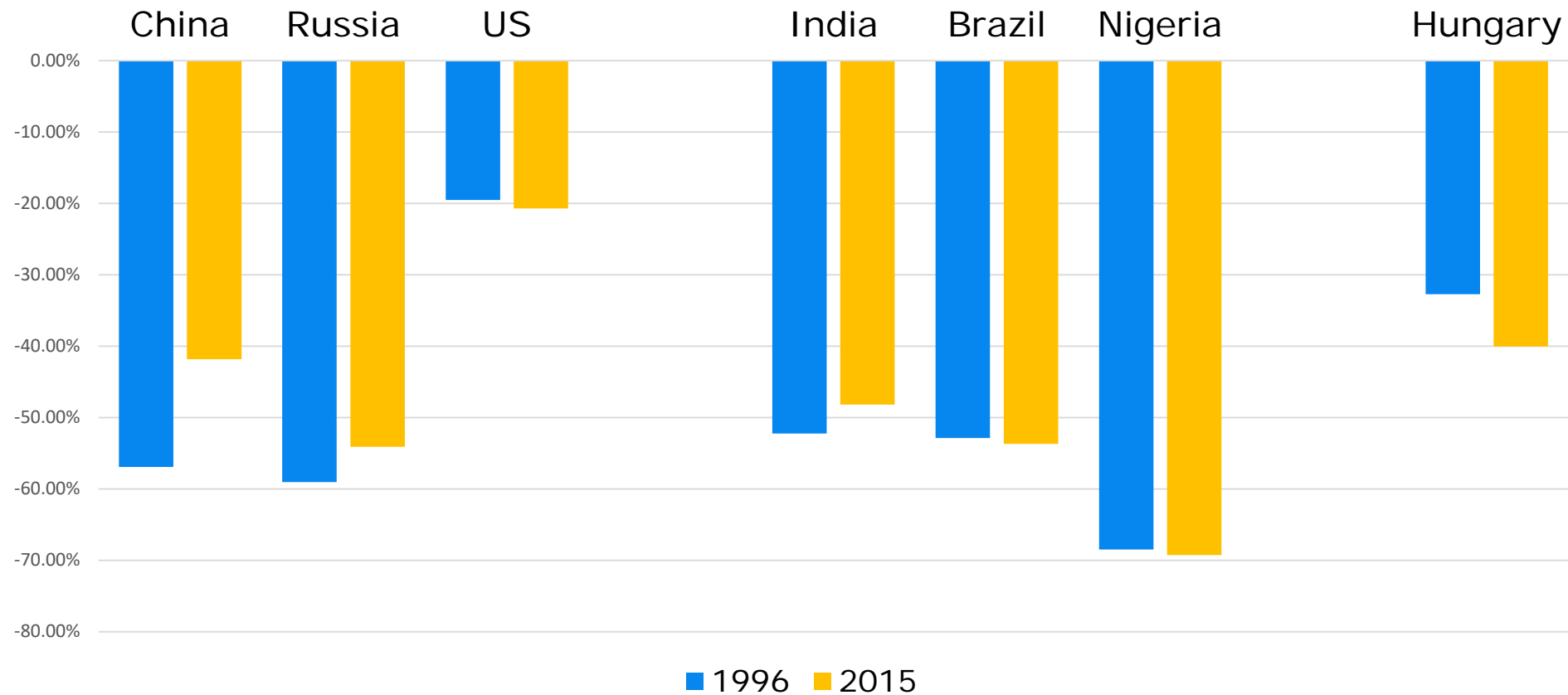
Constraining GDP*RPE with Scaled Index of Control of Corruption, for China, Russian Federation, and the US, 1996-2015.
