Institutions and the Economic Impacts of Services Trade Policies

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Background

- Services are important intermediate inputs into manufacturing production
- Manufacturing productivity depends on the performance of services sectors
- Lower barriers to services trade can improve manufacturing productivity
- Governance - rule of law; control of corruption - shape downstream effects of barriers to mode 3 services trade
- Benefits from lower barriers only in countries with good institutions (Beverelli et al., Forthcoming)

Research motivation and objectives

- **Focus on the EU**
  - barriers to trade in services remain significant for many sectors (gains from liberalization)
  - quality of economic governance varies significantly across EUMS

  $\Rightarrow$ **distributional effects of market access liberalization** impact on political support for trade agreements

- **Unpack governance institutions**
  - across services sectors
  - across areas of regulation (state control, barriers to entrepreneurship etc)

  $\Rightarrow$ assess **policy implications** both for the regulatory reforms within the Single Market and for negotiation of services trade agreements

Preview of results

- Reducing barriers to trade in producers services is effective in boosting manufacturing productivity

- Horizontal and sectoral dimensions of governance institutions moderate this effect in two different ways

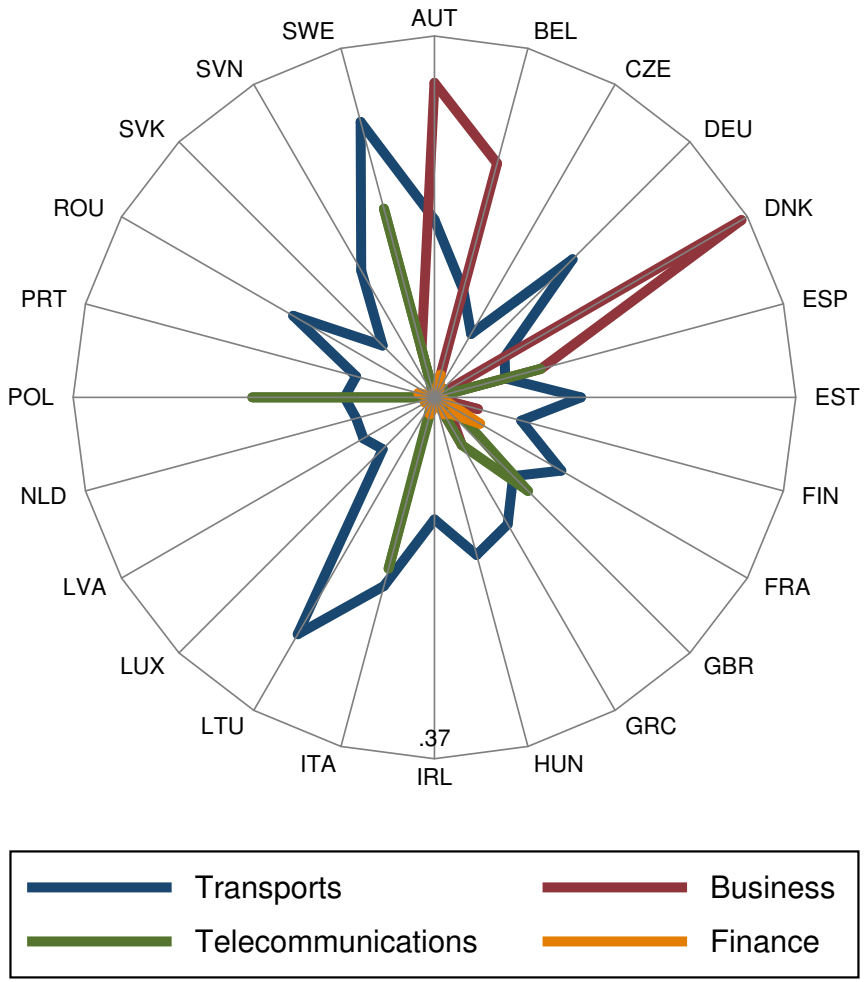
- **One way complementarity**

  "Infrastructural" dimensions - governance and scope of state owned enterprises; governance in telecommunications; EU accession - are necessary conditions for the positive downstream effect of services trade policy

- **Substitutability**

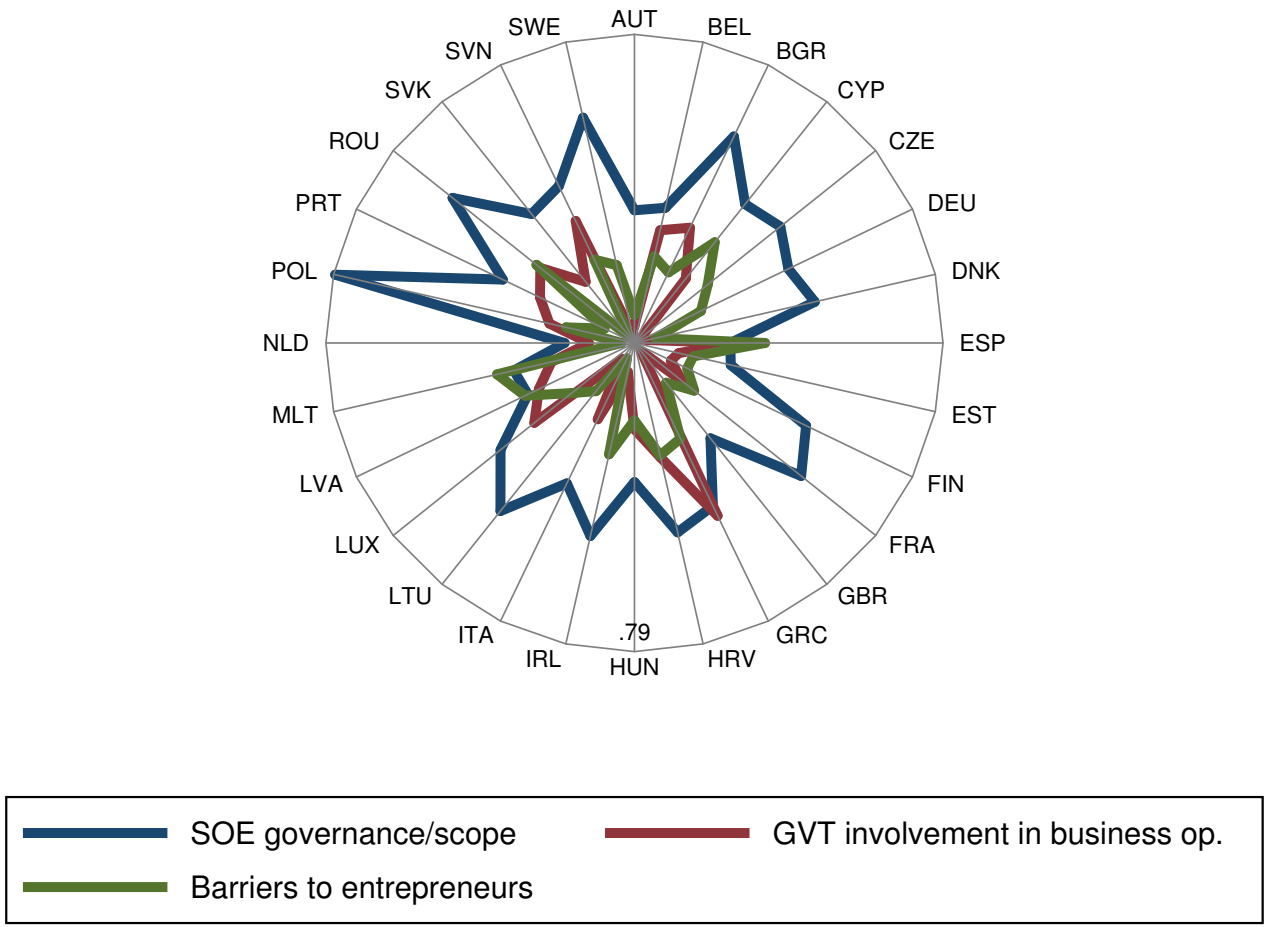
  For other dimensions - involvement of GVT in business operations; governance in business services - we find a substitutability relationship between governance institutions and reduction in discriminatory barriers

