

Temporary investment incentives and divestment by foreign firms



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Policies for attracting investment

- Targeted for domestic and (above all) foreign
- Often temporary
 - Subsidies, tax exemptions (tax holidays)

Effectiveness of policy measures

- Can policies attract investment?
- Are these policies able to retain investment?

Why tax holidays?

- Signaling (Bond and Samuelson (1986))
- Sunk costs (Doyle and van Wijnbergen 1994)
- Agglomerations (Konrad and Kovenock 2009)

Evidence is mostly anecdotal

- “it was profitable for many investors, both foreign and domestic, to establish companies for the duration of the employment subsidy (five years), and to close them down once the subsidy expired.” (UNCTAD 2003 p.10)

- “the example of a manufacturer of computer microprocessors, which enjoyed an eight-year tax holiday in an Asian developing country. At the end of the tax holiday, the manufacturer simply packed up and set up a new operation in a neighboring country, which offered a new tax holiday” (UNCTAD 2000 p. 25).

Systematic evidence

- Bond (1981)
 - Data on 152 firms in Puerto Rico
 - Tax exempt firms in 1974 are more likely to survive to 1975

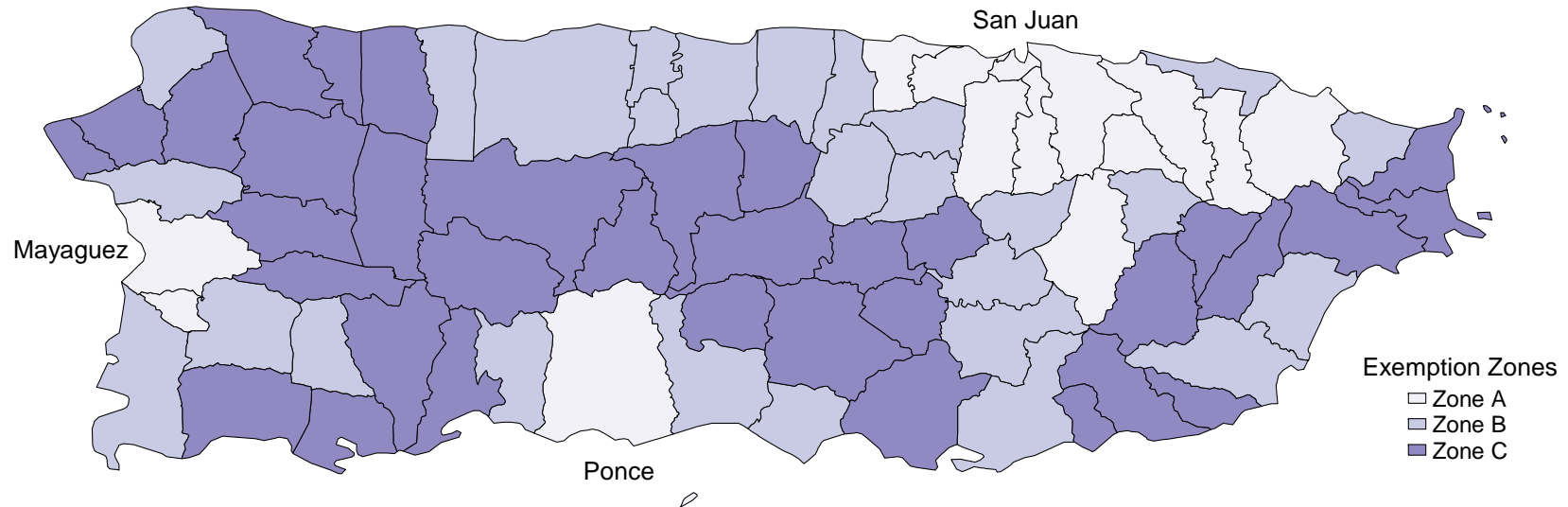
This paper

- Tax holidays in Puerto Rico
 - Do changes in the tax breaks lead to increased exit of firms?
 - Do investment characteristics affect the impact of changes in the tax breaks?

Puerto Rican foreign investment policy

- Income is tax exempt during the first years
- Tax exemption is gradually reduced over time
 - Depending on location

Tax Exemption Zones in Puerto Rico



Key Economic Indicators by Zones

	Unemployment Rate	Per Capita Income	Literacy Rate
Zone A	14.9%	\$2,454.2	92.5%
Zone B	25.1%	\$1,659.9	87.6%
Zone C	30.8%	\$1,438.1	86.3%

Percent of Investment Income Exempt

Years	1-5	6-10	11-15	16 - 20
Zone A	90%	75%	0%	0%
Zone B	90%	75%	65%	0%
Zone C	90%	75%	65%	55%

Data

- Firms in Puerto Rico (1979-2007)
 - Entry and exit dates
 - Location
 - Tax exemption (beginning, changes, end)
 - Scale (Investment, employment, payroll)
 - Country of origin
- More than 700 firms established from 1979.
 - 80% are U.S. based

