

Can Comparative Advantage Explain Policy?

A Quantitative Approach for Services

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Outline

Motivation & Previous literature

- ▶ Services literature, including policy (IPE)
- ▶ Empirical trade: source of comparative advantage
- ▶ Applied to services setting for this paper

Methododology

- ▶ How to measure comparative advantage?
- ▶ Factor proportions & Institutional comparative advantage

Data

Results

Discussion

Motivation

Gap between WTO commitments and applied policy

- ▶ Services do not “work” at the WTO

We don't know why; business lobby largely absent

- ▶ Is economic interest reflected in applied policy?

Key to find method measuring economic (business) interest

- ▶ Identification strategy of comparative advantage

What can we learn if CA is significant explanator?

- ▶ Applied policy \neq unilateral (autonomous) liberalization

Previous Literature

Larger body of papers focuses on GATS commitments

- ▶ Egger & Lanz (2008); Marel & Miroudot (2014)
- ▶ Country-level variables (factors)

Political economy factors at sector-level

- ▶ Harms *et al.* (2003) for financial services

Sources of comparative advantage in goods and services

- ▶ Romalis (2004); Costinot (2009); Chor (2011)
- ▶ In services: van der Marel & Shepherd (2013)

Make use of country and sector-level information

- ▶ Country “endowments” interacted with sector-intensities

Previous Literature

Recent works move away from a GATS framework

- ▶ Gootiiz & Mattoo (2009); Borchert *et al.* (2012)
- ▶ Applied services restrictions (WB)

Not concerned with reciprocal trade liberalization

- ▶ Focus is on autonomous (unilateral) liberalization
- ▶ Economic rationale of access to foreign inputs

Additional political economy arguments in services

- ▶ Less-than-successful reciprocity arguments
- ▶ Examples: difficult to discriminate between partners
- ▶ Existence of 4 modes; economy-wide effects

This paper

Develops an additional political or economic argument

- ▶ Domestic economic (business) interest
- ▶ Motivates governments to adjust policy
- ▶ Also: Kox & Nordas (2009) and Sáez *et al.* (2014)

Prospective gains > rents domestic opposition

- ▶ Domestic sector “strong” enough to compete
- ▶ I.e. country has created right endowments for firms

Can be measured by recent CA approach

- ▶ Examples: US financial services sector (White, 2002)
- ▶ Internet abundance: telecom openness (Beltz Soltys, 2002)

Empirical Methodology

Model specification using “CA”:

$$\begin{aligned}\ln(U_o^s) = & \\ & \sum_m \theta_m \text{endowments}_o * \text{factor intensity}^s \\ & + \sum_i \theta_i \text{institutions}_o * \text{institutional intensity}^s \\ & + \delta_o + \gamma_s + \varepsilon_o^s\end{aligned}$$

Empirical Methodology

Heckscher-Ohlin determinants:

$$\sum_m \theta_m \text{endowments}_o * \text{factor intensity}^s$$

$$\begin{aligned}
 &= \theta_1 \ln(\text{high-skilled labour})_o * \ln(\text{high-skill intensity})^s \\
 &+ \theta_2 \ln(\text{internet users per 100 people})_o * \ln(\text{ICT cap intensity})^s \\
 &+ \theta_3 \ln(\text{non-ICT capital stock})_o * \ln(\text{non-ICT cap intensity})^s
 \end{aligned}$$

Empirical Methodology

Institutional determinants:

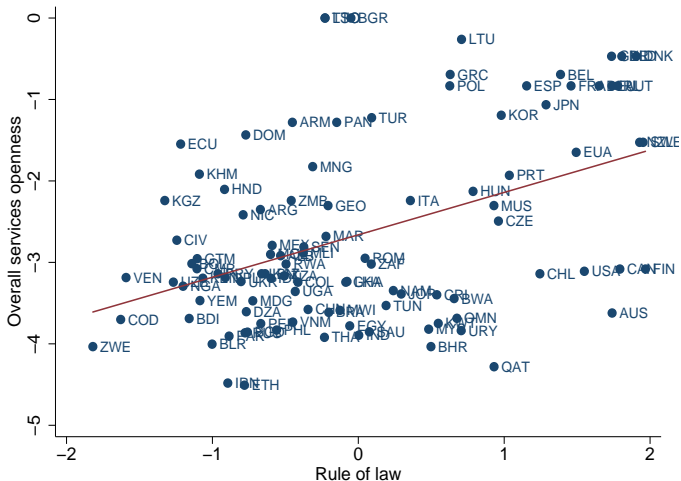
$$\sum_i \theta_i \text{institutions}_o * \text{institutional intensity}^s$$

$$= \theta_1 \text{rule of law}_o * \text{Herfindahl}^s$$

$$+ \theta_2 \ln(\text{high-skilled labour})_o * \text{complexity}^s$$

$$+ \theta_3 \text{rule of law}_o * \text{complexity}^s$$

Finance & strong institutions



Data Description

Dependent variable: Applied liberalization

- ▶ World Bank data set on services policy: $\ln(1+STRI)^{-1}$
- ▶ Index equals 0-100 increasing in levels of openness
- ▶ Six aggregated services sectors