Motivating evidence: barriers to FDI



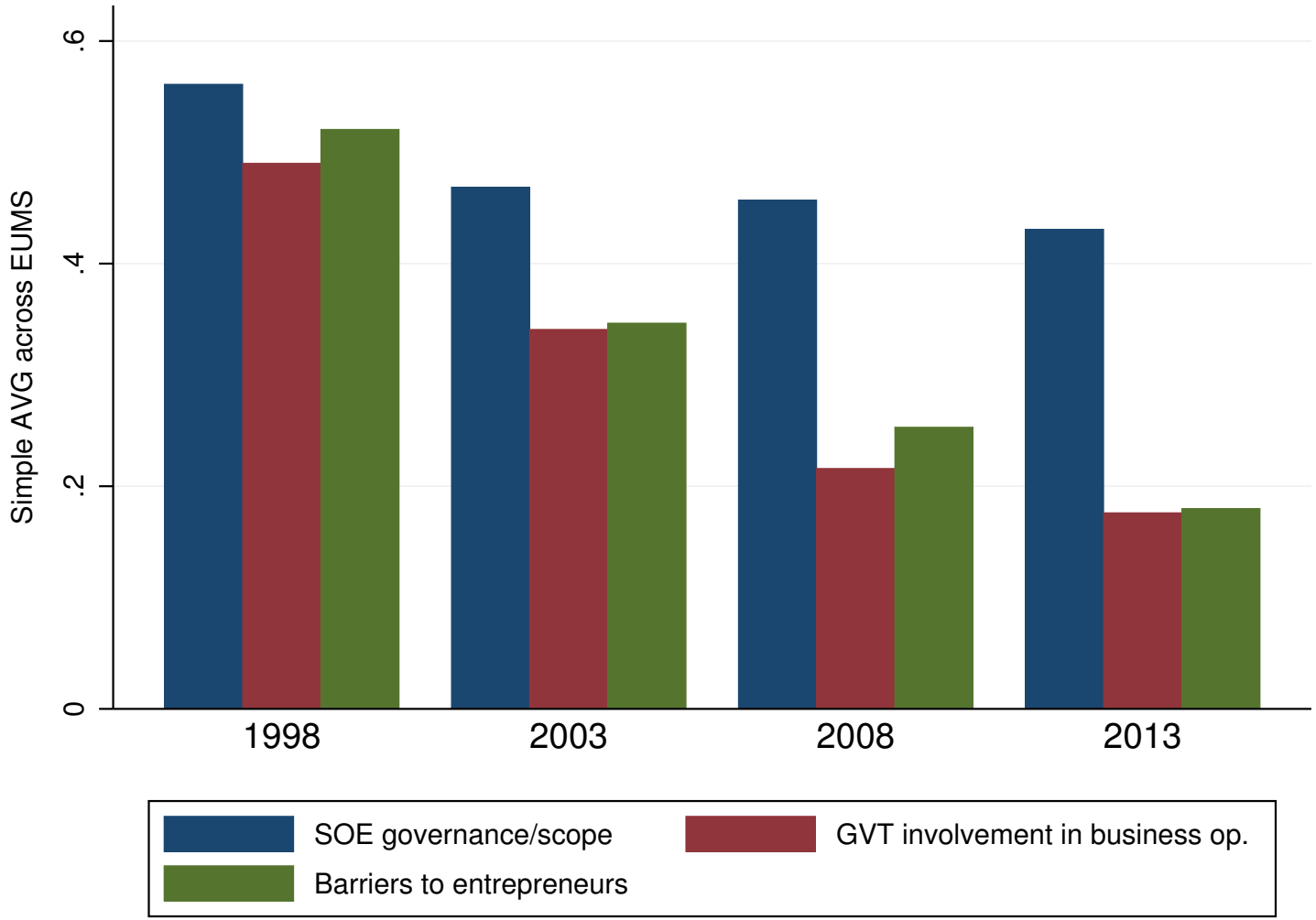
Note: 1=maximum restrictions. **Source:** OECD FDI RI, year 2010