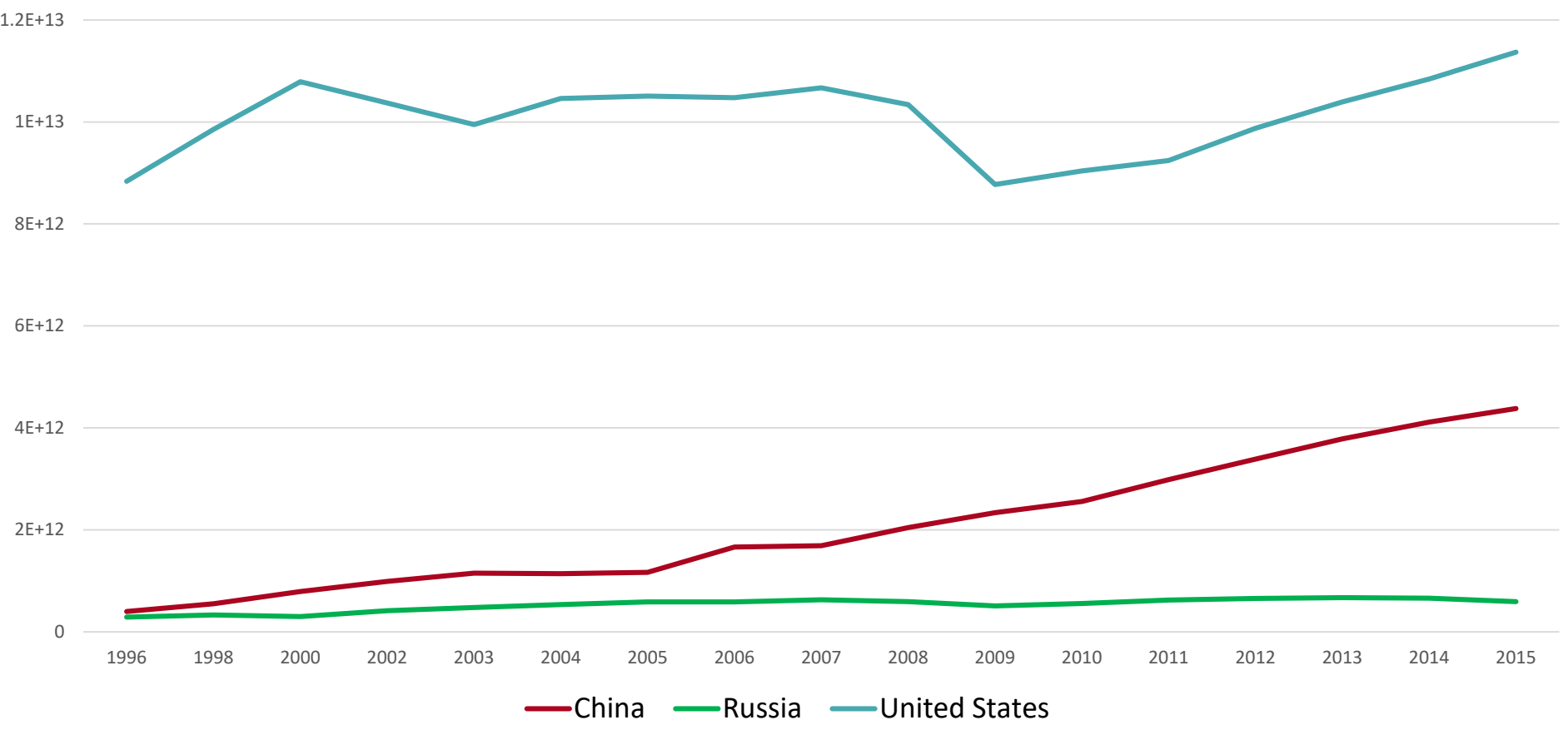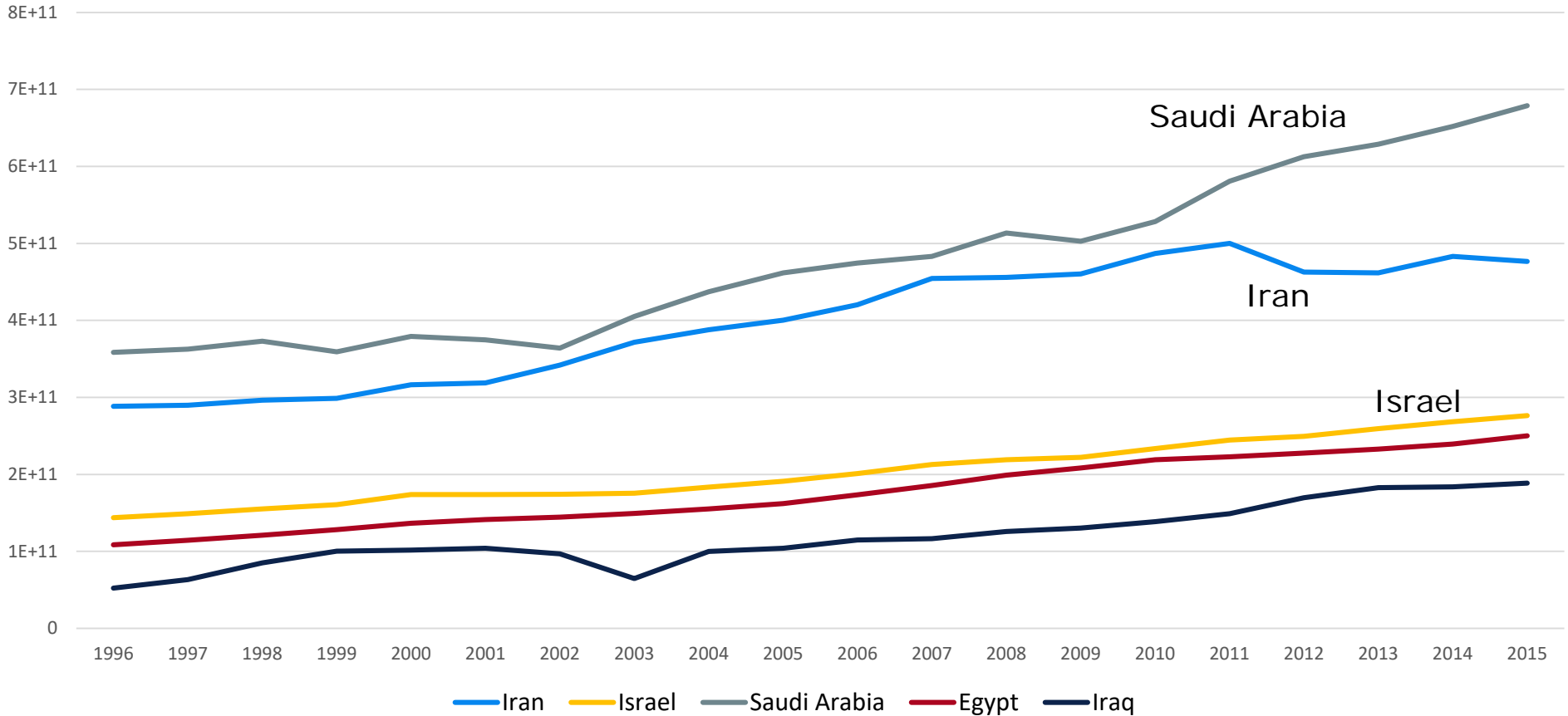
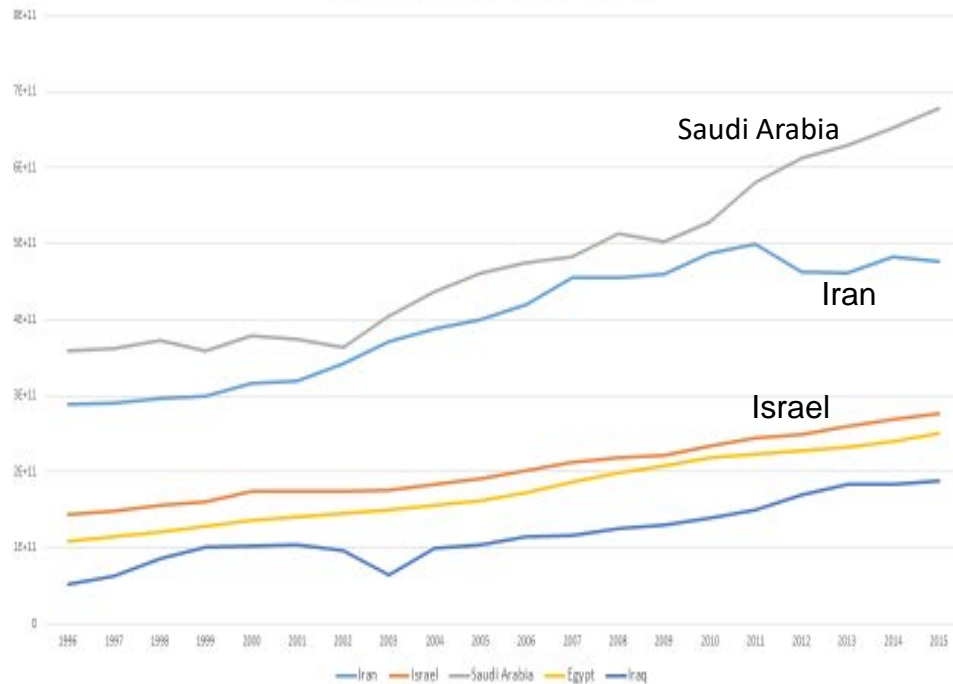RPE*GDP*QofG vs RPE*GDP*Corrupt, 2015.

