

# Tax Sparing and FDI: Evidence from Territorial Tax Reforms

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## Tax incentives in developing countries:

Granting tax incentives to promote investment is common in developing countries.

OECD (2015): Options for Low Income Countries Effective and Efficient Use of Tax Incentives for Investment

- ▶ Tax holidays are the most popular (82-88%)
- ▶ Tax reductions (50-55%)
- ▶ Investment allowances (45-78%)
- ▶ Value-added tax exemption
- ▶ Import duty exemption (62-84%)
- ▶ Exemptions/reductions on withholding taxes

**But, the effectiveness of these tax incentives depends on the interaction between the host country's tax system and that of the MNC's home country.**

## The home country tax system:

### **Territorial tax system (e.g. U.K.):**

- ▶ **Active income:** Profits made by resident corporations operating abroad are not subject to the home country corporation tax.
  - ▶ Even if dividends are repatriated to the parent company.
- ▶ **Passive income:** Other forms of income earned abroad, such as royalties or interest receipts, are taxed in the home country.

### **Worldwide tax system (e.g.: U.S. until 2018, Ireland):**

- ▶ **Active and passive income:** The worldwide income of resident corporations is subject to the home country corporation tax.

Table 1: Interaction of home and host country tax systems: impact on active income

	Without tax holiday (source country)	With tax holiday (source country)
<b>Source country taxation (foreign country)</b>		
Profit of subsidiary	100	100
Corporate income tax: 33.33%	33.33	0
After-tax profit	66.67	100
Dividend	66.67	100
Withholding tax: 10%	6.67	0
	Worldwide tax system	Worldwide tax system
<b>Residence country taxation (home country)</b>		
Dividend received	60	100
Grossed-up dividend	100	100
Corporate income tax: 40% (a)	40	40
Creditable foreign tax (b)	40	0
Foreign tax credit (min (a, b))	40	0
Net corporate income tax (CIT)	0	40
Source country tax	40	0
Residence country tax	0	40
Total	40	40
After-tax profit	60	60

# Tax Sparing

1950's: British Royal Commission on the Taxation of Profits and Income recommended home country relief.

## Tax sparing provisions:

- ▶ They are provisions included in bilateral tax treaties.
- ▶ They ensure that the home country provides a credit for taxes "spared" by the host country and thus tax incentives for FDI are not undone by the home country.
- ▶ **They are designed to promote economic development.**

## Potentially important for both worldwide and territorial home countries:

- ▶ Worldwide: both active and passive income is affected.
- ▶ Territorial: only passive income is affected.

## Extensive network of tax sparing provisions in tax treaties

- ▶ US: exception - no sparing provisions.
- ▶ Surrey: "[T]ax sparing irrationally granted credit for phantom taxes".

Table 2: Fiscal incentives on active income: the role of tax sparing

	Without tax holiday (source country)	With tax holiday (source country)	
<b>Source country taxation</b>			
Profit of subsidiary	100	100	
Corporate income tax: 33.33%	33.33	0	
After-tax profit	66.67	100	
Dividend	66.67	100	
Withholding tax: 10%	6.67	0	
	Worldwide tax system	Worldwide tax system without tax sparing	Worldwide tax system with tax sparing
<b>Residence country taxation</b>			
Dividend received	60	100	100
Grossed-up dividend	100	100	100
Corporate income tax: 40% (a)	40	40	40
Creditable foreign tax (b)	40	0	40
Foreign tax credit (min (a, b))	40	0	40
Net corporate income tax (CIT)	0	40	0
Source country tax	40	0	0
Residence country tax	0	40	0
Total	40	40	0
After-tax profit	60	60	100

## Tax Sparring: A controversial topic

### From the OECD perspective:

- ▶ OECD has called for a **reconsideration of tax sparing** as an economic development tool.
- ▶ OECD's (1998, p. 5) claim that: "*Investment decisions taken by international investors resident in credit [worldwide] countries are rarely dependent on or even influenced by the existence or absence of tax sparing provisions in treaties*".