Governance: horizontal dimensions across EUMS



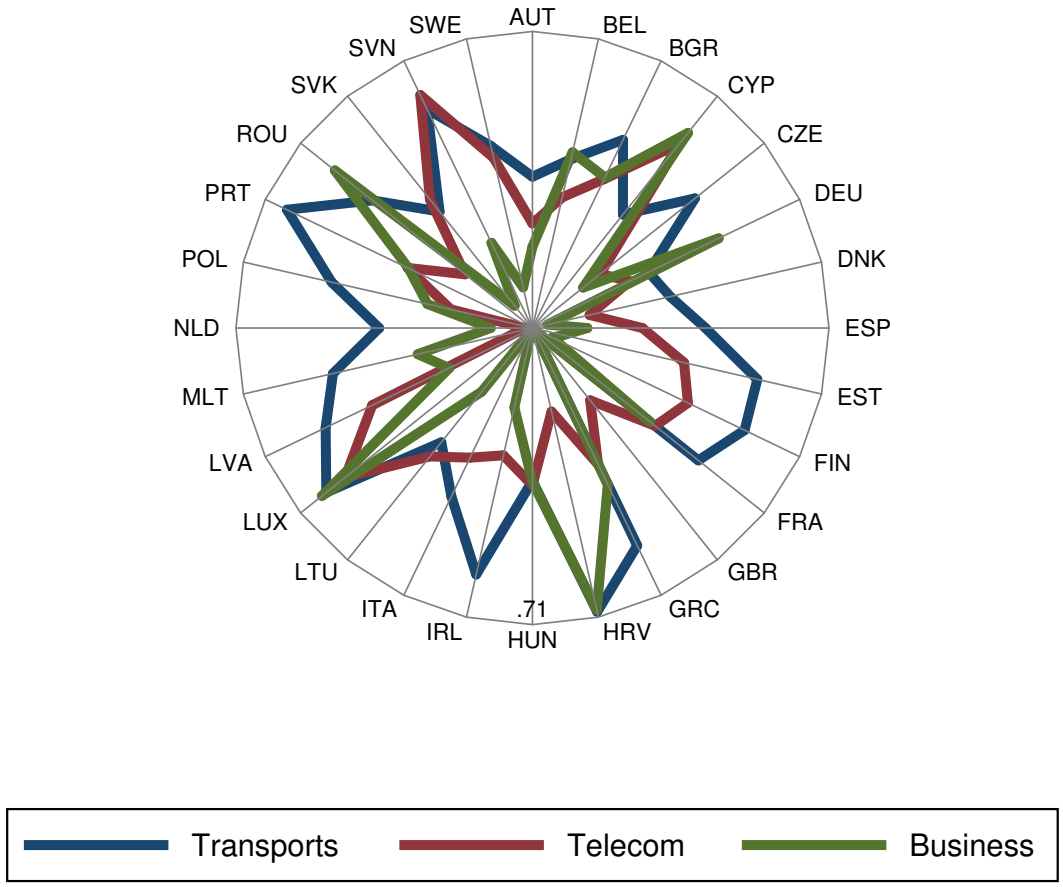
Note: 1=higher barriers/minimum quality. **Source:** OECD PMR EW, year 2013

Governance: horizontal dimensions over time



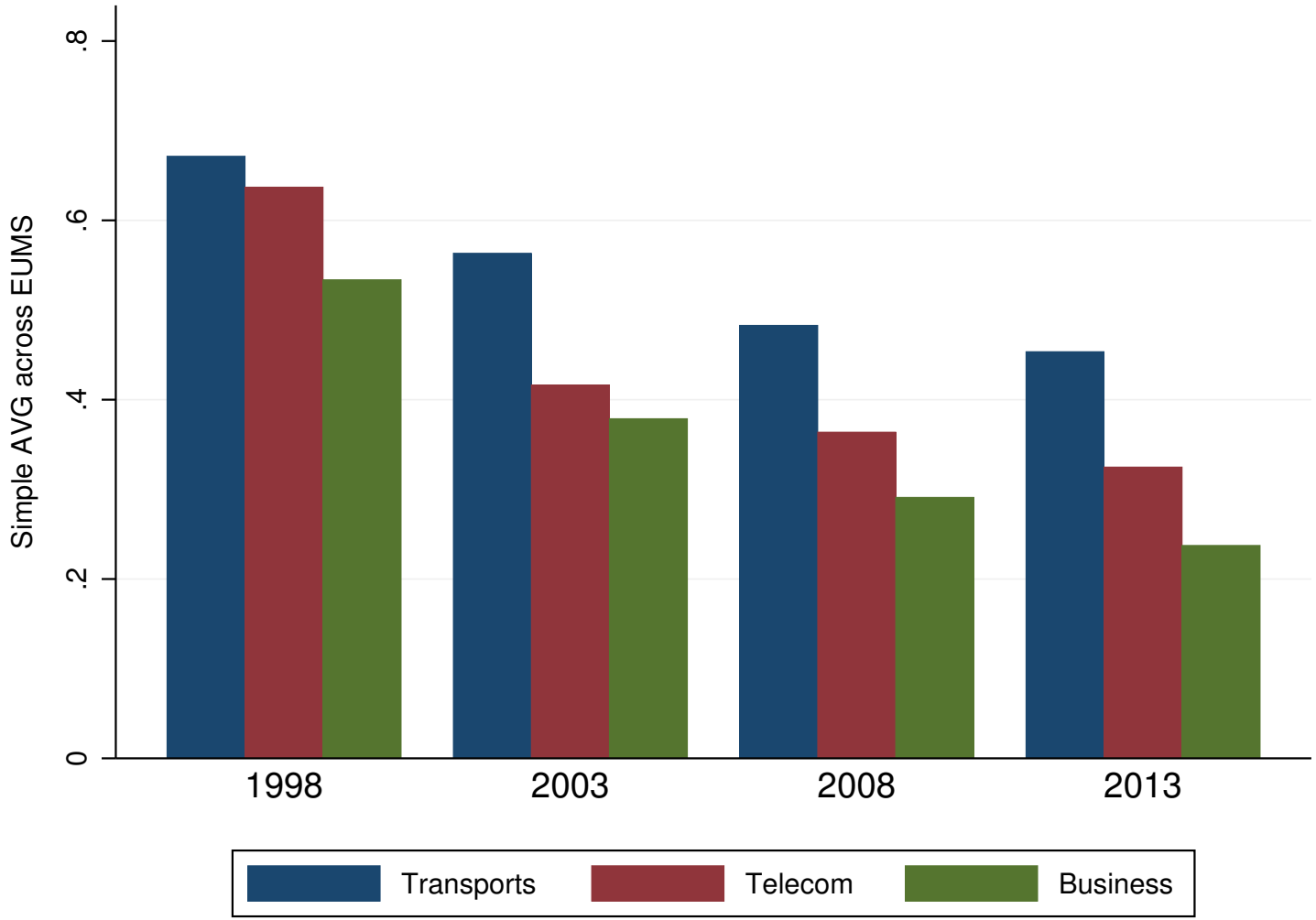
Note: 1=higher barriers/minimum quality. **Source:** OECD PMR EW