Middle East Illustration

GDP Values in Constant (2011) US Dollars, Selected Middle Eastern States (Source: World Bank)
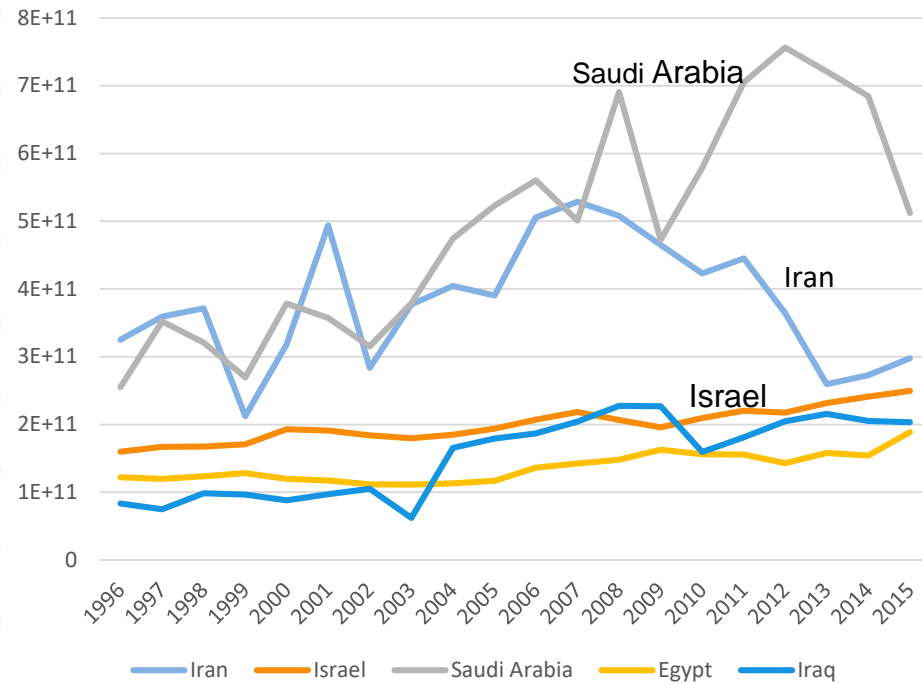
GDP Values vs. GDP*RPE, Selected ME Countries, 1996-2017.

