

**What Determines Services TFP :  
Services Trade or Services-Trade Regulation?**

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**Jerusalem, Monday June 14 2010,**

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**The Leonard Davis Institute for International Relations**

# Introduction

- Empirical estimation of:  
What are the different types of services trade and services-trade regulation that determine Total Factor Productivity in services?
- Motivation / literature
- Why is the question of productivity so important?
- Baseline regression
  - Sector-specific panel estimation
- Empirical description
- Political Economy implications
- Concluding remarks

# Motivation

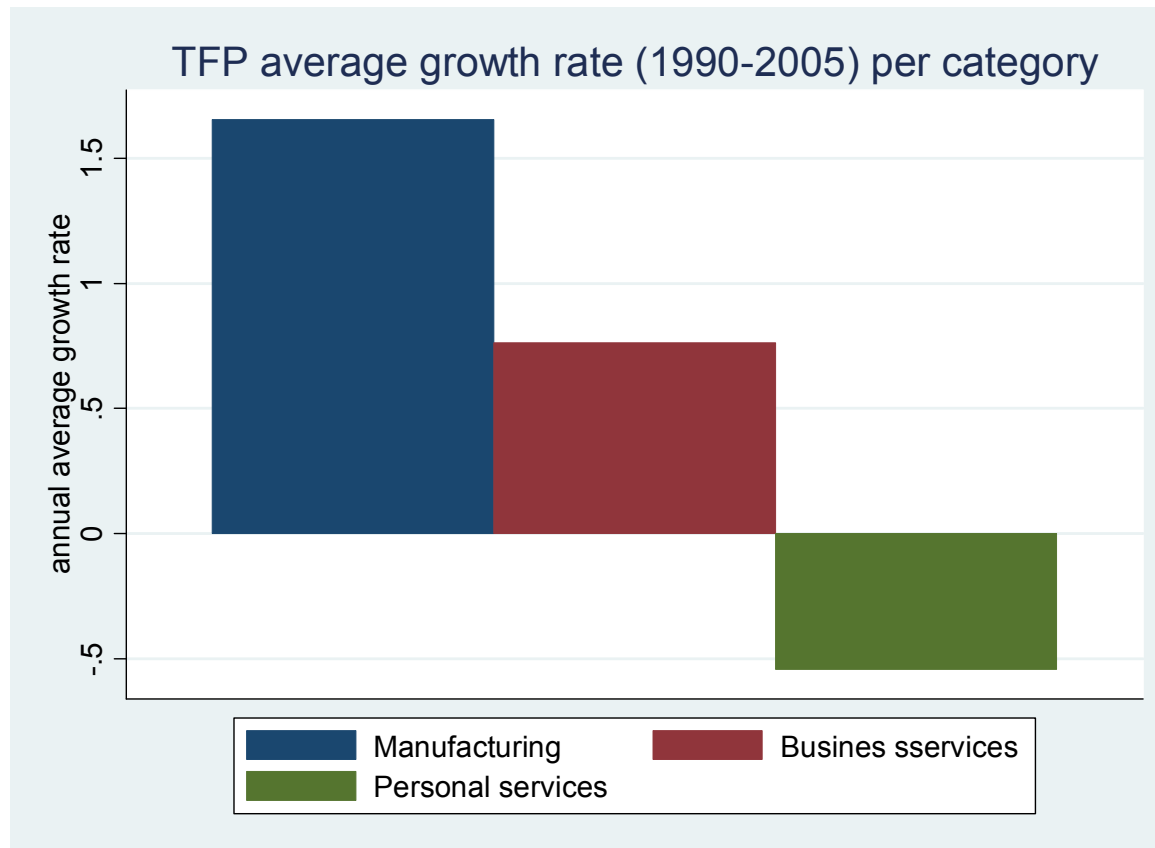
- **A “perceived” productivity problem in services**
  - Notably personal services (Baumol, 1967; Nordhaus, 2008; Hartwig, 2010)
- **Services (market) driver of overall labor productivity growth (US)**
  - Triplett and Bosworth (2004); Blanchard (2004)
- **TFP essential factor in explaining productivity growth differences across countries**
  - Timmer, Inklaar and Ark (2008)
- **Literature favours factor intensities as explanators for TFP**
  - Aghion, Mehir and Vandenbussche (2006); Triplett and Bosworth (2006)
- **Entry barriers also determinant for services TFP growth**
  - Nicoletti and Scarpetta (2003); Timmer, Inklaar and Ark (2008)

# Motivation (bis)

- **Services liberalisation and growth**
  - Eschenbach and Hoekman (2006);
  - Mattoo, Rathindran and Subramanian (2006)
  
- **Services FDI and manufacturing productivity**
  - Arnold, Javorcik and Mattoo (2007)
  
