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Taxpayer responsiveness to taxation: Evidence from bunching at kink points of the South African income tax schedule

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The elasticity of taxable income - New data and estimates for South Africa

Taxpayer responsiveness to taxation:
Evidence from bunching at kink points of the South African income tax schedule

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Introduction

- How do taxpayers respond to taxation?

    – Reduced labour supply

    – Tax avoidance through income shifting

- Estimate the elasticity of taxable income (ETI) for South Africa using the bunching technique

    – Technique has been widely applied to developed countries and some developing countries

    – Boonzaaier et al (2019) find significant bunching at SA corporate tax kinks and large elasticities

Bunching and bracket creep approaches

- Both depend on taxpayer awareness of tax code details

  – Extent of behavioural responses observed depend on informational considerations

  – Could be less relevant for more salient tax changes

- Similar to Kemp (2019 and 2020), estimate the ETI using an approach that does not rely on a tax reform but have some extensions

  – Differential analysis by gender

  – Anatomy of taxpayer responsiveness

  – Robustness check – bracket creep approach depends on no bunching

Methodology

- Developed by Saez (2010) and Chetty et al (2011)

- Changes in the marginal tax rate at earnings point k generates excess bunching at k

- Observed excess bunching can be used to estimate compensated elasticity of taxable income with respect to the net-of-tax-rate

