

How do small firms respond to tax schedule discontinuities? Evidence from South African tax registers

Wian Boonzaaier, Jarkko Harju, Tuomas Matikka and Jukka Pirttilä

University of Tampere and UNU-WIDER

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This study

- South Africa needs more jobs
 - there are tax incentives for SMEs for this aim
 - this paper evaluates whether the current progressive tax rate schedule offered for SMEs is effective in increasing economic activity
- Boonzaaier, Harju, Matikka, and Pirttilä (2017) use population-wide administrative data from the South African Revenue Service (SARS)
 - bunching responses to CIT kinks
 - utilize reforms in the locations of the CIT kinks
- A key focus in the paper
 - we document clear responses to firms to tax incentives
 - the question is what drives the response: do firms react to lower taxes by increasing their real economic activity or do they simply avoid/evade taxes less?

The taxation of SME profits

- If certain conditions are met AND turnover is below 20 million ZAR (1 USD \approx 13 ZAR)
→ Corporate profits are taxed according to a progressive schedule, the SBC schedule

Taxable income	Marginal tax rate
R1 – R59,750	0%
R59,751 – R300,000	10%
R300,001 and above	28%

- Outside the SBC schedule a flat rate of 28% is used

Changes in tax rate thresholds in 2010–2013

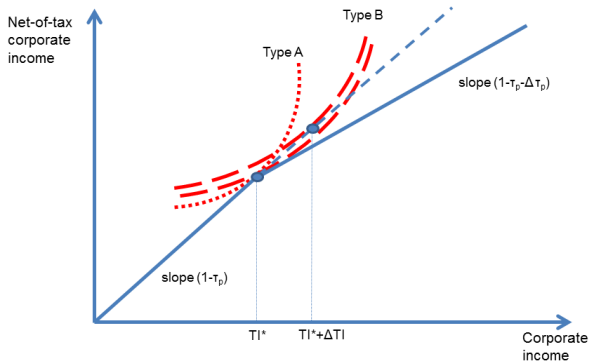
- The lower threshold increased on an annual basis by approximately 3,000 ZAR
 - from 54,000 to 63,500 ZAR in 2010–2013
- The upper threshold was increased by 17% in 2013
 - from 300,000 to 350,000 ZAR
 - no annual inflation adjustment of this threshold in 2010–2013
 - provides our main source of variation in terms of changes in incentives over time

Responses to CIT kinks

- CIT kinks: incentives to create and report taxable income smaller above the kink → bunching at the kink points (Devereux, Liu, and Loretz, 2014; Kleven, 2015; Saez, 2010)
 - clustering of firms around the kink points if behavioral responses occur
 - more bunching → less efficient tax
- Firms can respond by either
 - lowering their true production
 - engaging in avoidance/evasion measures (reporting responses)
- Real economic responses vs. reporting responses
 - reporting responses have presumably smaller welfare effects than real responses in terms of economic output and job creation...
 - ...but their effect on revenue is rather similar
 - we utilize changes in the locations of kink points to characterize the nature of the response

Bunching at the kink point

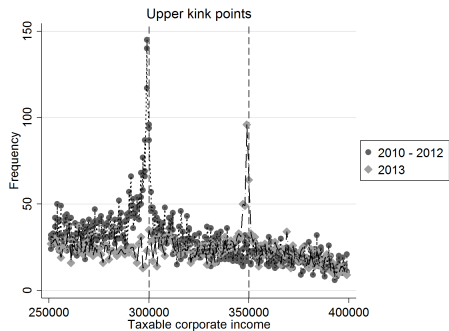
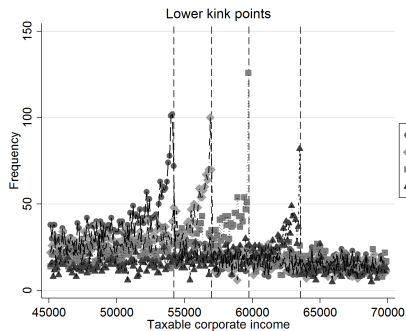
Bunching at the kink point



