Internationally Linked Firms, Integration Reforms and Productivity in Pakistan

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Motivator 1

Stagnating TFP

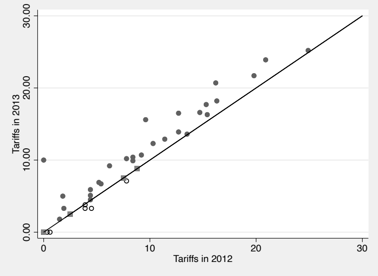
- Macro- and firm-level total factor productivity growth is decelerating and low (relative to comparators)

Year	Overall TFP growth	Within-firm TFP growth	Between-firm TFP growth
2013	0.026	0.005	0.021
2014	0.016	0.014	0.002
2015	0.047	-0.035	0.082
2016	0.024	-0.012	0.036
2017	0.011	-0.015	0.026
2013-2017	0.025	-0.009	0.033

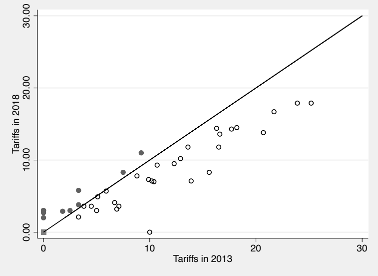
Motivator 2

Frictions in output and input markets: tariffs, regulatory burden

- Pakistan is the world's seventh-most-protected economy (OTRI, World Bank, 2019).
- Tariff reductions during 1990s then stopped in mid-2000s
- Simplification of tariffs in 2013 linked to IMF EFF



(a) 2012-2013

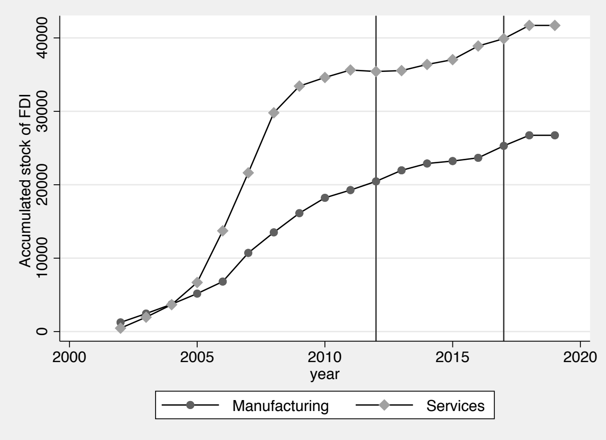


(b) 2013-2018

Motivator 2

Low FDI inflows leading to low stocks

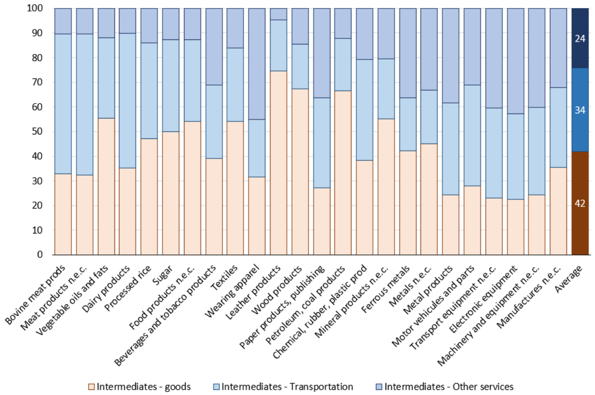
- As a percent of Pakistan's GDP, overall FDI inflows were close to 1% on average during 2010-2020, substantially below than in India or in Bangladesh in the same year.



Motivator 3

Services inputs are important for downstream sectors

- 58% of the value added embedded in the average manufactured product in Pakistan is generated in services. Transport services are the most relevant sector, contributing with 34% of the total.



Questions

General Question

What drives productivity improvements in Pakistan?

Specifically

- What is the role of trade and investment integration?
- What is the role of upstream frictions in productivity downstream?