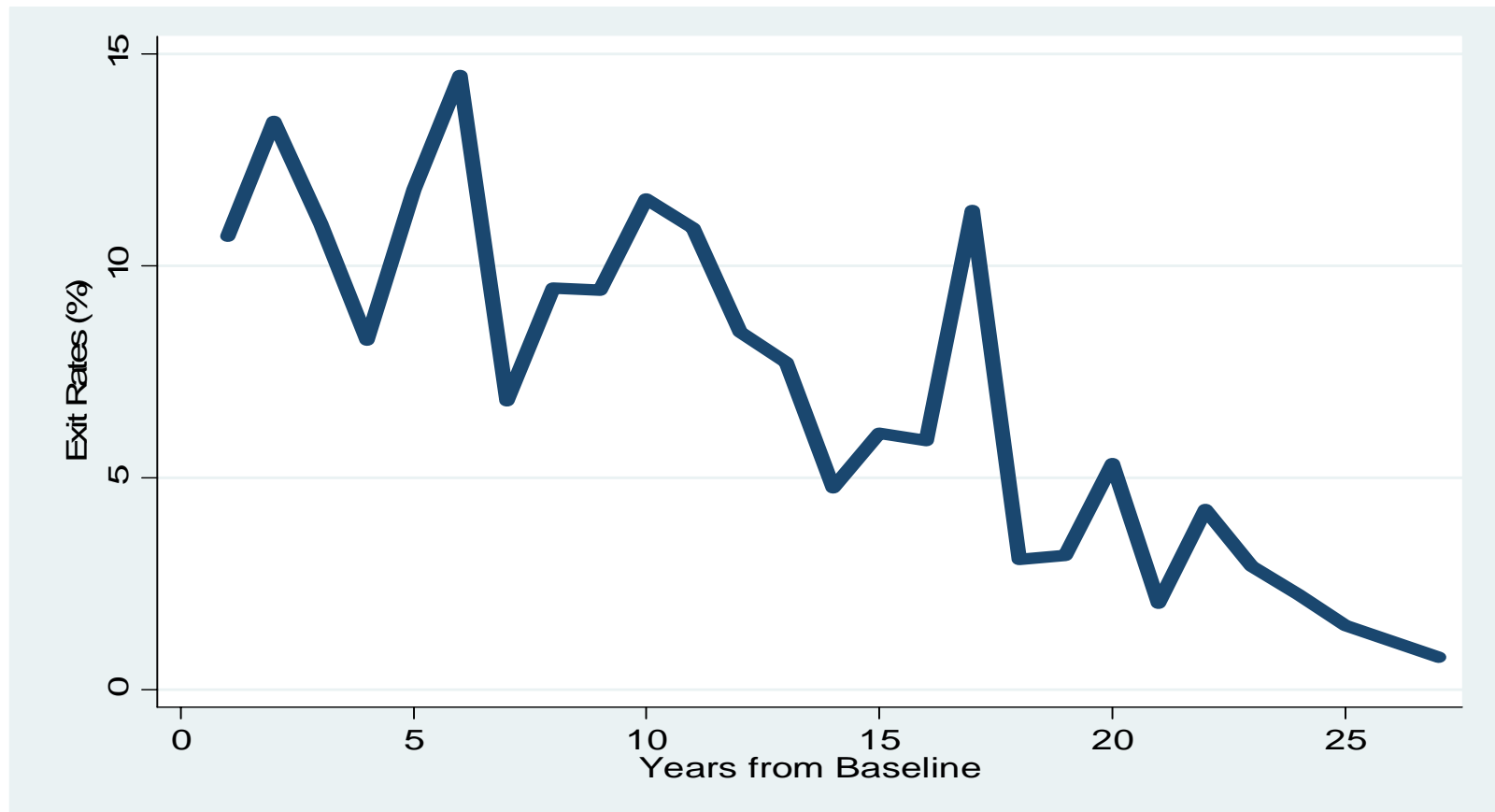
Foreign investment in geographic zones

	Projects (%)	Employment (%)	Payroll (%)	Investment (%)
Zone A	31.0	14.0	13.3	16.4
Zone B	47.5	51.6	53.7	51.2
Zone C	21.5	34.4	33.0	32.4

Foreign investment per industry

Industry	Proj. (%)	Employ. (%)	Pay (%)	Invest. (%)
28-Chemicals	12	10	14	34
36-Electronic & Electr Equip	14	19	19	12
38-Instruments	9	13	19	17
40-Export Service Industries	16	2	3	2

Exit over time



Estimation

- Stacked logit regression
- All regressions include dummies for:
 - Exemption Zones (2),
 - Municipalities (69),
 - Industry (19),

Research questions?

- Do firms exit more when tax breaks disappear (or are decreased)?
- Is this effect greater for firms:
 - that are familiar with the country?
 - whose projects are less sunk?

Results

Age	0.0044	(0.0086)
In Employment	0.1185	(0.1417)
In Investment	-0.2124	(0.0465) ***
In Payroll	-0.1771	(0.1371)
USA	-0.3283	(0.1345) **
<i>Change of Exemption</i>	0.2799	(0.0939) ***

Results – with interactions

In Investment	-0.28***	-0.24***
USA	-0.46***	-0.47***
In Investment per worker	0.08	
In Wage per worker		-0.06
Change	-0.71**	-1.64**
Change * USA	0.52*	0.55**
Change * In Invest per worker	-0.12*	
Change * In Wage per worker		-0.37*

Marginal effects

Overall	0.017**	0.018**
USA=0	-0.018	-0.020
USA=1	0.023***	0.024***
Quintiles	In investment per worker	In wages per worker
q20	0.029***	0.032***
q40	0.021***	0.024***
q60	0.014	0.016**
q80	0.006	0.007

Conclusions

- Tax holidays attract firms
- Every time tax breaks are reduced firms exit more
 - 2 p.p. for 2 years (compared with 8% baseline)
- Impact of tax breaks upon exit is larger for
 - Firms which are familiar with host country
 - Projects that are more sunk

Implications for policy

- Implications are unclear:
 - How do benefits from FDI spread over time?
 - Spillovers
 - Vertical – via contractual relations with suppliers
 - likely to happen as early as possible
 - Horizontal – via labor flows,
 - likely to increase when foreign firms exit

Implications for managers

- Upstream firms
 - Exit of foreign firms is bad news
 - Avoid making specific investments, if clients benefit from temporary incentives
- Competitors
 - Exit of foreign firms is good news
 - Scout the horizon in search of exiting firms