Governance: sectoral dimensions across EUMS



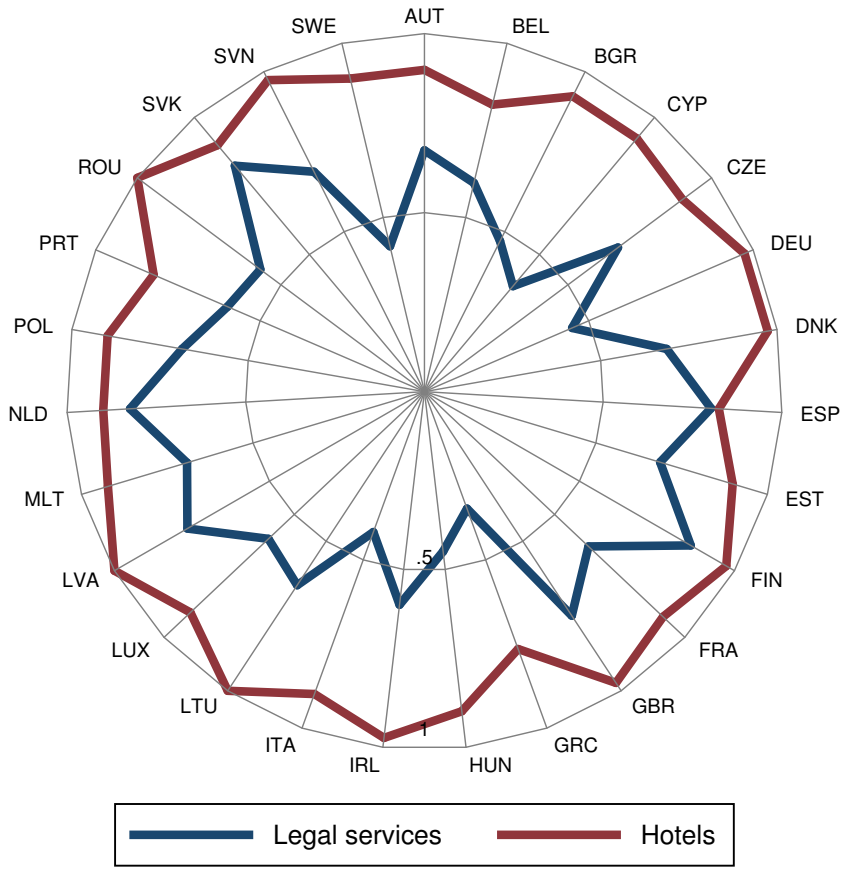
Note: 1=higher barriers/minimum quality. **Source:** OECD PMR OECD PMR ETCR and Professions, year 2013

Governance: sectoral dimensions over time



Note: 1=higher barriers/minimum quality. **Source:** OECD PMR ETCR and Professions

Governance: Services Directive



Note: Actual implementation avg across SD requirements in 2009. 1=complete implementation. **Source:** Monteagudo et al. (2012)

Empirical Methodology (I)

- Rajan and Zingales (1998) approach

$\Rightarrow$ Underlying assumption: the effect of upstream trade restrictiveness on downstream productivity varies with the intensity of services input use

- Producer services Composite Restrictiveness Index (CRI) in country i and downstream manufacturing sector j:

$$CRI_{ij} \equiv \sum_{s} STRI_{is} \times w_{ijs}$$

  - $STRI_{is}$: Index of Service s mode 3 trade restrictiveness in country i
  - w_{ijs}: a measure of use of service s by downstream sector j in country i

Empirical Methodology (II)

- Specification for log productivity y

$$logMFP_{ijt} = \alpha + \beta CRI_{ij(t-1)} + \mu\big(CRI_{ij(t-1)} \times GI_{i(t-1)}\big) + \\ + \boldsymbol{\gamma}' \mathbf{x}_{ij(t-1)} + \delta_{it} + \delta_{jt} + \epsilon_{ij} \quad (1)$$

  - GI_i: measure of governance institutions in country i
  - $\mathbf{x}_{ij(t-1)}$: vector of controls including exports to output ratio, imports to output ratio and the log of the capital-labour ratio
  - δ_{it}: country-time fixed effects
  - δ_{jt}: sector-time fixed effects

Multi Factor Productivity

- Data from OECD STAN Database (available up to 2009)

$$logMFP_{ijt} = logVA_{ijt} - a_j logL_{ijt} - (1 - a_j) logK_{ijt} \quad (2)$$

  - VA_{ijt} real value added
  - L_{ijt} hours worked
  - K_{ijt} real productive capital stock
    inventory method, $K_{ij0} = I_{ij0}/(\delta + g)$, with depreciation rate $\delta = 0.08$ and steady state growth rate of investment g computed on the first available 10 years of investment series
  - a_j labor share sector j in the US

Composite restrictiveness index

- Mode 3 services trade restrictiveness from OECD FDI Regulatory Restrictiveness Index
  - available for years 1997, 2003, 2006, 2010-2015 (backward filling assumption)
  - producer services used for CRI: financial services, transport, telecom, business

- Input-output weights from OECD STAN IO Tables
  - use US weights for mid 90s

Governance institutions (I)

- Horizontal dimensions from OECD PMR Economy Wide Database
  - time coverage: 1998, 2003, 2008, 2013 (backward filling assumption)
  - dimensions inspected: all areas ($GI_{\text{all areas}}$); barriers to entrepreneurship ($GI_{\text{bar to entrp}}$); state control ($GI_{\text{state control}}$, $GI_{\text{gvt in business}}$, $GI_{\text{SOE governance/scope}}$)

- Sectoral dimensions from OECD PMR ETCR and Professional services Databases
  - PMR ETCR yearly coverage 1975-2013 / PMR Professional: 1998, 2003, 2008, 2013 (backward filling assumption)
  - Focus on "conduct" regulation: exclude entry , trade or FDI related policy areas
  - Sectors included: transport (GI_{transp}); telecom (GI_{telecom}); and business (GI_{business})

Governance institutions (II)

- EU institutions
  - EU dummy (accession)
  - Services Directive dummy ($SD = 1$ since adoption in 2006)
  - Services Directive Transposition data from EC (Monteagudo et al., 2012)

    for each country, avg across all services covered in the data (SDT_{all}) and avg across covered business services (SDT_{business}) / use 2009 scores and apply them backward since SD application

Estimation sample

- 1795 obs. / 11 EU countries: AUT, BEL, CZE, DEU, DNK, ESP, FIN, FRA, ITA, NLD, SWE / up to 18 manufacturing sectors (ISIC Rev 3 2 digits) / 1989-2009

Summary statistics

Variable	mean	median	sd	min	max
logMFP	2.062	2.213	0.602	-0.916	4.069
CRI	0.067	0.053	0.049	0.011	0.338
$GI_{\text{all areas}}$	0.419	0.392	0.140	0.172	0.694
$GI_{\text{bar to entrp}}$	0.440	0.447	0.132	0.152	0.689
$GI_{\text{state control}}$	0.488	0.488	0.171	0.208	0.815
$GI_{\text{gvt in business}}$	0.334	0.277	0.228	0	0.915
$GI_{\text{SOE gov/scope}}$	0.561	0.591	0.145	0.267	0.873
EU	0.920	1	0.272	0	1
SD	0.233	0	0.423	0	1
SDT_{all}	0.187	0	0.342	0	0.918
SDT_{business}	0.169	0	0.315	0	0.922
GI_{transp}	0.599	0.600	0.158	0.300	0.972
GI_{telecom}	0.542	0.544	0.189	0.030	0.834
GI_{business}	0.422	0.305	0.274	0.037	1