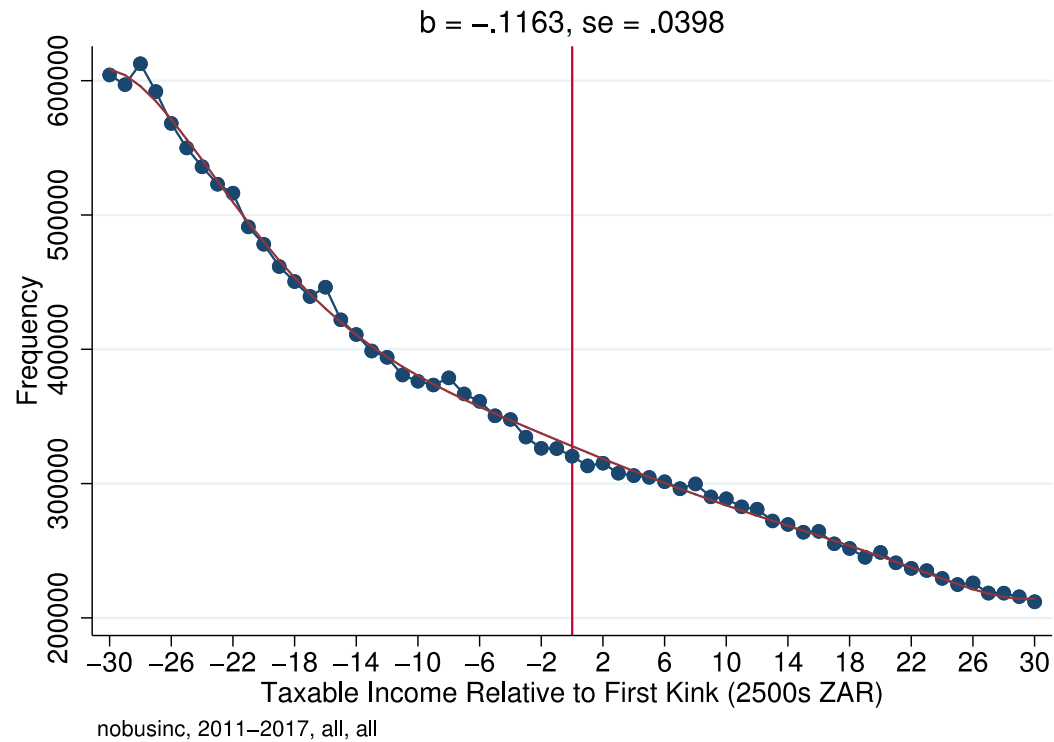# Kink points in the SA income tax schedule, 2011-2017
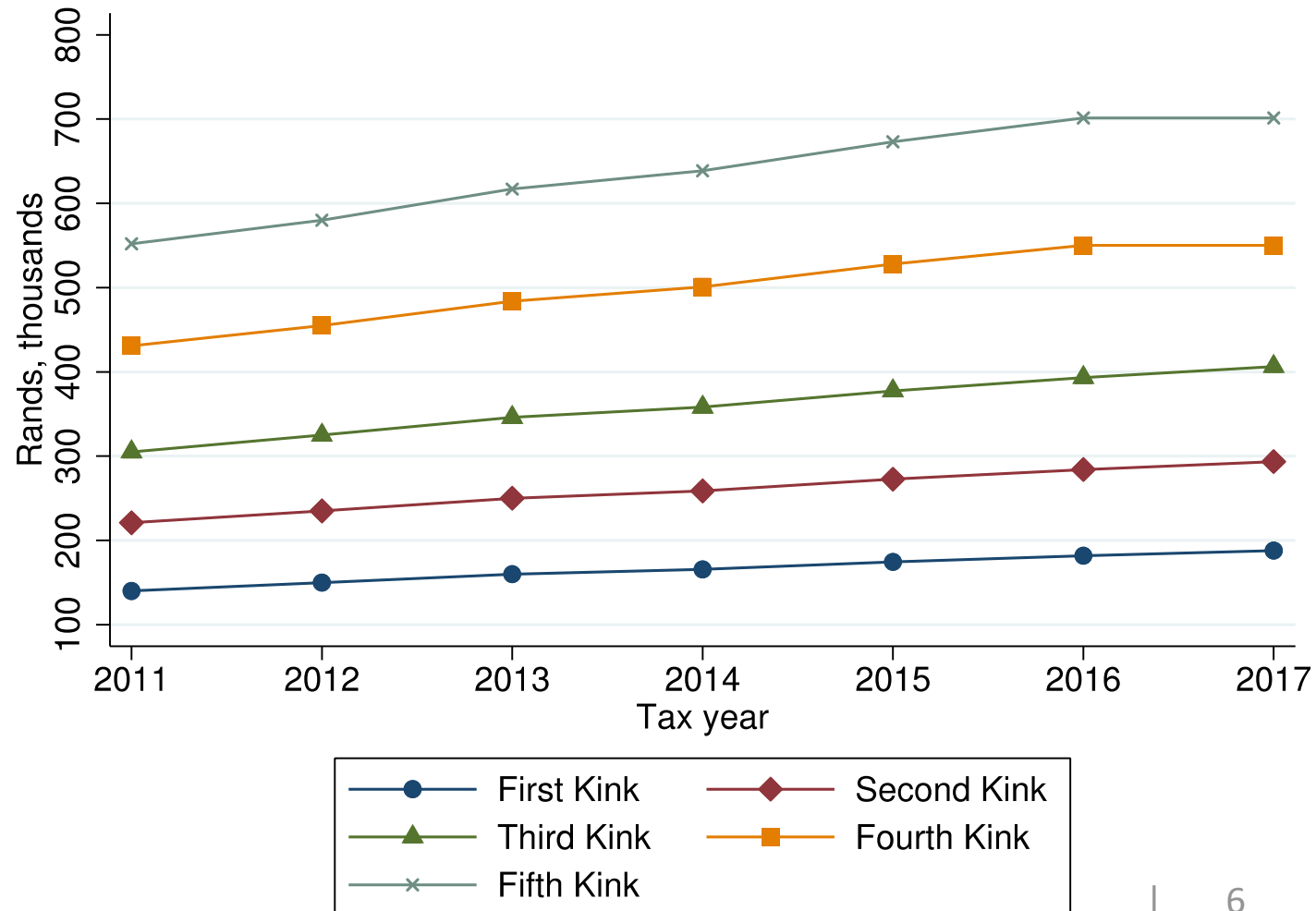
Marginal tax rates, 2011-2017