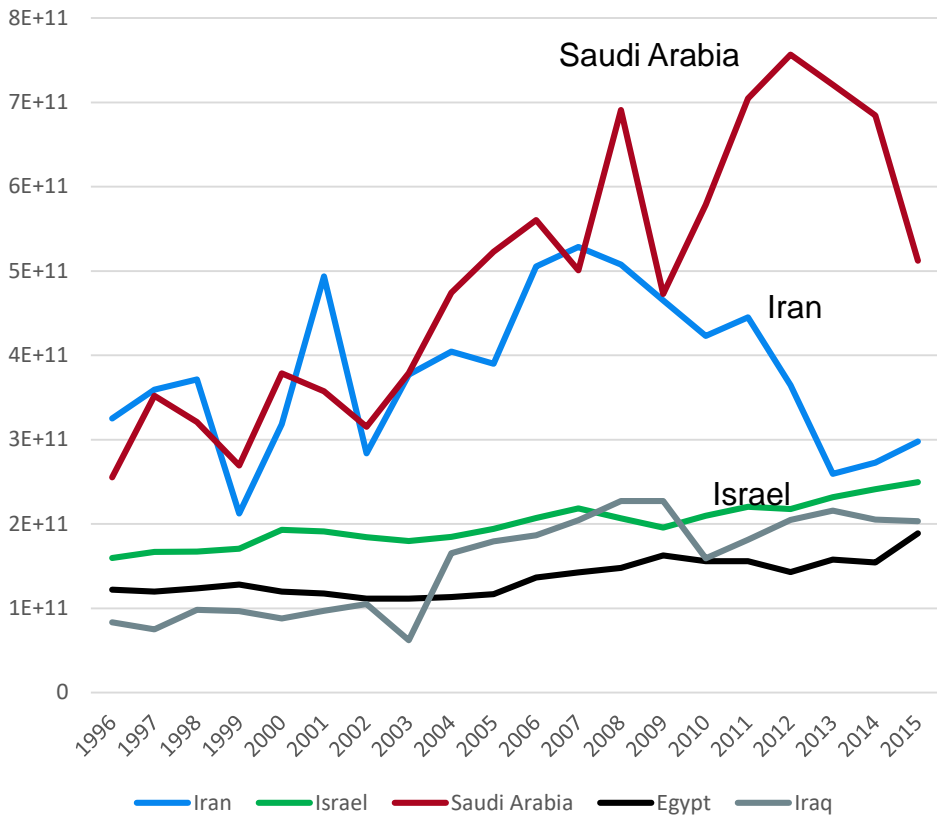GDP Values in Constant (2011) US Dollars, Selected Middle Eastern States (Source: World Bank)

GDP Modified By Political Extraction (RPE), Selected ME States, 1996-2015
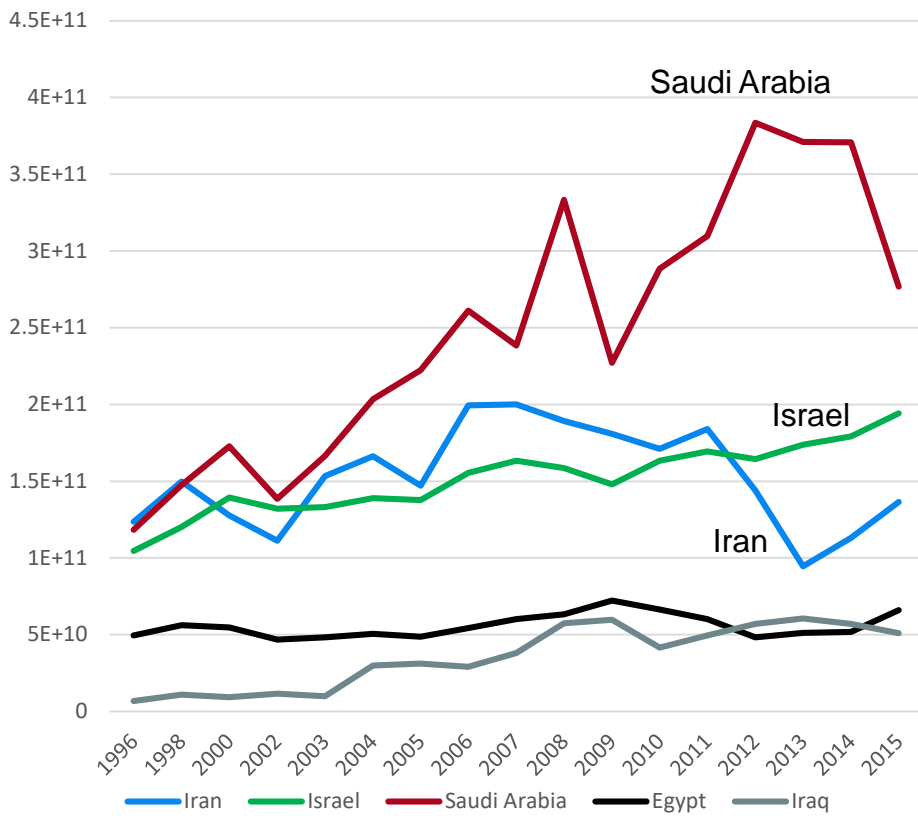
GDP Modified by RPE vs. GDP*RPE Constrained by Quality of Governance Values, Selected ME States, 1996-2015.