### From the perspective of developing countries:

- ▶ They consider that this provision is a component of overall foreign aid (Toaze, 2001).
- ▶ Tax sparing provision represents an important tool to exercise control over their tax incentive programs.
- ▶ Tax sparing allows them to target tax incentives to specific sectors of the economy and to have some control on their development program, as compared to direct "paternalist" foreign aid (Tillinghast, 1996; Mitchell, 1997).



# This paper:

## We analyse the impact of tax sparing on FDI using a large panel dataset:

- ▶ OECD data on bilateral FDI stocks over 2002-2012
  - ▶ *Correlations of the operations of US MNEs in 191 countries, 2004, (BEA):*

	FDI		ln FDI
Total Asset	0.92	ln total asset	0.98
PPE	0.72	ln PPE	0.92
Sales	0.78	ln Sales	0.95

- ▶ 23 OECD home countries and 113 developing/transition host countries
- ▶ Data is at the country-pair-year level  
*e.g. UK-Malaysia-2002 is one observation*
- ▶ 8,974 observations on 1,176 country-pairs (in baseline regression)
- ▶ We code tax sparing agreements by searching all tax treaties among these country-pairs

## Two sources of variation:

- ▶ Longitudinal (within-country-pair):

- ▶ 32 changes (new tax sparing agreements or terminations)
- ▶ But, potentially endogenous

- ▶ Territorial tax reforms:

- ▶ Norway (2004) and the UK, Japan and New Zealand (2009)
- ▶ Arguably quasi-exogenous variation in the value of existing tax sparing provisions
  - ▶ . . . assuming that territorial reforms were not motivated by their impact on FDI in developing countries

## Table 3: Tax System and Tax Sparing in the OECD

Country	Tax system	Number of Tax Sparing Agreements
Australia	Territorial	14
Austria	Territorial	17
Belgium	Territorial	21
Canada	Territorial	39
Denmark	Territorial	25
Finland	Territorial	28
France	Territorial	27
Germany	Territorial	22
Greece	Worldwide	9
Iceland	Territorial	0
Ireland	Worldwide	3
Italy	Territorial	36
Japan	Reform (2009)	18
Luxembourg	Territorial	14
Netherlands	Territorial	6
New Zealand	Reform (2009)	10
Norway	Reform (2004)	36
Portugal	Territorial	7
Spain	Territorial	13
Sweden	Territorial	43
Switzerland	Territorial	8
United Kingdom	Reform (2009)	47
United States	Worldwide	0

## Empirical specification

### Use a Poisson pseudo-maximum-likelihood (PML) estimator:

- ▶ Mass point at zero (7% of the bilateral FDI stock observations are zeros).
  - ▶ Santos Silva and Tenreyro (2006).

### Our baseline equation is:

$$FDI_{ijt} = \exp(\beta TS_{ijt-1} + \gamma X_{ijt} + \mu_{ij} + \delta_t) \epsilon_{ijt}, \quad (1)$$

$FDI_{ijt}$ : is the stock of FDI from home country  $i$  in host country  $j$  in year  $t$ .

$TS_{ijt-1}$ : Tax sparing dummy variable.

$X_{ijt}$ : vector of time-varying home country, host country, and bilateral characteristics.

$\mu_{ij}$ : country-pair fixed effects.

$\delta_t$ : time fixed effects.

$\epsilon_{ijt}$ : the error term.