Governance institutions: horizontal dimensions

	Dep var: log of MFP					
	(1)	(2)	(3)	(4)	(5)	(6)
CRI	-1.008***	-2.225***	-2.174***	-0.325	0.148	-4.570***
	(0.198)	(0.631)	(0.457)	(0.464)	(0.350)	(0.900)
$CRI \times GI_{\text{all areas}}$		3.229**				
		(1.553)				
$CRI \times GI_{\text{bar to entrp}}$			3.271***			
			(1.212)			
$CRI \times GI_{\text{state control}}$				-1.467		
				(0.927)		
$CRI \times GI_{\text{gvt in business}}$					-3.388***	
					(0.855)	
$CRI \times GI_{\text{SOE gov/scope}}$						6.795***
						(1.608)
Exports/output	0.189***	0.192***	0.187***	0.186***	0.177***	0.187***
	(0.046)	(0.046)	(0.045)	(0.045)	(0.045)	(0.046)
Imports/output	-0.099***	-0.099***	-0.098***	-0.098***	-0.097***	-0.099***
	(0.018)	(0.018)	(0.018)	(0.018)	(0.017)	(0.018)
logK/L	-0.108***	-0.110***	-0.107***	-0.107***	-0.109***	-0.115***
	(0.031)	(0.031)	(0.031)	(0.031)	(0.030)	(0.031)
Observations	1795	1795	1795	1795	1795	1795
Adjusted R^2	0.836	0.836	0.836	0.836	0.837	0.837
Country-Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector-Time FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors clustered at the country-time level are reported between brackets.
* p $<$ 0.1, ** p $<$ 0.05, *** p $<$ 0.01.

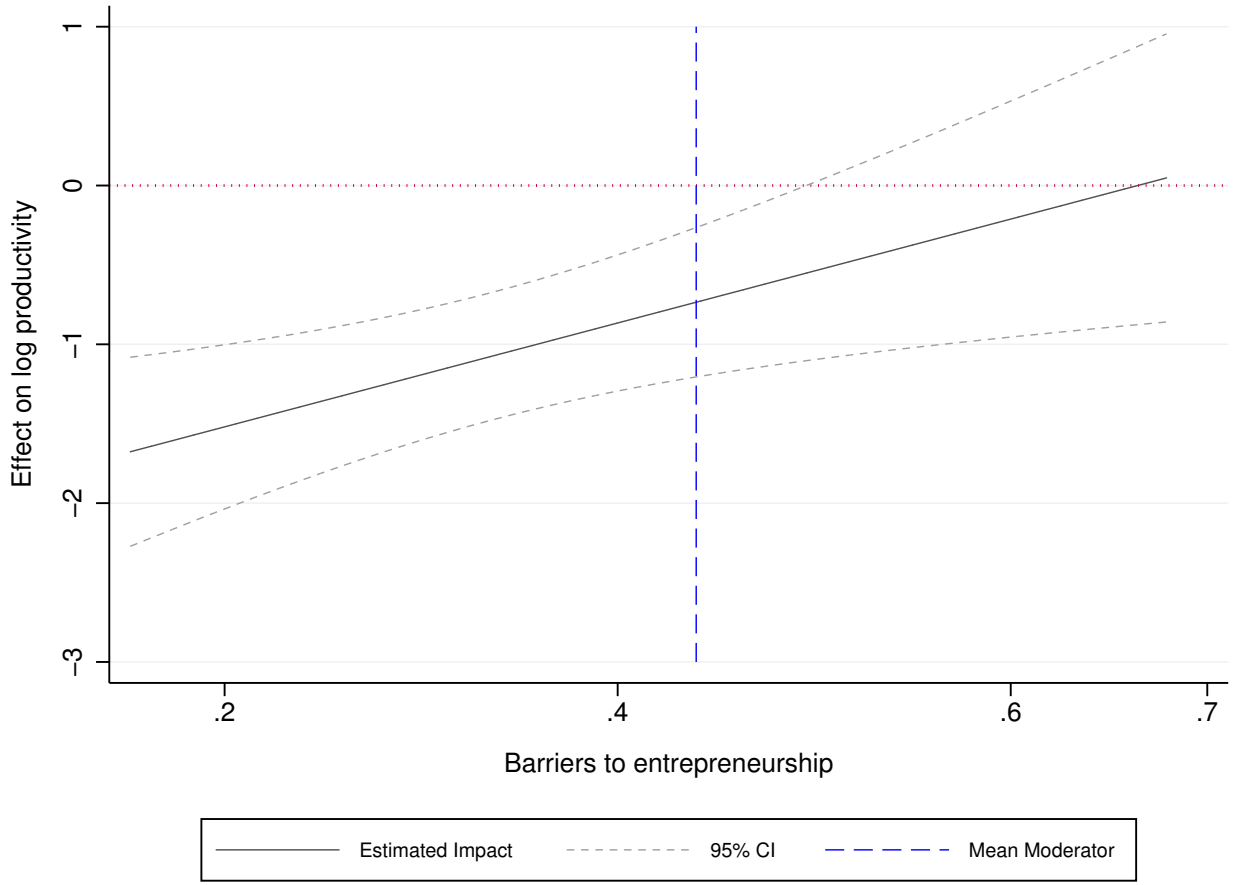
Crude quantification

- Assume 1 sd decrease in CRI (-0.49)