GDP Modified By Political Extraction (RPE), Selected ME States, 1996-2015

GDP*RPE Constrained by Quality of Governance Values, 1996-2015, Selected ME States.

GDP*RPE Values Constrained by Quality of Governance and by Corruption, Selected ME States, 1996-2015.

GDP*RPE* Values Constrained by Quality of Governance, Selected Middle East States, 1996-2015.

GDP*RPE* Values Constrained by Quality of Governance and Corruption, for Selected Middle East States, 1996-2015.
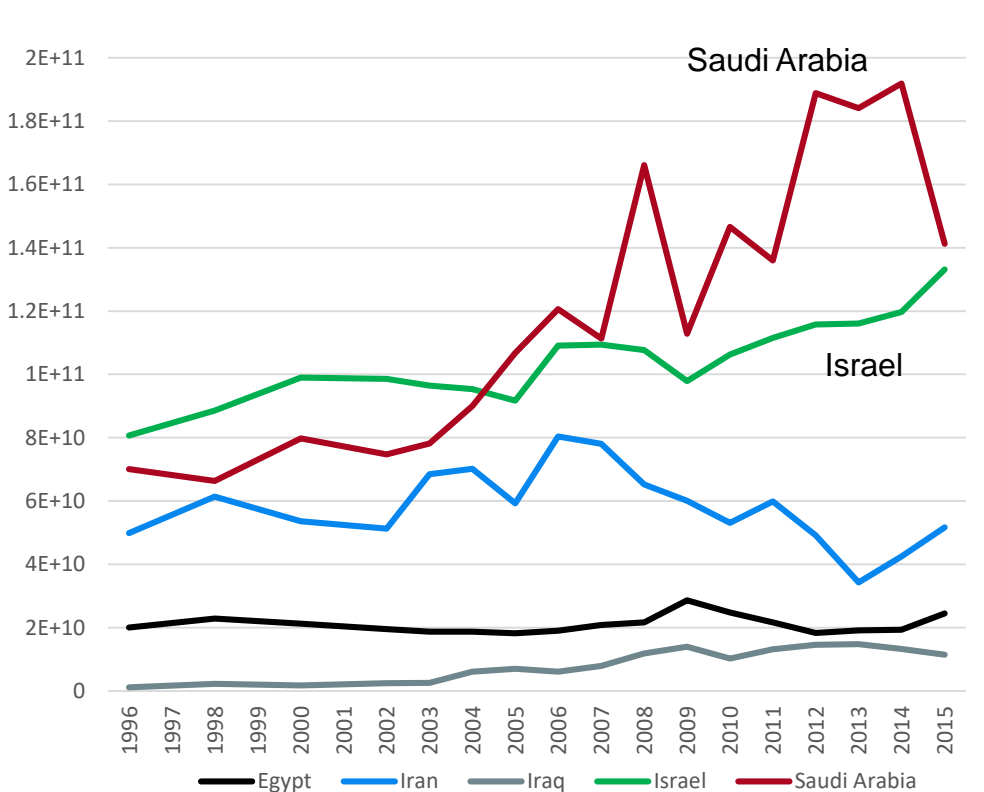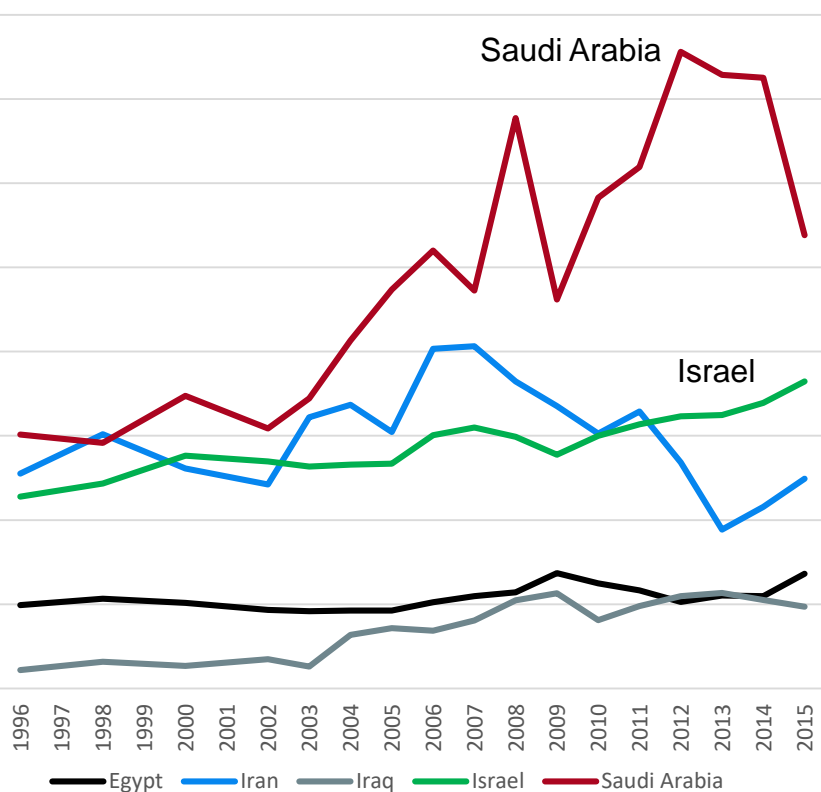
Extracted Resources: Military Expenditures