## Results 1: Exogenous Tax Sparing, Omitted Variable and Selection Bias, Simultaneity Bias

Table 4: Tax Sparring and FDI

	Exogenous tax sparing			Endogenous tax sparing		Spatial lag
	$E(FDI_{ij}   \cdot)$ Poisson	$E(FDI_{ij}   \cdot)$ Poisson	$E(FDI_{ij}   \cdot)$ Poisson	$Pr(\text{tax sparing}_{ij} = 1   \cdot)$ First stage probit	$E(FDI_{ij}   \cdot)$ IV Poisson	
	[1]	[2]	Bilateral tax varying [3]	[4]	[5]	[6]
Tax sparing $t - 1$	0.579 <sup>a</sup> (0.195)	0.622 <sup>a</sup> (0.177)	0.611 <sup>a</sup> (0.177)		0.677 <sup>c</sup> (0.402)	0.672 <sup>a</sup> (0.195)
Ln distance				0.119 <sup>a</sup> (0.027)	-0.509 <sup>a</sup> (0.097)	
Colony				0.159 <sup>c</sup> (0.083)	0.450 <sup>b</sup> (0.186)	
Common language				0.334 <sup>a</sup> (0.077)	0.701 <sup>a</sup> (0.201)	
Bilateral Investment Treaty			0.111 (0.077)	-0.007 (0.040)	-0.022 (0.116)	
UN vote correlation			-0.376 (0.280)	1.578 <sup>a</sup> (0.180)	0.126 (0.401)	
Sum of Polity indexes			0.005 (0.010)	0.001 (0.003)	0.003 (0.008)	
Tax sparing neighbours				5.630 <sup>a</sup> (0.206)		
Ln FDI neighbours $t$						0.040 (0.039)
Ln FDI neighbours $t - 1$						0.027 (0.044)
Country pair fixed effects	X	X	X			X
Home country fixed effects					X	
Host country fixed effects					X	

Table 5: Tax Sparring and FDI with Country-Pair Fixed and Country-and-Time Effects

	E(FDI <sub>ij</sub> ) ..) Poisson [1]	E(FDI <sub>ij</sub> ) ..) Poisson [2]	E(FDI <sub>ij</sub> ) ..) Poisson [3]	E(FDI <sub>ij</sub> ) ..) Poisson [4]	E(FDI <sub>ij</sub> ) ..) Poisson [5]
Tax sparing $t + 2$				-0.033 (0.053)	-0.018 (0.052)
Tax sparing $t + 1$					-0.014 (0.046)
Tax sparing $t$		0.300 <sup>c</sup> (0.160)	0.210 (0.148)		0.271 <sup>c</sup> (0.161)
Tax sparing $t - 1$	0.428 <sup>a</sup> (0.135)		0.356 <sup>a</sup> (0.103)	0.421 <sup>a</sup> (0.137)	0.329 <sup>a</sup> (0.098)
Tax sparing $t - 2$					0.149 (0.094)
Country pair fixed effects	x	x	x	x	x
Home country by time fixed effects	x	x	x	x	x
Host country by time fixed effects	x	x	x	x	x
Observations	10,594	11,503	10,594	10,594	9,486
Overall tax sparing effect					0.718 <sup>a</sup> (0.217)

## Results 2: Intensive and Extensive Margins of FDI



Table 6: Tax Sparring, Intensive and Extensive Margin of FDI

	Pr(FDI>0) Logit [1]	Pr(FDI>0) Conditional Logit [2]	E(FDI FDI>0) Poisson [3]	E(FDI FDI>0) Poisson [4]
Ln distance	-3.553 <sup>a</sup> (0.429)			
Colony	3.364 <sup>a</sup> (1.277)			
Common language	1.163 <sup>b</sup> (0.463)			
Bilateral Investment Treaty	0.476 <sup>b</sup> (0.239)			
UN vote correlation	-1.674 (1.140)			
Sum of Polity indexes	-0.019 (0.037)			
Tax sparing $t - 1$	0.161 (0.317)	-0.209 (0.910)	0.621 <sup>a</sup> (0.178)	0.423 <sup>a</sup> (0.133)
Country pair fixed effects		x	x	x
Home country fixed effects	x			
Host country fixed effects	x			
Home country by time fixed effects				x
Host country by time fixed effects				x
Observations	11,598	1,364	8,338	9,686