$\Rightarrow$ a marginal effect of -1 implies an increase in TFP by 4.9%

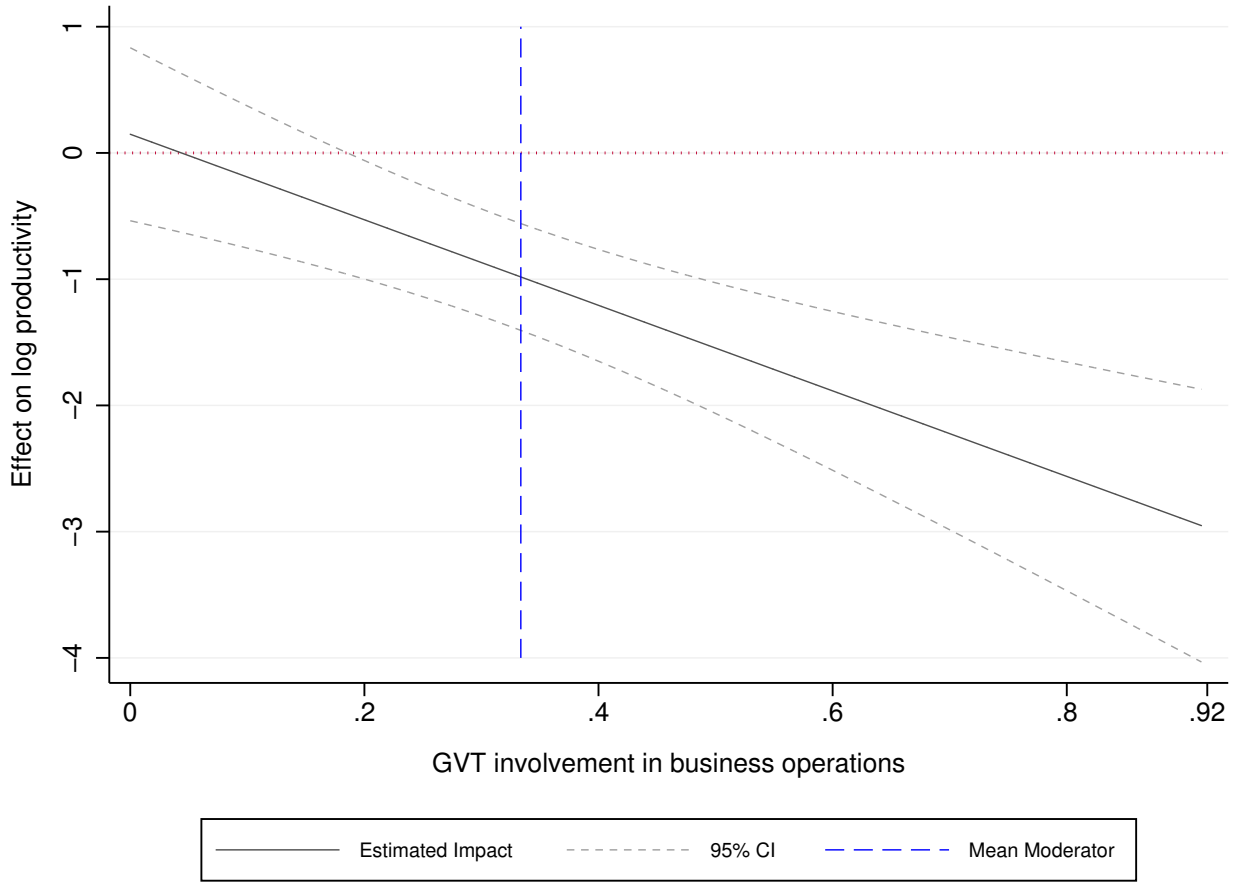
- Downstream sector specific quantification and counterfactual analysis in progress

Marginal effect of CRI as function of barriers to entrepreneurship



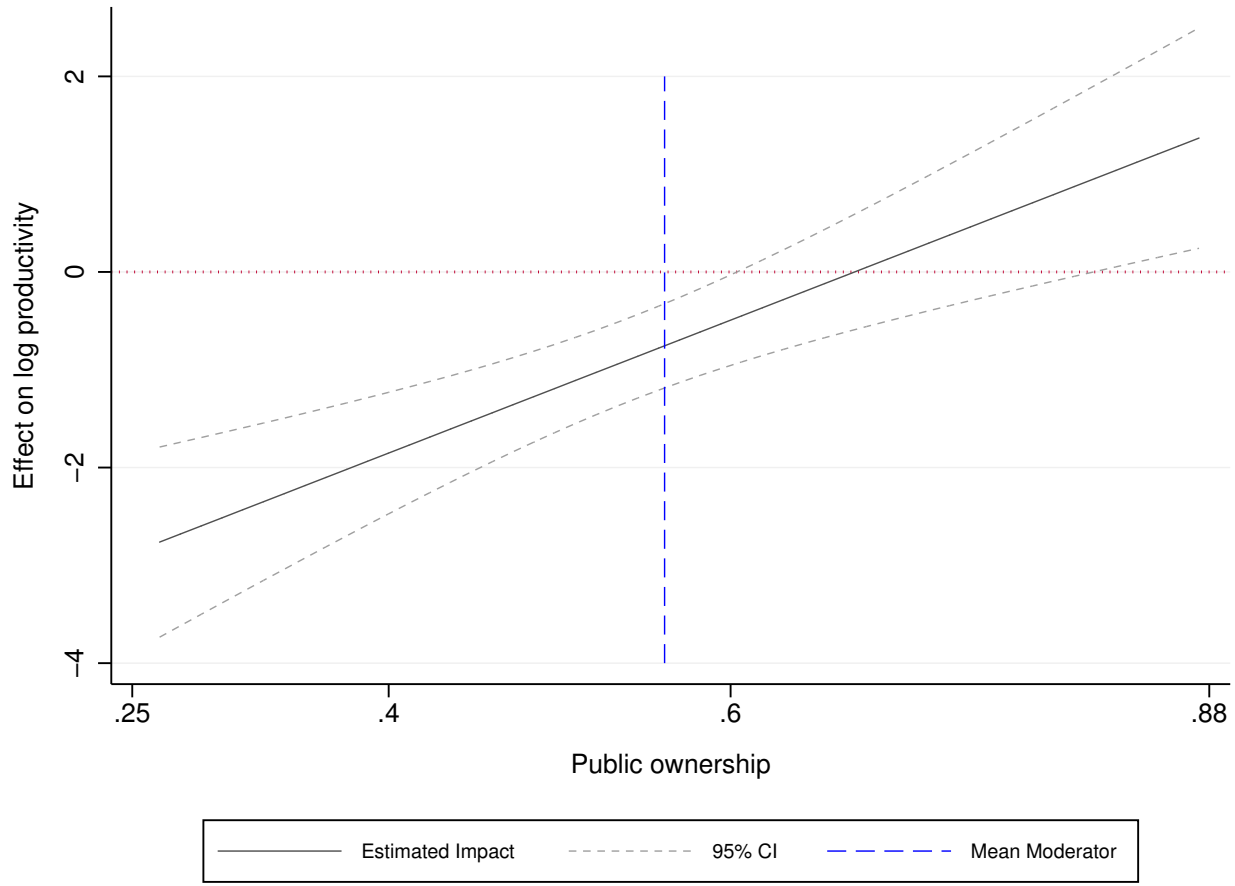
One way complementarity: reducing barriers increases MFP only if barriers are low

