Growth through tax-incentivized FDI

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Agenda

Motivation

- Foreign direct investment (FDI) is allegedly good for growth
- Governments try to attract FDI through low corporate income tax rates and/or tax exemptions
- However, these tax incentives may not only affect the *level* of FDI, but also its *effects*

How can tax incentives affect the growth effects of FDI?

- Possible channels:
  - revenues foregone can hinder public investments (compared to FDI under higher taxation)
  - tax incentives can attract different types of FDI (efficiency-seeking)

Hypothesis: The greater the tax incentives, the lower is the (positive) growth effect of FDI.

Empirical Literature

Studies on growth and FDI:

- inconclusive findings on the relation between FDI and domestic growth, see Kose et al. (2009), Iamsiraroj & Ulubaşoğlu (2015)
- FDI determines growth via two distinct mechanisms: increase in productivity or increase in capital stock (de Mello 1997)
- established determinants of the absorptive capacity of FDI include: trade openness (Balasubramanyam et al. 1996,Arteta et al. 2001), human capital levels (Borensztein et al. 1998), and financial development (Alfaro et al. 2004)

Studies on tax incentives and FDI:

- tax rate elasticity of FDI is estimated 2.49 - 3.3 % (see meta-studies by De Mooij & Ederveen 2003, Feld & Heckemeyer 2011)
- studies using other types of tax incentives than the tax rate do not always find a positive effect on FDI (e.g. Klemm & Van Parys 2012)

Data

Our baseline sample consists of 182 countries over the period 1980 to 2017

Economic growth:

- logarithmized GDP per worker (output-sided GDP divided number of workers)
- Source: Penn World Tables

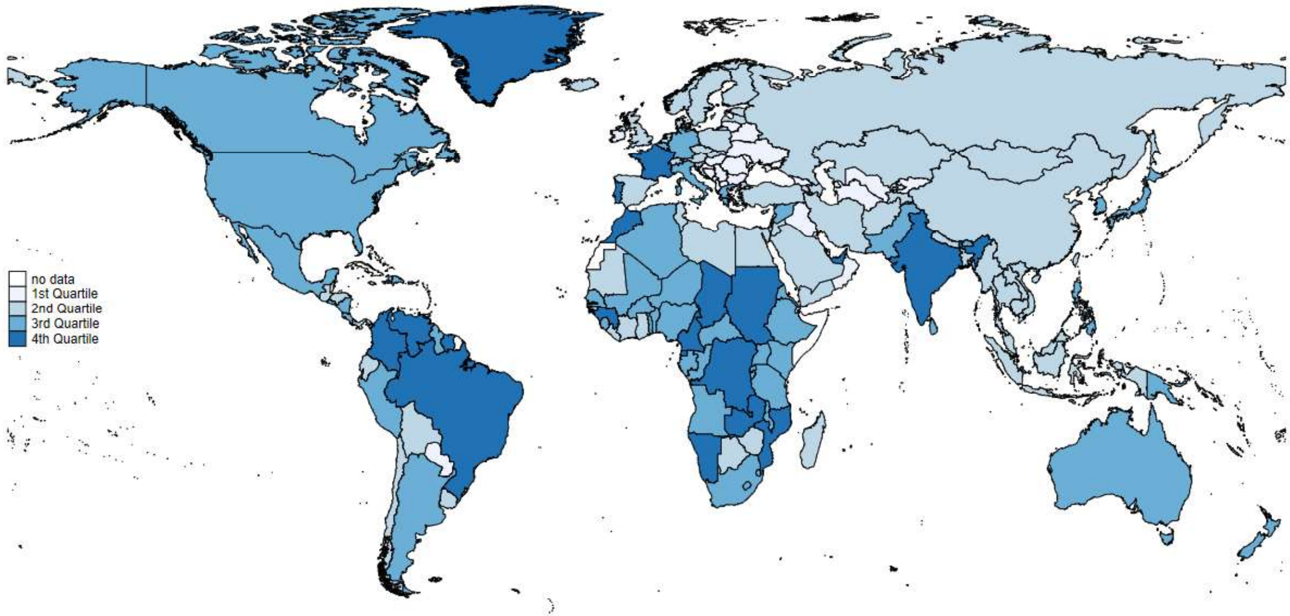
FDI:

- logarithmized FDI inward stock in million USD, divided by number of workers
- Source: UNCTAD FDI Statistics

Tax incentives:

- Statutory corporate income tax rate (STR)
- Sources: tax rate tables by KPMG and Tax Foundation

Heterogeneity of corporate income tax rates

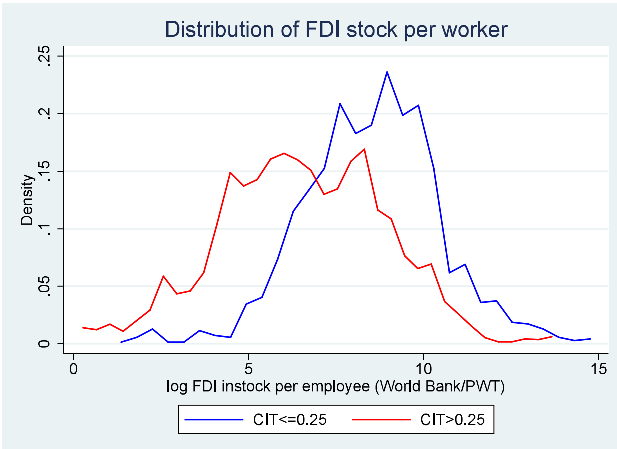


Source: Own illustration, based on corporate tax rate tables from KPMG and Tax Foundation.