Background

Preview of the results

- Firm-level productivity has been stagnant, with aggregate increases driven by reallocation into more productive firms.
- Internationally-linked firms are more productive (like everywhere else)
  - Suggestive evidence of selection and learning for foreign-owned; of learning for exporters
- Tariffs hurt firms' productivity through the intermediate input channel
- Services FDI upstream boost productivity of firms downstream; facilitating investment in intangibles

- **FDI in upstream service sectors increases productivity downstream through:**
  - increased availability, variety and quality of services induce learning and innovation effects
  - Arnold et al (2016) for India, Fernandes & Paunov (2012) for Chile, Duggan et al (2013) for Indonesia, Beverelli et al. (2017) cross-country
- **For Pakistan, no evidence on FDI** $\rightarrow$ *TFP*
  - On TFP in general: Wadho et al. (2019) on textiles, Choudhary et al. (2018) on management quality, Kinda (2012) on multinationals, Chaudhry & Haseeb (2014) and Siddique (2020) on misallocations and TFP growth at aggregate level.

Data & Empirical strategy

- Data on publicly listed firms from the Financial Statements Analysis of Companies (Non-Financial) Listed at Pakistan Stock Exchange, accounting for 13 percent of Pakistan's GDP in 2017 and employing on average 380 employees
- We estimate the effects of upstream tariffs and FDI using the following specification:

$$TFPR_{ist} = \beta_1 T^{UP}_{st-1} + \beta_2 T^{0}_{st-1} + \beta_4 FDI^{UP,M}_{st-1} + \beta_2 FDI^{UP,S}_{st-1} + \delta X_{it-1} + \mathbf{v}_t + u_i + \epsilon_{ist}$$

where upstream tariffs and FDI are obtained as weighted averages using input shares from 2007 GTAP IO table:

$$Z^{UP}_{st} = \sum_{s} w_{sj} Z_{jt}$$

Baseline results: FDI

	Whole period		2014-2017	
Dep. Var.: TFP (log)	(1)	(2)	(3)	(4)
Output tariffs (lagged)	0.007	-0.001	-0.002	-0.011
	(0.444)	(0.882)	(0.816)	(0.129)
Upstream tariffs (lagged)	-0.081***	-0.055**	-0.071*	-0.044*
	(0.009)	(0.041)	(0.060)	(0.092)
FDI in upstream manufacturing sectors (lagged)	0.006	0.008	0.001	0.003
	(0.197)	(0.239)	(0.721)	(0.354)
FDI in upstream services sectors (lagged)		0.123***		0.102***
		(0.000)		(0.000)
Sector-by-year trend	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	1477	1477	1170	1170
Firms	322	322	316	316

Characterizing the Effects

- What underlies the positive effect of upstream services FDI on downstream TFP?

FDI in services and innovation

	(1) All	(2) Non-Frontier	(3) Frontier		(4) Innovators
Dep. Var.: TFP (log)				Dep. Var.: Intangible assets	
Output tariffs	0.004	0.005	-0.009**	Output tariffs	0.005
	(0.687)	(0.685)	(0.040)		(0.864)
Upstream tariffs	-0.024	-0.095**	0.005	Upstream tariffs	-0.189
	(0.352)	(0.020)	(0.850)		(0.289)
FDI manufacturing	0.004	0.011	-0.002	FDI manufacturing	0.034
	(0.634)	(0.314)	(0.418)		(0.210)
FDI services	0.117***	0.154***	0.034*	FDI services	0.271***
	(0.000)	(0.001)	(0.058)		(0.000)
FDI service $\times$ distance	0.250***				
	(0.002)				
Sector-by-year trend	Yes	Yes	Yes	Sector-by-year trend	Yes
Year FE	Yes	Yes	Yes	Year FE	Yes
Firm FE	Yes	Yes	Yes	Firm FE	Yes
Observations	1477	859	618	Observations	707
Firms	322	192	130	Firms	153

Conclusions

- Productivity has been stagnant and aggregate gains have been mostly driven by more productive firms gaining market shares
- Internationally linked firms perform better than domestic-owned or domestic-oriented firms.
- Integration with the global marketplace of upstream sectors – both for goods (through lower tariffs) and services (through more FDI presence) – has led to increased productivity in downstream sectors
- Upstream FDI in services encourages investments in intangible assets