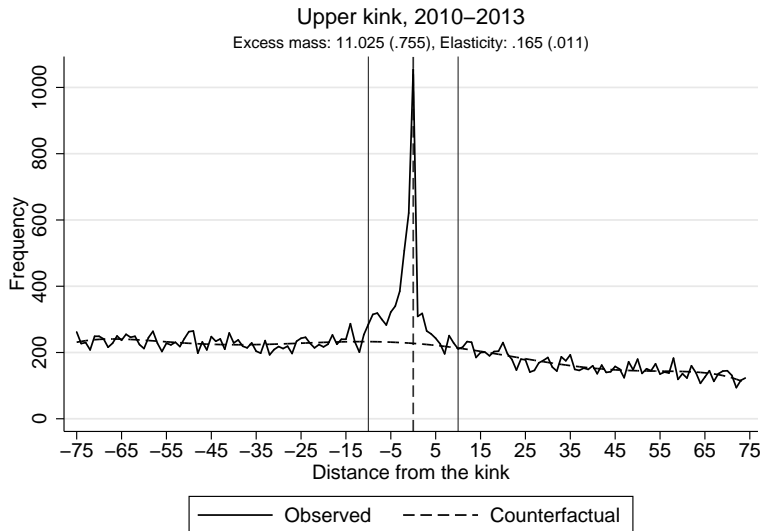
Data

- Data from a pilot project in cooperation with UNU-WIDER, South African Revenue Service (SARS), and National Treasury
- Tax return data for 2010–2013
 - directly from the e-filing system of SARS
 - micro-level data including all firms (with firm pseudo-ID's)
- The sample: firms that are eligible for the progressive income tax (SBC panel)

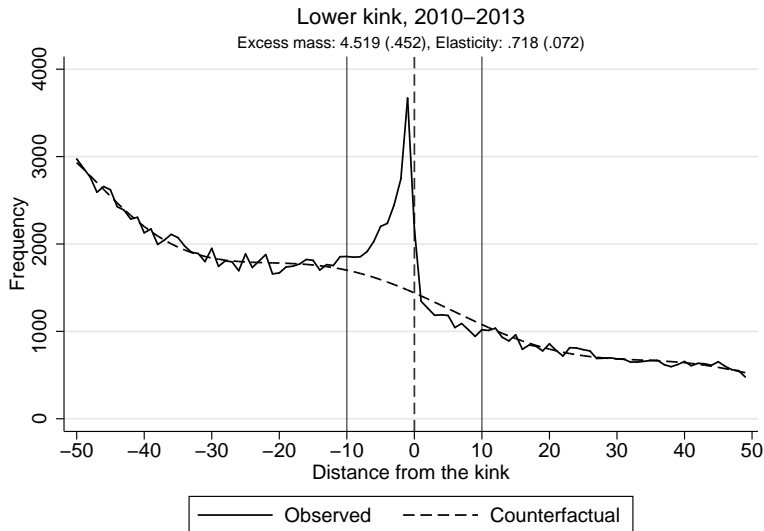
Data



Baseline results: SBC tax kinks (Upper kink)



Baseline results: SBC tax kinks (Lower kink)



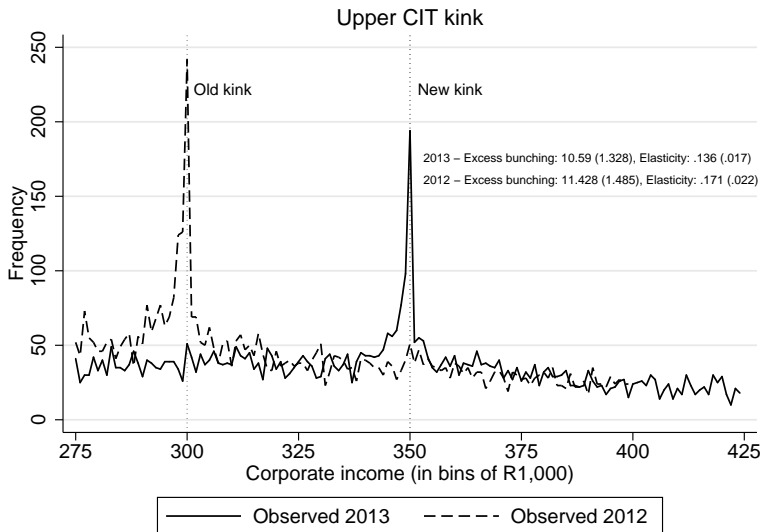
Baseline bunching results

- Firms respond very strongly to the SBC tax schedule
 - Large and distinctive excess bunching at both kink points
 - No significant differences between industries etc.
- Local elasticities at SBC kinks are relatively high
 - Particularly among smaller firms around the lower kink point
 - Nevertheless, a large incentive change at the upper threshold implies a rather moderate elasticity
- More scattered response to the lower kink
 - behavioural story (?): increased incentives to avoid positive tax payments? (tax rate 0% \rightarrow 10%)

Nature of the response & bunching

- Sharp bunching response is an indication of reporting responses
 - Real responses would entail more scattered responses around the kink points
 - The response at the upper kink is very sharp → first piece of evidence of avoidance/evasion
- Similarly, large and immediate responses to changes in the locations of the kinks suggest reporting behavior
 - Real responses would require adjustments along multiple margins (sales, costs, demand side etc.)
 - Real response margins likely to be affected by various frictions → more sluggish responses to relocation of kink points
- Our main evidence comes from the 17% increase in the upper CIT kink
 - from R300,000 to R350,000 in 2013