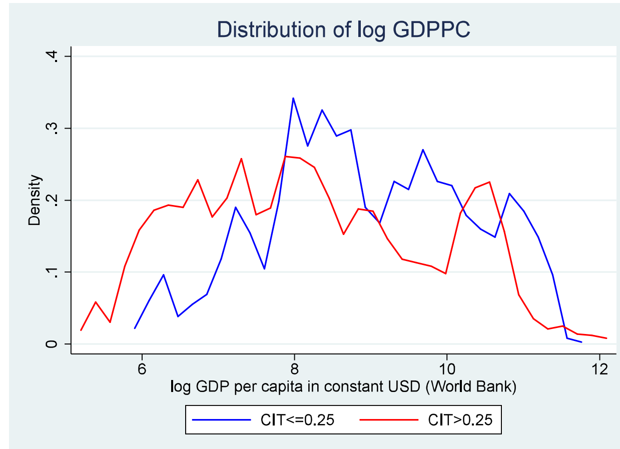
Note: 1st quartile includes CIT rates below 20%, 2nd quartile ranges from 20-25%, 3rd quartile from 25-30%, and 4th quartile above 30%.

Figure 1: Statutory corporate income tax rates, 2018

FDI and growth distribution for high and low tax countries



(a)



(b)

Figure 2: Histograms on FDI and GDP per capita, 1980-2017.

Estimation strategy

Fixed Effects Model

$$\begin{aligned} GDP_{c,t} = \beta_0 + \beta_1 FDI_{c,t-3} + \beta_2 FDI_{c,t-3} \times GDP_{c,t-3} + \beta_3 TAX_{c,t-3} \\ + \beta_4 FDI_{c,t-3} \times TAX_{c,t-3} + \mu_c + \pi_t + \epsilon_{c,t} \end{aligned} \quad (1)$$

- β_4 is the coefficient of interest which measures to what extend the tax rate moderates the effect of FDI on growth.
- β_2 captures the moderating effect of other absorptive capacities (proxied by GDP per capita)
- The regressors are lagged by three years to address potential endogeneity problems.
- The model is estimated with OLS.

Results

Figure 3: Estimating the effect of FDI and tax rate on GDP using OLS fixed effects

	(1) log_GDP	(2) log_GDP	(3) log_GDP
L3.log_FDI	0.0860***	-0.353***	-0.658***
	(0.0143)	(0.0620)	(0.0842)
cL3.log_FDI#cL3.log_GDP		0.0451***	0.0602***
		(0.00617)	(0.00744)
cL3.log_FDI#cL3.STR			0.301***
			(0.0813)
L3.STR			-2.263***
			(0.593)
_cons	9.133***	9.073***	10.33***
	(0.0798)	(0.0872)	(0.221)
N	5340	5340	4207
r2	0.455	0.574	0.608

Notes: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Dependent variable is log GDP per worker. FDI instock is also measured per worker.

Interpretation of the results

- The higher the tax rate, the higher is the positive growth effect from inward FDI.
- The overall growth effect from FDI is additionally dependent on the income of the country (also as a proxy for other absorbtive capacities).
- For instance, a country at the 25th percentile of income in our sample in 2017 (e.g. Angola) is predicted to experience a negative growth effect from FDI at a tax rate of 25 percent, but a positive growth effect at a tax rate of 40 percent.
- The results thus support that the tax rate can be an important determinant of the effect that FDI exerts on low-income recipient countries.

Incentives vs. Effects

- The effect of a decrease in the tax rate thus attracts FDI (generally positive), but lowers its growth effects (negative).
- The direction of the overall effect on growth through FDI is thus ambiguous and depends on the characteristics of the country.
- Combining estimations on both effects, we find that a 1 p.p. decrease in the tax rate reduces per capita GDP through FDI by 1.8 percent for a median income country.

Extensions and robustness tests (see appendix)

- Sample split for developing countries
- Control for alternative absorptive capacities (e.g. human capital, trade, domestic credit, institutional quality)
- Use effective tax rates instead of statutory tax rates
- Channel of government expenditure
- Arellano-Bond dynamic panel estimation
- Simultaneous equation model

Conclusion

- Our analysis shows that the tax rate is not only a prominent instrument to attract FDI, but is also a determinant of the absorptive capacity of FDI.
- The lower the tax rate, the lesser does inward FDI lead to economic growth.
- Policymakers should consider this trade-off.
- This overlooked negative growth effect implies that the FDI attracted via tax incentives is not so beneficial anymore.
- Future research could use more granular FDI data, e.g. on different types of FDI.

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