Major Power Military Expenditures in Constant 2016 US Dollars for the U.S., China, and the Russian Federation, 1989-2016 (Source: SIPRI).

Legend: China, P.R.: Mainland — Russian Federation — United States
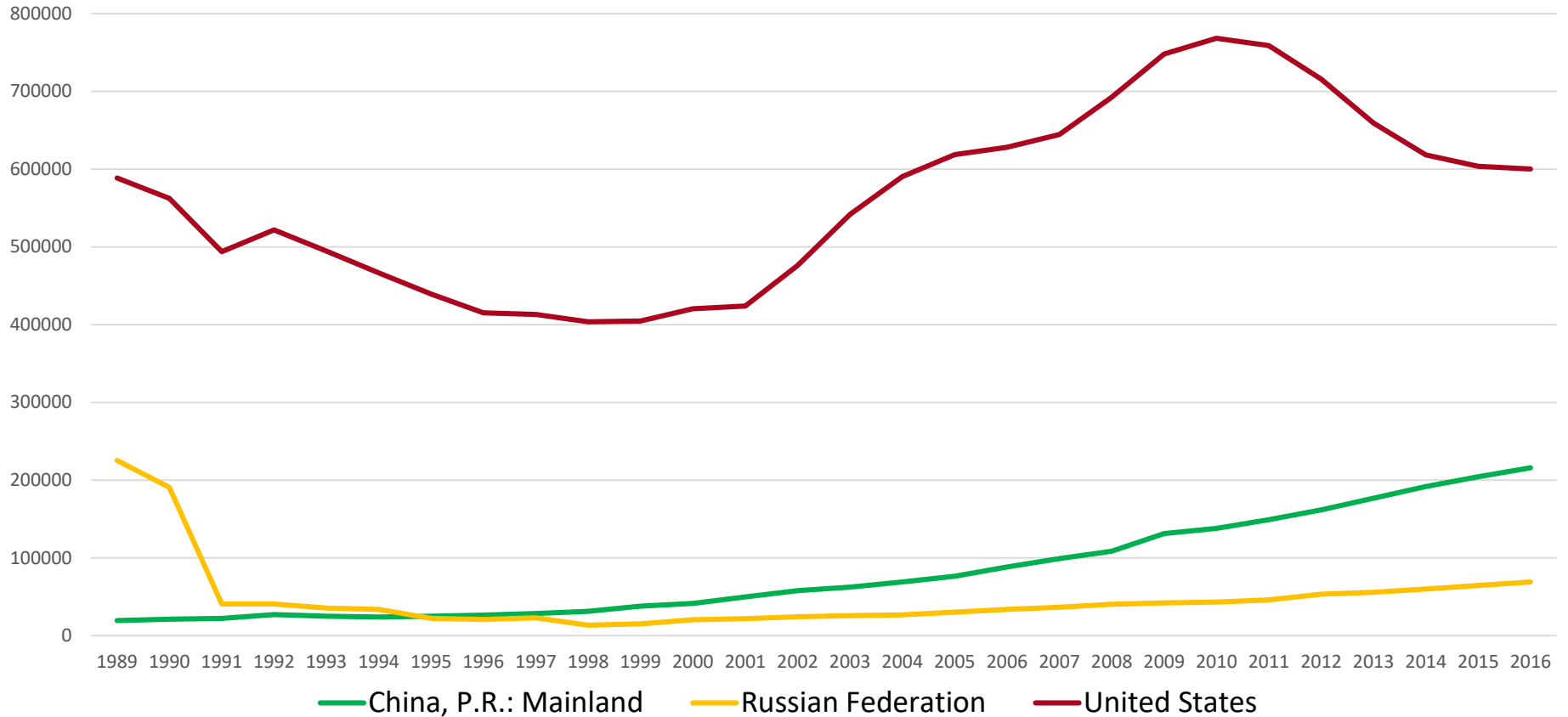