Changes in kink points: results



Characterizing reporting behavior

- Detailed analysis of the balance sheets and profit and loss accounts suggests that firms that relocate to the new kink point show more revenues with almost no change in costs
 - no similar change in any comparison group
- Their cash holdings also increase
- These are compatible with firms
 - starting to report more sales when showing revenues becomes less costly in terms of tax payments
 - utilizing perhaps timing responses in showing profits

Conclusions

- Significant (local) responses to tax rate discontinuities
- A significant part of the response arise from reporting rather than real responses
- The results imply that the graduated tax scheme is not a very successful way of providing incentives for small firms
 - a move to a flat CIT rate would reduce evasion/avoidance?
- A caveat is that with the administrative data, we are not able to examine extensive margin behavior (new firms / level of formalization)
 - are graduated tax rate schedules the optimal tool for this purpose?

References

- BOONZAAIER, W., J. HARJU, T. MATIKKA, AND J. PIRTTILÄ (2017): “How do small firms respond to tax schedule discontinuities? Evidence from South African tax registers,” Working papers 85, VATT Institute for Economic Research.
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- SAEZ, E. (2010): “Do Taxpayers Bunch at Kink Points?,” *American Economic Journal: Economic Policy*, 2(3), 180–212.

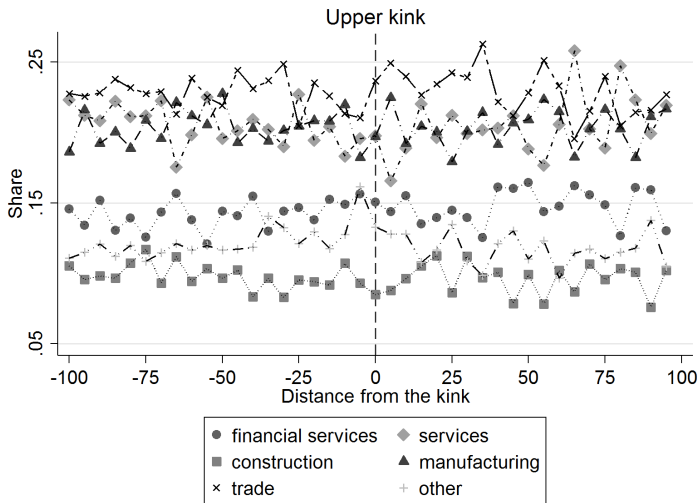
Descriptive statistics

Stats	Taxable corp. income	Sales	Cost of sales	Labor costs	Expenditure
Mean	144,213	2,205,547	1,141,867	413,869	2,045,572
SD	184,694	2,767,375	2,029,449	645,742	2,794,875
N	214,249	214,249	214,249	214,249	214,249
	Balance sheet	Equity	Capital		
Mean	17,563,028	1,161,067	10,322,454		
SD	3,008,588,233	334,998,233	2,456,988,772		
N	214,249	214,249	214,249		

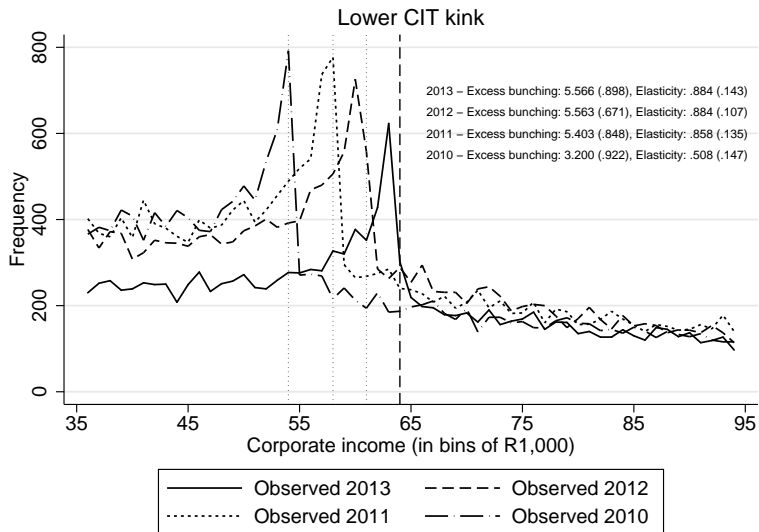
Robustness of elasticity estimates

Upper kink	Order of polynomial (baseline = 7)			
	4	6	8	10
Excess bunching	12.687	11.032	9.565	8.845
Std. error	.660	.862	.842	1.004
	Bunching region (baseline = 10)			
	5	7	13	15
Excess bunching	8.031	8.443	11.825	12.979
Std. error	.380	.480	1.073	1.488

By industries (upper kink)