Marginal effect of CRI as function of GVT involvement in business operations



Substitutability: when GVT involvement is high, reducing barriers increases MFP

Marginal effect of CRI as function of SOE governance/scope



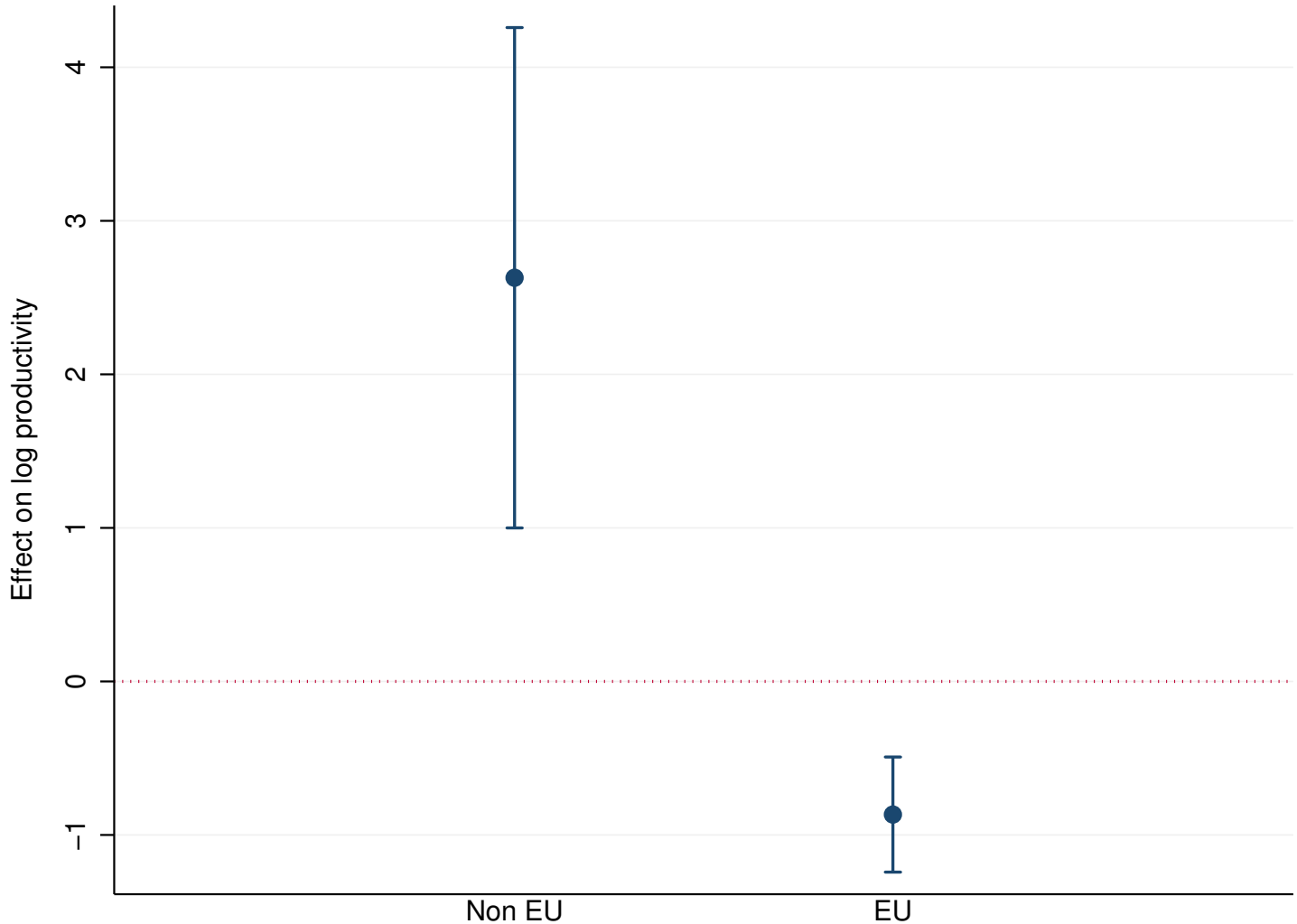
One way compl.: reducing barriers increases MFP only if SOE governance is good

EU accession and Services Directive

	Dep var: log of MFP				
	(1)	(2)	(3)	(4)	(5)
CRI	-1.008***	2.629***	-0.954***	-0.899***	-0.863***
	(0.198)	(0.831)	(0.242)	(0.252)	(0.258)
$CRI \times EU$		-3.496***			
		(0.795)			
$CRI \times SD$			-0.222		
			(0.443)		
$CRI \times SDT_{\text{all}}$				-0.547	
				(0.590)	
$CRI \times SDT_{\text{business}}$					-0.867
					(0.754)
Exports/output	0.189***	0.186***	0.189***	0.190***	0.190***
	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)
Imports/output	-0.099***	-0.100***	-0.099***	-0.099***	-0.099***
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
logK/L	-0.108***	-0.119***	-0.108***	-0.108***	-0.108***
	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)
Observations	1795	1795	1795	1795	1795
Adjusted R^2	0.836	0.837	0.836	0.836	0.836
Country-Time FE	Yes	Yes	Yes	Yes	Yes
Sector-Time FE	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors clustered at the country-time level are reported between brackets.
* p $<$ 0.1, ** p $<$ 0.05, *** p $<$ 0.01.