Factor proportions

- ▶ Country-level: Barro & Lee (2013); WDI; CB
- ▶ Sector-level: EUKLEMS
- ▶ Intensities follow method Romalis (2004)

Data Description

Institutions

- ▶ Country level: Gwartney and Lawson (2004)

Sector-level measures

- ▶ **Herfindahl:** Levchenko (2007), input-use concentration
- ▶ Vulnerability to so-called hold-up problem
- ▶ BEA input-output tables (US)
- ▶ Table 8

- ▶ **Complexity:** Costinot (2009), time to be fully trained
- ▶ Measures fixed training costs of sector
- ▶ PSID survey data (US)
- ▶ Table 9

Before results..

Mode 1: Cross-border trade (25-30%)

- ▶ Mainly trade over the net

Mode 2: Consumption abroad (10-15%)

- ▶ Tourism, foreign education (Mode 1 stats)

Mode 3: Sales of foreign affiliates (55-60%)

- ▶ Investments made by foreign services firms

Mode 4: Foreign service providers (<5%)

- ▶ Temporary migration, political difficult

Results: All modes

	(1)	(2)	(3)	(4)
		$\ln(U_o^s)$		
		OLS		
		ALL MODES		
$\ln(H_o) * \ln(h^s)$	3.786*** (0.878)	3.725*** (0.885)	3.724*** (0.875)	3.729*** (0.885)
$\ln(C_o) * \ln(c^s)$	-0.020 (0.108)	-0.034 (0.113)	-0.035 (0.112)	-0.026 (0.114)
$\ln(I_o) * \ln(i^s)$	-0.047 (0.110)	-0.058 (0.106)	-0.057 (0.107)	-0.032 (0.111)
$RULAW_o * herf^s$	-0.840* (0.474)			-0.949* (0.480)
$\ln(H_o) * compl^s$		0.015 (0.575)		0.005 (0.658)
$RULAW_o * compl^s$			0.015 (0.234)	0.159 (0.273)
FE δ_o	Yes	Yes	Yes	Yes
FE γ^s	Yes	Yes	Yes	Yes
Observations	486	486	486	486
R^2	0.606	0.603	0.603	0.606
RMSE	1.009	1.011	1.011	1.011

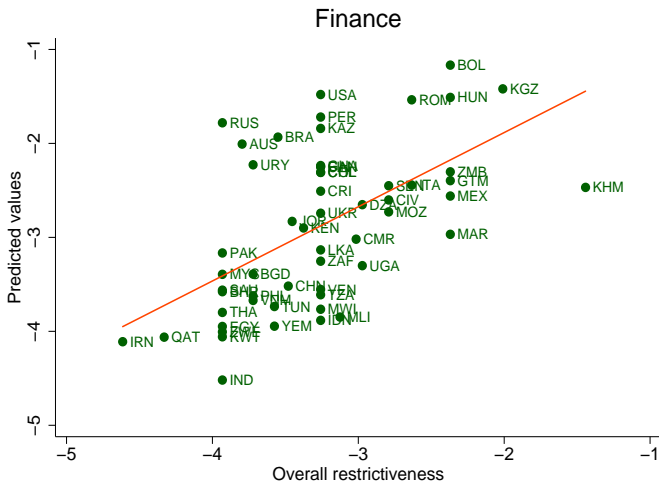
Results: Mode 1

	(1)	(2)	(3)	(4)
			$\ln(U_o^s)$	
			OLS	
			MODE 1	
$\ln(H_o) * \ln(h^s)$	-4.167** (1.912)	-3.725* (1.915)	-1.802 (1.645)	-1.676 (1.715)
$\ln(C_o) * \ln(c^s)$	0.179 (0.218)	0.231 (0.226)	0.322 (0.223)	0.293 (0.233)
$\ln(I_o) * \ln(i^s)$	1.011*** (0.212)	0.930*** (0.199)	0.629*** (0.153)	0.609*** (0.188)
$RULAW_o * her^s$	-0.491 (0.645)			0.351 (0.677)
$\ln(H_o) * compl^s$		-1.276 (1.375)		0.568 (1.613)
$RULAW_o * compl^s$			-1.901*** (0.534)	-2.056*** (0.605)
FE δ_o	Yes	Yes	Yes	Yes
FE γ^s	Yes	Yes	Yes	Yes
Observations	324	324	324	324
R^2	0.477	0.481	0.528	0.529
RMSE	1.240	1.235	1.178	1.182