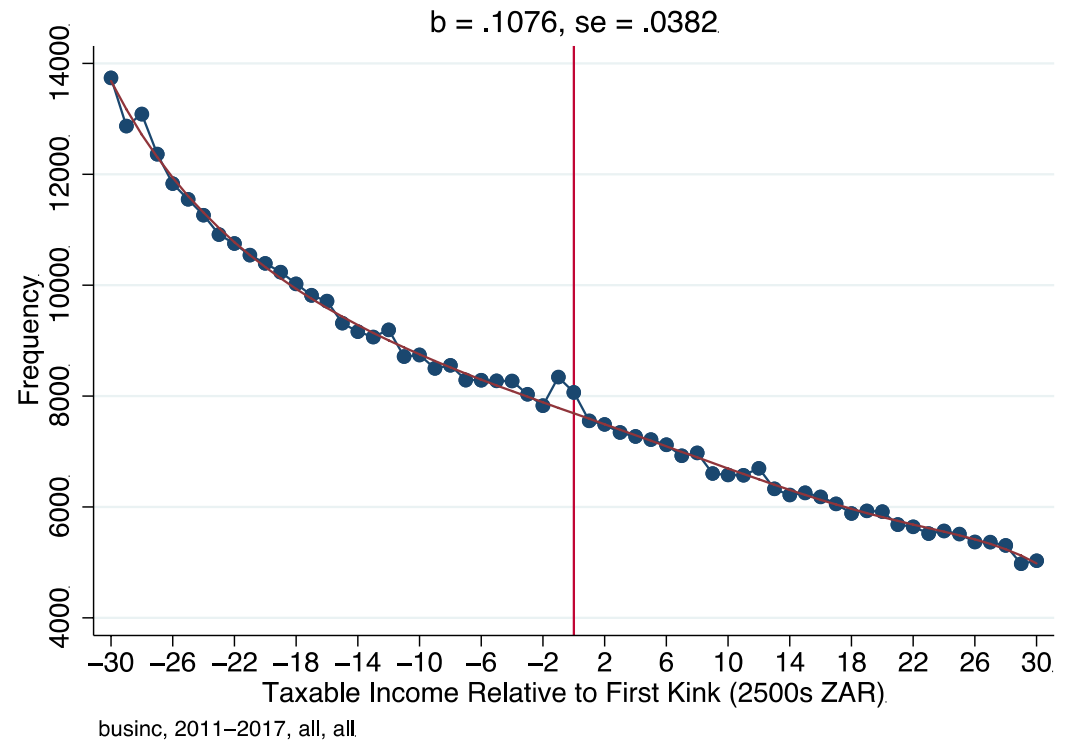|	2011-2015			2016-2017		
	τ_1	τ_2	$ln(\frac{1-\tau_1}{1-\tau_2})$	τ_1	τ_2	$ln(\frac{1-\tau_1}{1-\tau_2})$
First Kink	0.18	0.25	0.089	0.18	0.26	0.103
Second Kink	0.25	0.30	0.069	0.26	0.31	0.070
Third Kink	0.30	0.35	0.074	0.31	0.36	0.075
Fourth Kink	0.35	0.38	0.047	0.36	0.39	0.048
Fifth Kink	0.38	0.40	0.033	0.39	0.41	0.033

- Net-of-tax changes are higher at the lower end of the distribution

- Tax changes in 2016 did not change net-of-tax rate changes by much, except at the first kink