Military Expenditures (ME) and ME * (QofG + Corrupt)/2).
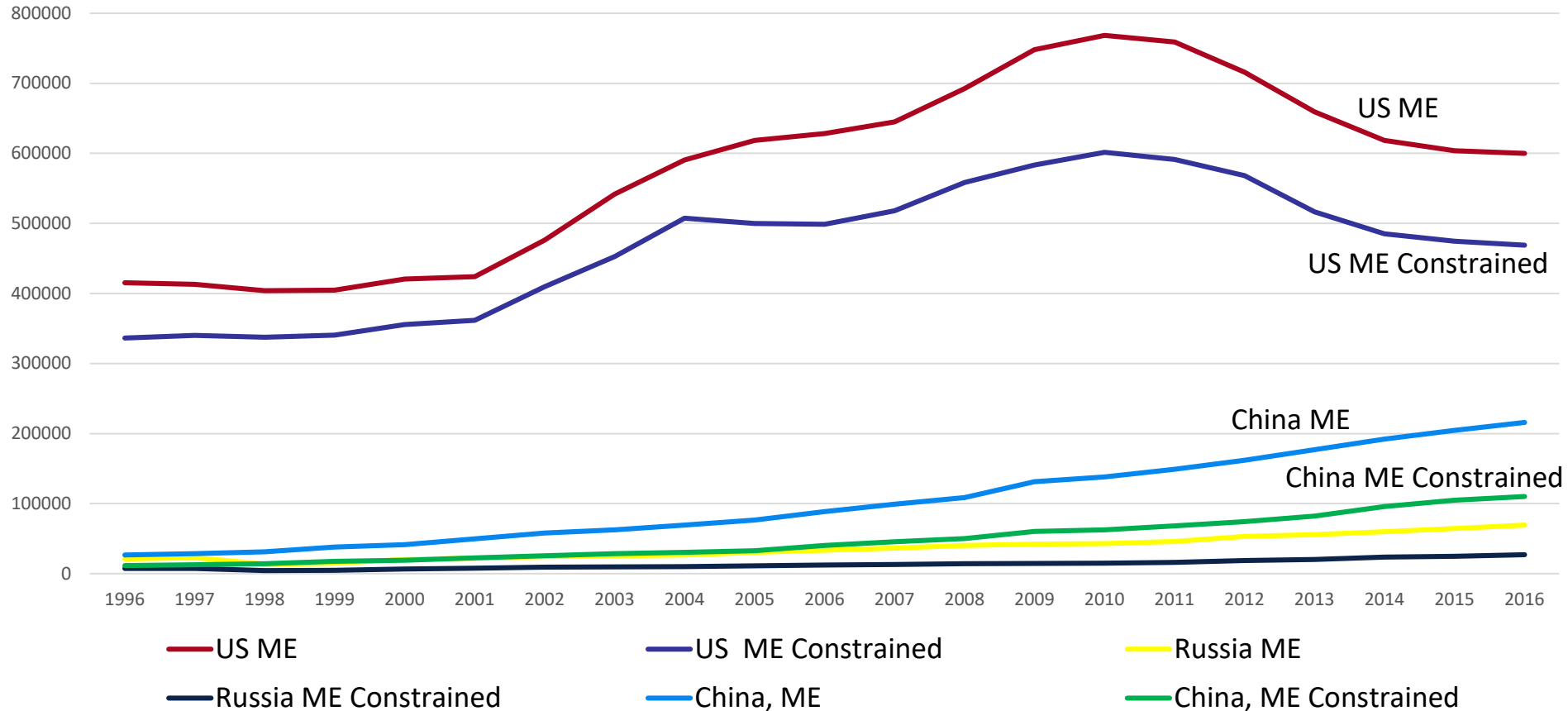
Percent Difference between Milex vs. Milex*(QofG+Corrupt/2), 1996 and 2015.
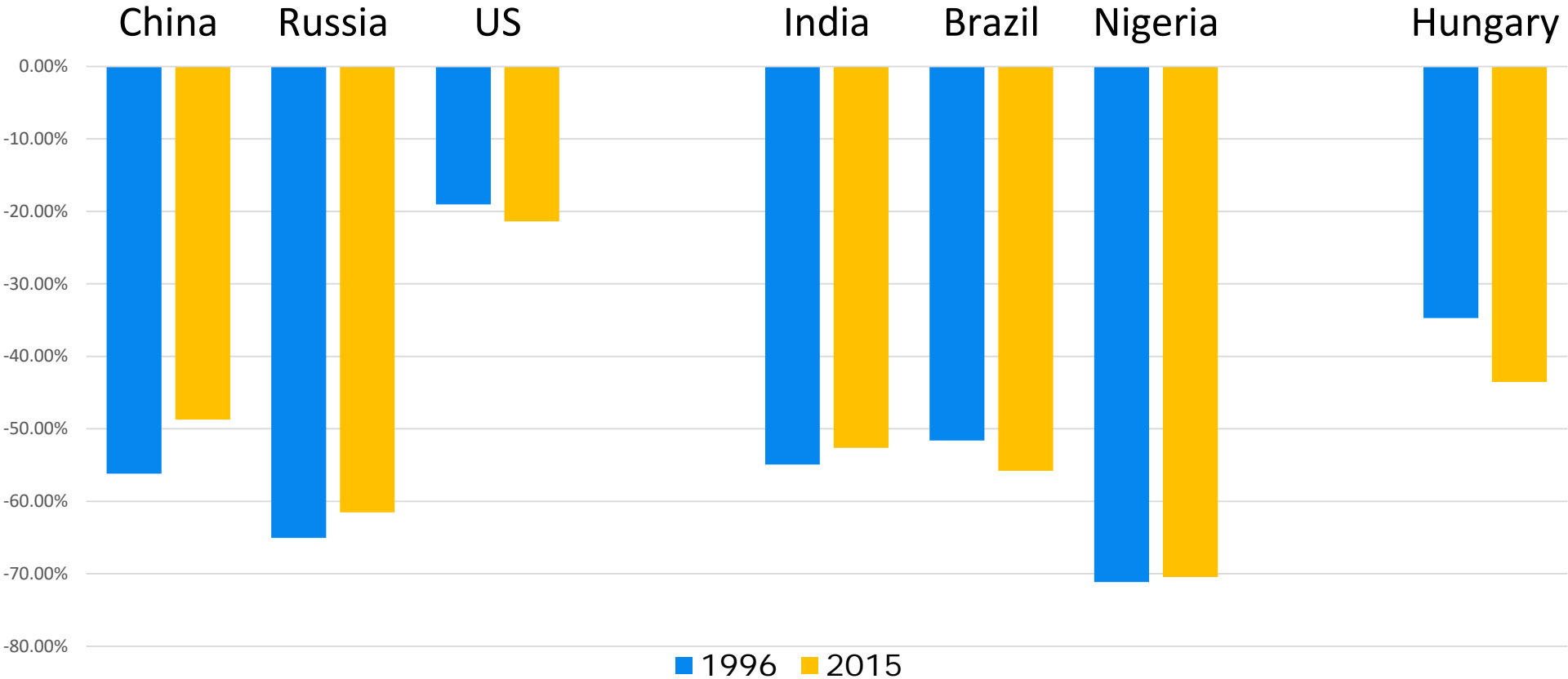
One test of the value of constraining capabilities