Changes in kink points: lower kink point



Responses of relocating firms vs. others

Bunchers in 2013 and 2012

Δ 2013–2012	Δ Sales	Δ Cost of sales	Δ Expenses	Δ CTI	Δ Equity	Δ Cash
Mean	.145	.089	.052	.154	.472	.351
SE	.024	.068	.050	.001	.147	.149

CTI>150 & CTI<250 in 2012

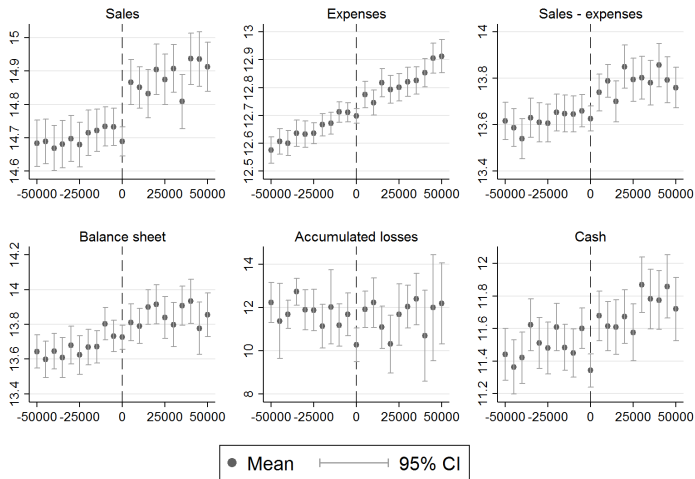
Δ 2013–2012	Δ Sales	Δ Cost of sales	Δ Expenses	Δ CTI	Δ Equity	Δ Cash
Mean	.090	.101	.166	.015	.338	.063
SE	.009	.018	.011	.006	.0287	.038

Bunchers in 2013, not bunching in 2012

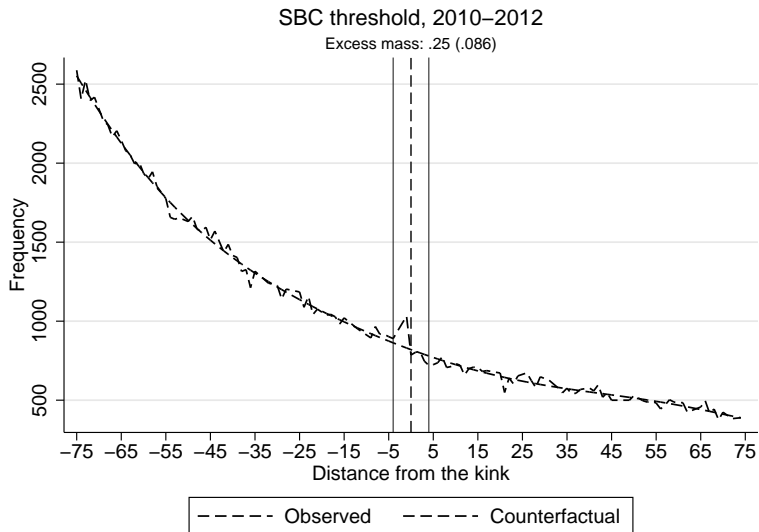
Δ 2013–2012	Δ Sales	Δ Cost of sales	Δ Expenses	Δ CTI	Δ Equity	Δ Cash
Mean	.138	.134	.179	.121	.349	.086
SE	.024	.036	.031	.012	.067	.090

Firm-level factors around the upper kink point

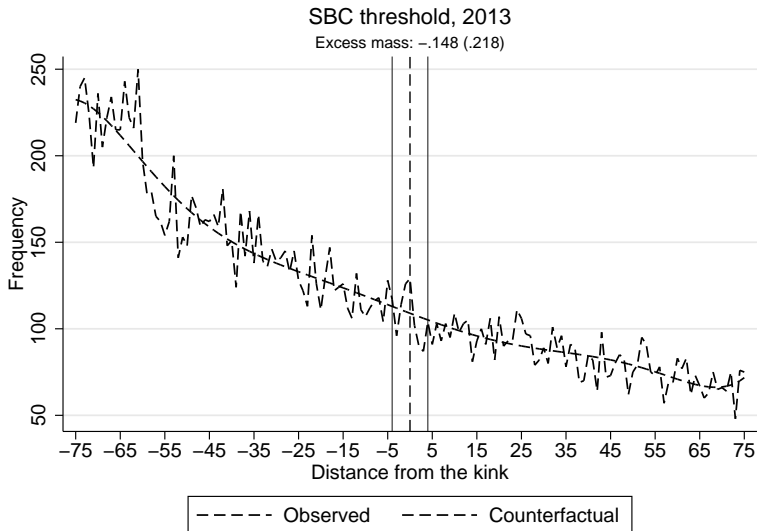
Upper threshold



Additional results: The SBC threshold



Additional results: The SBC threshold



Additional results: Persistence

One year persistence rates