- **Domestic openness: privatization and domestic competition**
  - Fink, Mattoo and Rathindran (2003); Cammins and Rubio-Misas (2006)
  
- **International trade as a transmitter of efficiency-enhancing ideas, skills and ICT, which then becomes a determinant for services TFP**
  
- **Skills may be particularly important because of the nature of services stemming from their joint consumption and production, non-storability and organisational delivery**
  - Triplett and Bosworth (2006)

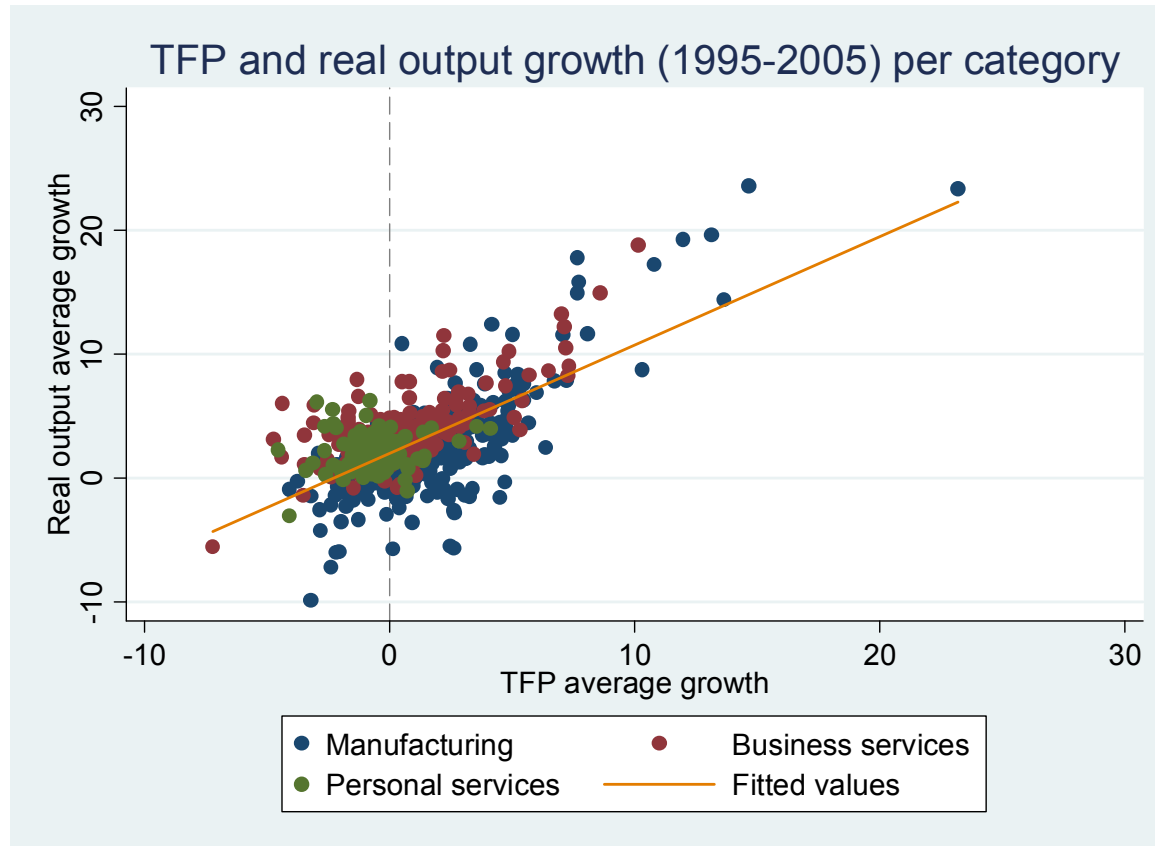
# Why Productivity Important?

Annual Average Growth Rate 1990-2005  
of TFP per service category



# TFP and Real output

Annual Average Growth Rate in Cross-country



# Sector-specific Panel Data

## Baseline specification

- $TFP_{ijt} = \alpha + \beta G_{ijt} + \zeta F_{ijt} + \delta T_{ijt} + \varphi R_{ijt} +$   
 $= \psi X_{ijt} * G_{ijt} +$   
 $= \xi X_{ijt} * F(H)_{ijt} +$   
 $= \theta_i + \theta_j + \theta_t + \varepsilon_{ijt}$
- Regression with country ( $\theta_i$ ), sector ( $\theta_j$ ) and year ( $\theta_t$ ) fixed effects
- Estimations for both the level and growth ( $\Delta \ln$ )
- Interactions with technology gap relative to the technology frontier
  - o if: - matters more closer to technology frontier
  - o if: + matters more further away from technology frontier
- Technology gap defined as in Timmer, Inklaar and van Ark (2008)
- Endogeneity problem (lags)