Focused on regions in international politics

Using region year as the unit of analysis

Severe MID frequency (per capita) as the dependent variable

Test as "worst case analysis":
        regions are already controlled for hierarchy/dominant power
        small sample = small N

VARIABLES	Base Hierarchical Model	GDP	GDP Constrained
GDP		-0.075**	
		(0.030)	
GDPConstrained			-0.062***
			(0.019)
# of Intra-Regional Rivalries $_{t-1}$	-0.066***	-0.063***	-0.067***
	(0.017)	(0.017)	(0.017)
# of Civil Wars $_{t-1}$	0.009	0.001	0.004
	(0.018)	(0.017)	(0.017)
Territorial Claims $_{t-1}$	0.457***	0.255**	0.350***
	(0.100)	(0.120)	(0.110)
% Regional Democracies $_{t-1}$	-0.679***	-0.741***	-0.636***
	(0.129)	(0.134)	(0.128)
IGO Membership $_{t-1}$	-0.374**	-0.243	-0.362**
	(0.158)	(0.171)	(0.158)
Defense Alliances $_{t-1}$	0.602***	0.823***	0.791***
	(0.132)	(0.152)	(0.143)
Time Counter	-0.005	-0.001	-0.001
	(0.006)	(0.006)	(0.006)
Constant	0.122*	2.142***	1.715***
	(0.064)	(0.804)	(0.505)
Observations	93	93	81
R-squared	0.664	0.689	0.724

VARIABLES	Base Hierarchical Model	Milex	Milex Constrained
MILEX		-0.021	
		(0.017)	
MILEXConstrained			-0.026**
			(0.013)
# of Intra-Regional Rivalries $_{t-1}$	-0.066***	-0.069***	-0.068***
	(0.017)	(0.016)	(0.018)
# of Civil Wars $_{t-1}$	0.009	0.005	0.005
	(0.018)	(0.018)	(0.019)
Territorial Claims $_{t-1}$	0.457***	0.392***	0.380***
	(0.100)	(0.114)	(0.118)
% Regional Democracies $_{t-1}$	-0.679***	-0.720***	-0.728***
	(0.129)	(0.139)	(0.138)
IGO Membership $_{t-1}$	-0.374**	-0.343**	-0.280*
	(0.158)	(0.162)	(0.164)
Defense Alliances $_{t-1}$	0.602***	0.711***	0.709***
	(0.132)	(0.150)	(0.143)
Time Counter	-0.005	-0.004	-0.001
	(0.006)	(0.006)	(0.007)
Constant	0.122*	0.298*	0.313**
	(0.064)	(0.161)	(0.125)
Observations	93	93	81
R-squared	0.664	0.669	0.704

Next Steps

Assessing Validity and Robustness:

- Substituting in models of conflict for unconstrained capabilities
- Comparison with COW Index, others

Applications: Conflict outcomes

- War outcomes; civil war outcomes

Applications: Status pursuits

- Predicting status attribution; Predicting status seeking behavior

Applications: Impact on dyadic rivalries

Searching for alternatives to Q of G, Corruption measures (with longer time span)

- One possibility: GDP/capita as substitute for Qof G; Corruption
- r (GDP/capita and QofG) = .82 ; r (GDP/capita and Corrupt) = .81