## Results 3: Home Country Tax Systems

Table 7: Territorial Tax Reforms, Tax Sparring and FDI

	E(FDI <sub>ijt</sub> ) .) Poisson [1]	E(FDI <sub>ijt</sub> ) .) Poisson [1']	E(FDI <sub>ijt</sub> ) .) Poisson [2]	E(FDI <sub>ijt</sub> ) .) Poisson [2']	E(FDI <sub>ijt</sub> ) .) Poisson [3]	E(FDI <sub>ijt</sub> ) .) Poisson [3']
Tax sparing t-1	0.643 <sup>a</sup> (0.184)	0.427 <sup>a</sup> (0.140)	0.649 <sup>a</sup> (0.183)	0.427 <sup>a</sup> (0.140)	0.609 <sup>a</sup> (0.178)	0.429 <sup>a</sup> (0.135)
Worldwide tax system x Tax sparing t-1	-0.224 (0.147)	-0.002 (0.151)				
Worldwide tax system	0.101 (0.138)					
Hybrid worldwide tax system x Tax sparing t-1			-0.233 (0.145)	-0.002 (0.151)		
Hybrid worldwide tax system			0.111 (0.136)			
Territorial tax reform x Tax sparing t-1					0.233 (0.148)	0.004 (0.167)
Territorial tax reform					-0.106 (0.137)	
Country pair fixed effects	X	X	X	X	X	X
Home country by time fixed effects		X		X		X
Host country by time fixed effects		X		X		X
Observations	8,974	10,594	8,974	0.992	8,974	10,594

## Results 4: Tests for Alternative Explanations (Bilateral Tax treaties, Tax Treaty Shopping, Tax Incentives, Withholding Tax Rates)

## Table 8: Bilateral Tax Treaties and Treaty Shopping

	The role of BTTs			Treaty shopping
	$E(FDI_{ij}) .$ [1]	$E(FDI_{ij}) .$ [2]	$E(FDI_{ij}) .$ [3]	$E(FDI_{ij}) .$ [4]
Tax sparing t-1	0.622 <sup>a</sup> (0.177)		0.703 <sup>a</sup> (0.205)	0.614 <sup>a</sup> (0.179)
BTT t-1		0.137 (0.124)		
BTT without tax sparing t-1			0.101 (0.086)	
Ln FDI conduit				0.011 <sup>c</sup> (0.007)
Country pair fixed effects	x	x	x	x
Home country by time fixed effects				
Host country by time fixed effects				
Observations	8,974	8,974	8,974	8,947

## Conclusion

We analyse the impact of tax sparing agreements on FDI using a large panel dataset, and find:

- ▶ Tax sparing agreements are associated with up to **97 percent** higher FDI stocks.
- ▶ In the absence of tax sparing, BTTs are not associated with significant increases in FDI.
- ▶ No significant differences in this effect across worldwide and territorial home countries. Much of the benefit from tax sparing is also available to territorial MNCs.

## Policy implications:

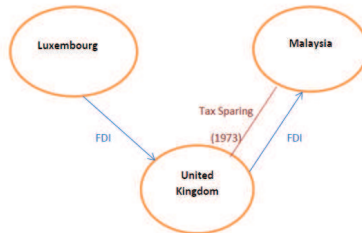
- ▶ The inclusion of tax sparing provisions in BTTs can be an important tool to encourage FDI in developing countries.
- ▶ Results highlight the continuing relevance of tax sparing in a world where most residence countries are territorial.
- ▶ They also hold lessons for residence countries contemplating tax reforms (e.g. US).