Marginal effect of CRI as function of EU accession



Governance institutions: sector specific

	Dep var: log of MFP			
	(1)	(2)	(3)	(4)
CRI	-1.008***	0.029	-2.967***	0.204
	(0.198)	(0.619)	(0.578)	(0.339)
$CRI \times GI_{\text{transp}}$		-1.687*		
		(0.945)		
$CRI \times GI_{\text{telecom}}$			3.489***	
			(0.965)	
$CRI \times GI_{\text{business}}$				-1.992***
				(0.529)
Exports/output	0.189***	0.188***	0.184***	0.181***
	(0.046)	(0.046)	(0.044)	(0.045)
Imports/output	-0.099***	-0.099***	-0.095***	-0.099***
	(0.018)	(0.018)	(0.018)	(0.018)
logK/L	-0.108***	-0.108***	-0.106***	-0.112***
	(0.031)	(0.031)	(0.030)	(0.031)
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Country-Time FE	Yes	Yes	Yes	Yes
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Notes: Robust standard errors clustered at the country-time level are reported between brackets.
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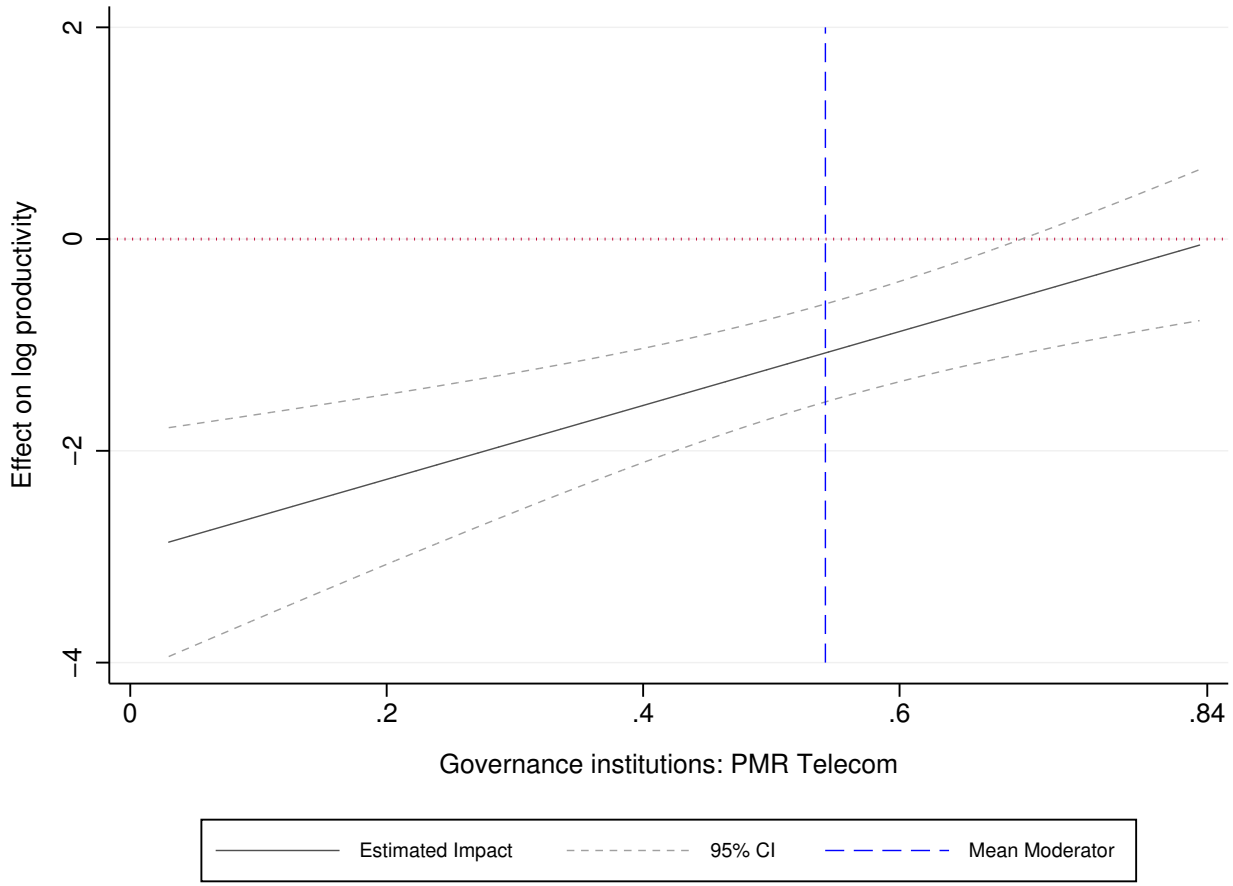
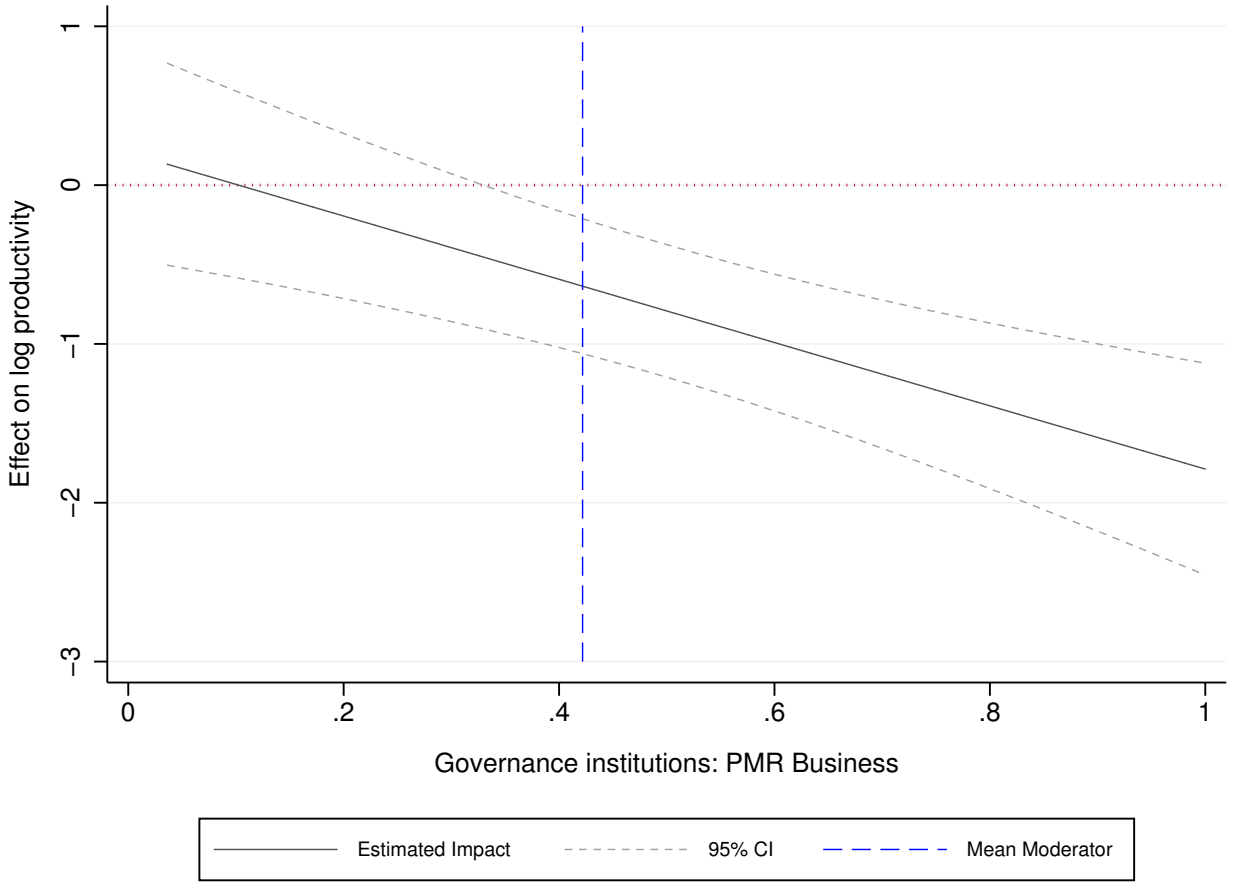
Marginal effect of CRI as function of PMR for telecom



One way compl.: reducing barriers increases MFP only if telecom governance is good

Marginal effect of CRI as function of PMR for business services



Substitutability: when governance in business services is weak, reducing barriers increases MFP

Conclusions

- Governance institutions shape the downstream effects of reducing discriminatory barriers to mode 3 trade in producer services

- Different role across horizontal dimensions as well as sectoral dimensions of governance institutions: **one way complementarity** VS **substitutability**

- Necessary conditions for the positive downstream effect of reducing discriminatory barriers to mode 3 services trade:
  - low barriers to entrepreneurship;
  - good governance of public owned enterprises;
  - good governance institutions in telecommunications.
  - accession to the EU;

- Reducing barriers to mode 3 trade in producer services triggers positive downstream effects when it substitutes for:
  - low involvement of the state in business operations;
  - good governance institutions in business services.

Work in progress

- Quantification and counter-factual exercises
- Robustness checks (alternative IO weights . . .)
- Further unpacking of governance institutions (horizontal dimensions within sectors . . .)
- Look at services productivity as dependent variable (SD more relevant for services productivity)
- Alternative productivity measures and data to increase country coverage and post-2009 coverage