# Sector-specific Panel Data

## TFP growth, Trade & Regulation, Technology gap & High-skilled

VARIABLES	1	2	3	4	5
	TFP growth	TFP growth	TFP growth	TFP growth	TFP growth
Type of services Trade	FDI Stock	Imports	FATS	FDI flow	All*
Entry barriers	-0.00679 (0.0284)	-0.0233 (0.0171)	0.0433* (0.0262)	0.00254 (0.0165)	0.0557 (0.103)
Entry barriers*Tech gap	0.0165 (0.0324)	0.0201 (0.0144)	-0.0394* (0.0218)	0.00575 (0.0175)	-0.0549 (0.111)
Entry barriers*High-skilled labor	0.0255 (0.0434)	0.00836 (0.0434)	-0.117** (0.0465)	-0.0125 (0.0219)	-0.197 (0.268)
Conduct regulation	-0.136*** (0.0457)	-0.0212 (0.0400)	-0.147* (0.0782)	-0.0990** (0.0441)	0.0114 (0.209)
Conduct regulation*Tech gap	0.171*** (0.0520)	0.0217 (0.0425)	0.159* (0.0824)	0.0868* (0.0501)	0.0272 (0.190)
Conduct reg.*High-skilled labor	-0.0436 (0.0944)	-0.205 (0.151)	-0.0600 (0.123)	0.000972 (0.116)	-0.673 (0.619)
FDI restrictions	0.0621** (0.0280)	-0.00863 (0.0421)	0.0416 (0.0477)	-0.00477 (0.0339)	0.0794 (0.119)
FDI restrictions*Tech gap	-0.0831*** (0.0302)	-0.0460 (0.0356)	-0.0589 (0.0610)	-0.0139 (0.0339)	-0.0636 (0.149)
FDI restrictions*High-skilled labor	-0.157*** (0.0594)	-0.181 (0.187)	-0.526*** (0.162)	-0.0242 (0.0680)	-1.585*** (0.508)
Observations	449	609	335	517	78
R-squared	0.306	0.331	0.370	0.295	0.632



# Intermediate Conclusions

- **It is regulation that has a direct impact on TFP growth**
- **Type of regulation matters for which type of trade**
  - Entry (M1/ 2), conduct (M3), FDI restrictions (M3 & M1/ 2)
- **Entry and conduct regulation: farther way from tech frontier**
- **FDI restrictions and restriction: closer to the tech frontier**
  - Goes beyond just capital
  - Permits for expats and employees
  - Management regulation

} Skills, expertise etc.
- **Potential for high-skilled intensive personal services in developed economies**

# Political Economy Implications

## Trade interest in personal services

- **Final consumers and regulators very likely to oppose personal services deregulation**
  - Universal access to services post-liberalisation
  - Ensured quality, prices and market power of firms, and trust
  
- **International trade agreements way overcome this deadlock**
  - But export interest weak in services – also from goods firms (inputs)
  - Where's the interest for personal services? (final services)
  - No pace-setter (Blouin, Drager and Smith, 2006)
  
- **Second candidate for generating export interest: direct investors**
  - Would fit well with Mode 3 regulation as robust determinant
  - Especially for technologically advanced and high-skilled services
  - Personal services are rather closer to technology frontier and largely high-skilled in OECD economies

# Political Economy Implications

## Import side and Regulation

- **Observe Mode 1/ 2 trade in personal services**
  - Patients moving abroad (health) ; policy encouraged (OECD, 2009)
    - Health insurance protection
  - Students going abroad (education)
  - Also reflected in GATS commitment in terms of Market Access
  
- **Regulatory competition less likely to occur (Messerlin, 2005)**
  - Foreign investors likely to adhere to national regulation and laws once invested / threaten vested interest much less than cross-border trade
  - Mode 1 and 2 generates competition between regulations
  - Regulators concerned about their ability to enforce domestic regulation
  
- **Economic and non-economic concerns in Mode 3 deregulation**
  - Publicly provided, price and trust involved – “Commercial”
  - Transfer of ownership concerns – “Foreign”
  - Better health and educational outcomes when liberalizing?

# Political Economy Implications

Export side, Regulation and GATS Commitments

- **Comparative advantage in skilled services**
  - Likely to be found in developed economies
  - Institutional and regulatory comparative advantage
    - Quality of regulation
  
- **Should have an affect on GATS commitment (e.g. Roy, 2009)**
  - High-income OECD: 19 – Health and Social I 57 – Business services (WB)
  - Developed members: Mode 3 health low (Adlung and Carzaniga, 2007)
    - Commercially unattractive for private activities
  - Negotiations not advanced, neither offers in 2005 (i.e. EU)
  
- **GATS more than commitments**
  - GATS used for constructing templates and propose model solutions; identifying good regulatory practises. (health)
  - Challenge to separate between measures that are protectionist and those that have good domestic efficiency or social equity rationales

# Thank you for your attention

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