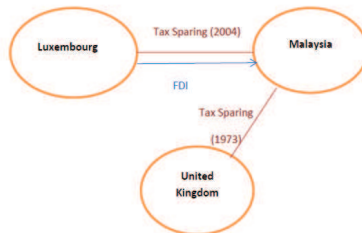


Figure 1: Treaty shopping

Prior 2004



Since 2004



## Table 9: Bilateral Tax Treaties and Treaty Shopping

	The role of BTTs			Treaty shopping
	$E(FDI_{ij})   \cdot$ [1]	$E(FDI_{ij})   \cdot$ [2]	$E(FDI_{ij})   \cdot$ [3]	$E(FDI_{ij})   \cdot$ [4]
Ln home GDP	0.618 <sup>a</sup> (0.170)	0.616 <sup>a</sup> (0.170)	0.613 <sup>a</sup> (0.170)	0.604 <sup>a</sup> (0.171)
Ln host GDP	0.568 <sup>a</sup> (0.091)	0.569 <sup>a</sup> (0.090)	0.570 <sup>a</sup> (0.090)	0.562 <sup>a</sup> (0.091)
Ln host population	-1.063 <sup>c</sup> (0.618)	-1.013 (0.620)	-1.088 <sup>c</sup> (0.617)	-0.044 (0.119)
Bilateral trade costs	-0.035 (0.118)	-0.039 (0.118)	-0.025 (0.118)	-0.106 <sup>b</sup> (0.041)
Home financial crisis	-0.112 <sup>a</sup> (0.041)	-0.112 <sup>a</sup> (0.041)	-0.113 <sup>a</sup> (0.041)	-1.222 <sup>c</sup> (0.637)
Tax differential	0.463 (0.429)	0.456 (0.429)	0.447 (0.430)	0.455 (0.429)
Tax sparing t-1	0.622 <sup>a</sup> (0.177)		0.703 <sup>a</sup> (0.205)	0.614 <sup>a</sup> (0.179)
BTT t-1		0.137 (0.124)		
BTT without tax sparing t-1			0.101 (0.086)	
Ln FDI conduit				0.011 <sup>c</sup> (0.007)
Country pair fixed effects	x	x	x	x
Home country by time fixed effects				
Host country by time fixed effects				
Observations	8,974	8,974	8,974	8,947

## Table 10: Tax Incentives and Withholding Tax Rates

	E(FDI <sub>ij</sub> ) .) Poisson [1]	E(FDI <sub>ij</sub> ) .) Poisson [2]	E(FDI <sub>ij</sub> ) .) Poisson [3]	E(FDI <sub>ij</sub> ) .) Poisson [4]	E(FDI <sub>ij</sub> ) .) Poisson [5]
Ln home GDP	0.630 <sup>a</sup> (0.177)	0.619 <sup>a</sup> (0.170)	0.619 <sup>a</sup> (0.170)	0.565 <sup>a</sup> (0.178)	0.562 <sup>a</sup> (0.178)
Ln host GDP	0.568 <sup>a</sup> (0.093)	0.569 <sup>a</sup> (0.091)	0.569 <sup>a</sup> (0.091)	0.556 <sup>a</sup> (0.086)	0.555 <sup>a</sup> (0.085)
Ln host population	-0.945 (0.678)	-0.033 (0.118)	-0.033 (0.118)	-0.883 (0.609)	-0.875 (0.607)
Bilateral trade costs	-0.018 (0.128)	-0.111 <sup>a</sup> (0.041)	-0.111 <sup>a</sup> (0.041)	-0.039 (0.121)	-0.040 (0.122)
Home financial crisis	-0.108 <sup>b</sup> (0.043)	-1.048 <sup>c</sup> (0.620)	-1.049 <sup>c</sup> (0.620)	-0.107 <sup>b</sup> (0.042)	-0.107 <sup>b</sup> (0.042)
Tax differential	-0.029 (0.483)	0.448 (0.432)	0.449 (0.432)	1.401 <sup>b</sup> (0.597)	1.477 <sup>b</sup> (0.597)
Tax sparing $t - 1$	0.620 <sup>a</sup> (0.177)	0.622 <sup>a</sup> (0.177)	0.623 <sup>a</sup> (0.177)	0.538 <sup>a</sup> (0.179)	0.521 <sup>a</sup> (0.162)
EATR	-1.153 <sup>c</sup> (0.666)				
WTR interest		0.280 (0.543)			
WTR royalties			0.208 (0.509)		
GTR interest				-1.632 <sup>b</sup> (0.728)	
GTR royalties					-1.762 <sup>b</sup> (0.726)
Country pair fixed effects	x	x	x	x	x
Observations	6,945	8,654	8,654	8,966	8,974

Table 16: Global costs of interest payments (ETR interest): with assumption of tax holiday in the host country

	Without tax sparing	With tax sparing
If $STR_{home} > W_{host}^i$	$STR_{home}$	$STR_{home} - W_{host}^i$
If $STR_{home} < W_{host}^i$	$W_{host}^i$	0