Results: Mode 3

	(1)	(2)	(3)	(4)
		ln(U_o^s)		
		OLS		
		MODE 3		
ln(H_o)*ln(h^s)	5.266*** (1.195)	4.962*** (1.323)	5.084*** (1.211)	4.983*** (1.323)
ln(C_o)*ln(c^s)	0.041 (0.169)	-0.014 (0.175)	-0.000 (0.175)	0.012 (0.175)
ln(I_o)*ln(i^s)	0.080 (0.128)	0.063 (0.124)	0.053 (0.122)	0.130 (0.131)
RULAW $_o$ *herf s	-2.362*** (0.745)			-2.681*** (0.760)
ln(H_o)*compl s		0.508 (0.965)		0.593 (1.080)
RULAW $_o$ *compl s			0.057 (0.307)	0.340 (0.331)
FE δ_o	Yes	Yes	Yes	Yes
FE γ^s	Yes	Yes	Yes	Yes
Observations	486	486	486	486
R^2	0.554	0.540	0.540	0.556
RMSE	1.229	1.247	1.248	1.229

Goodness of fit: Finance



Goodness of fit: Transport



Discussion

CA strong predictor applied policy (in services)

- ▶ Factor-proportions play positive role
- ▶ Institutional-intensity negative factor

Implies rich (OECD) countries with strong rule of law

- ▶ Have low barriers in factor-intense sectors
- ▶ Have high barriers in complex sectors

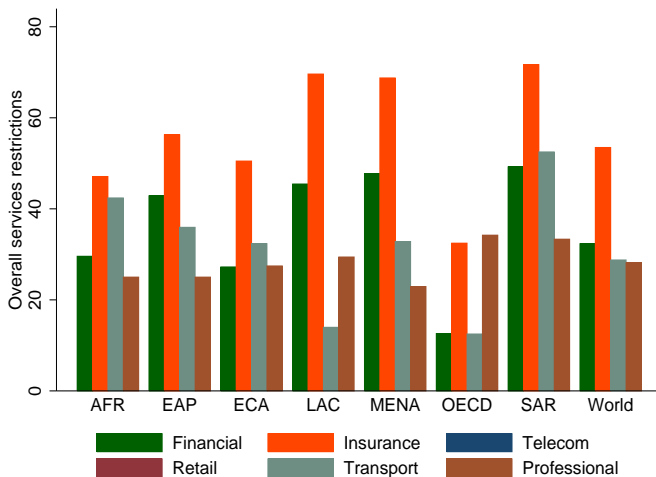
Additionally, differences across modes of supply

- ▶ Internet-intense sectors (Mode 1); skill-intense (Mode 3)
- ▶ Complexity (Mode 1); input-use concentration (Mode 3)

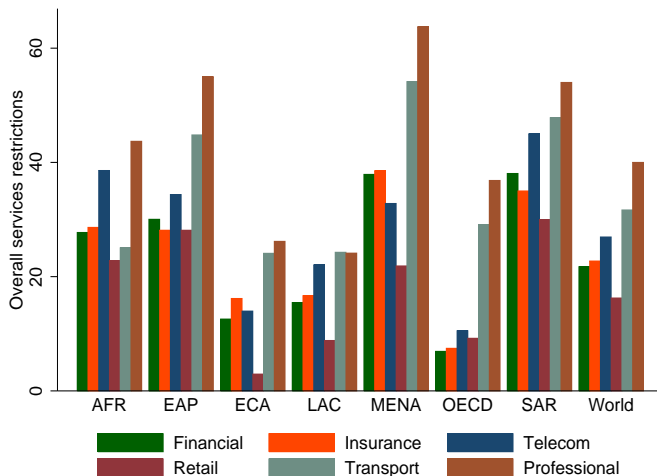
Reality check:

- ▶ Professional services via Mode 1 protectionist (high rents)
- ▶ Mode 3 investment includes many contracts (hold-up)

Mode 1: Services restrictiveness



Mode 3: Services restrictiveness



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