Bunching at the first kink, 2011-2017
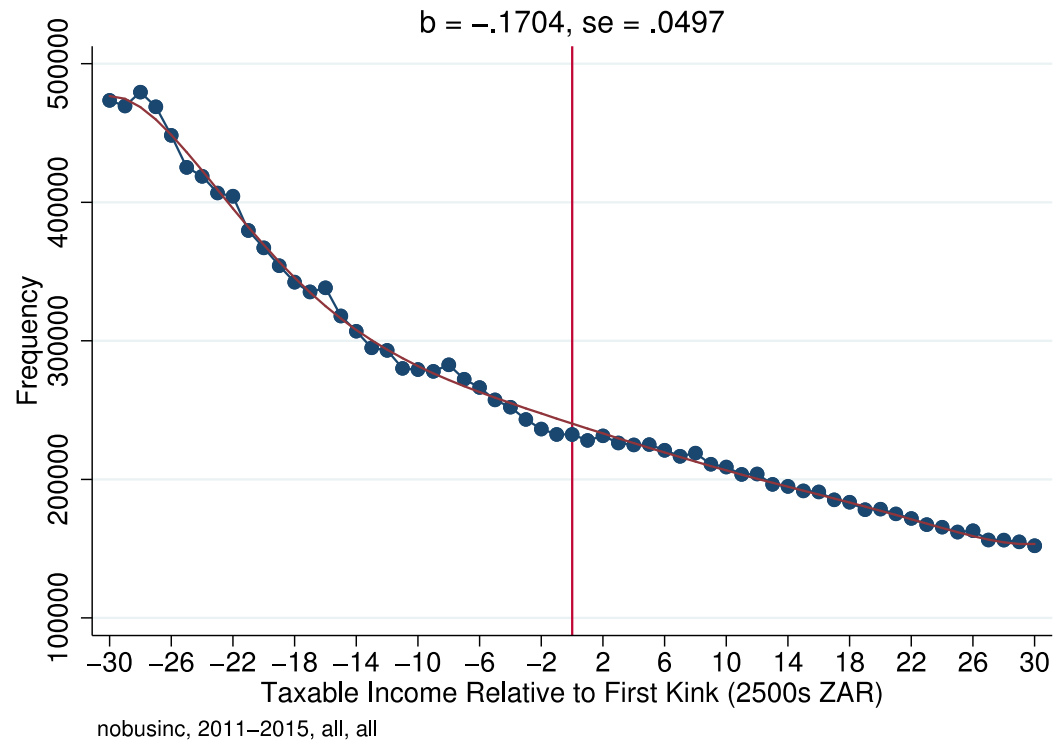
(a) Wage earners

(b) Self-employed

b = −.1163, se = .0398

Frequency / Taxable Income Relative to First Kink (2500s ZAR)

nobusinc, 2011–2017, all, all

b = .1076, se = .0382

Frequency / Taxable Income Relative to First Kink (2500s ZAR)
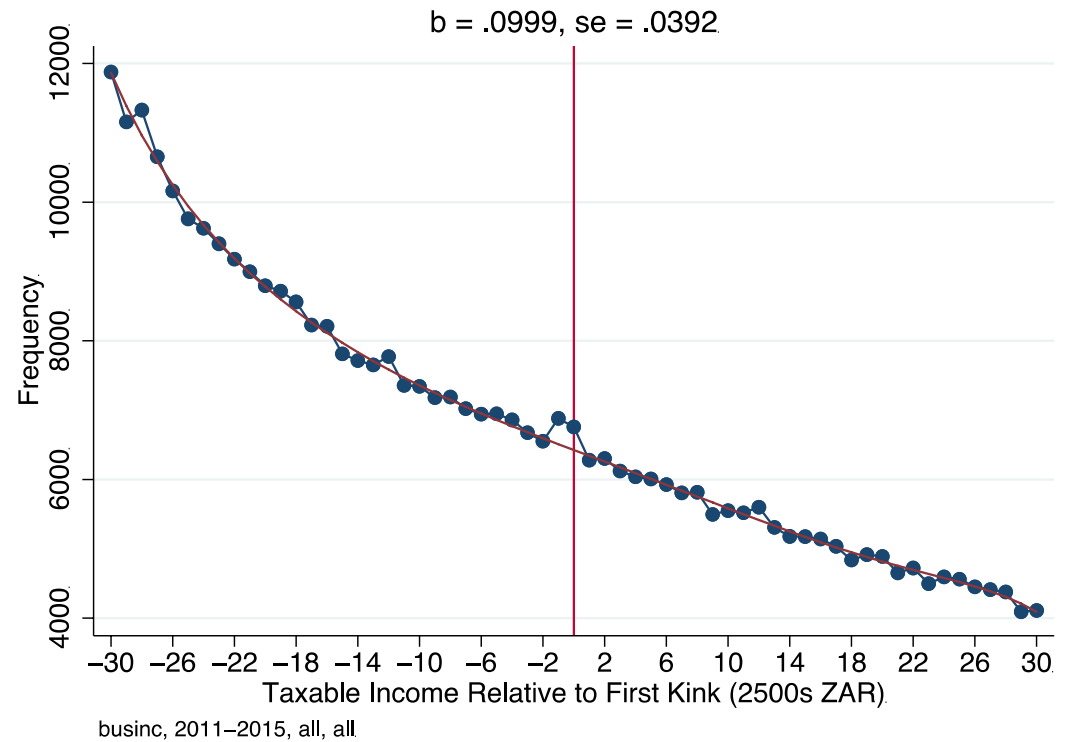
businc, 2011–2017, all, all

Bunching at the first kink, 2011-2015 (before tax rate changes)
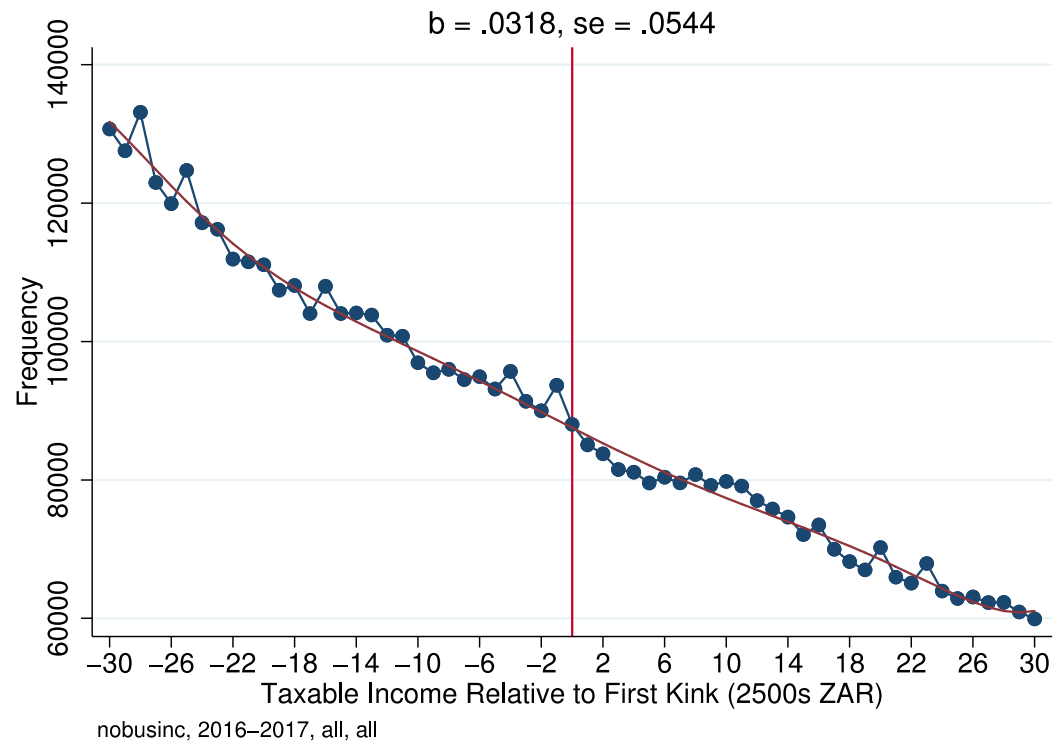
(a) Wage earners

(b) Self-employed

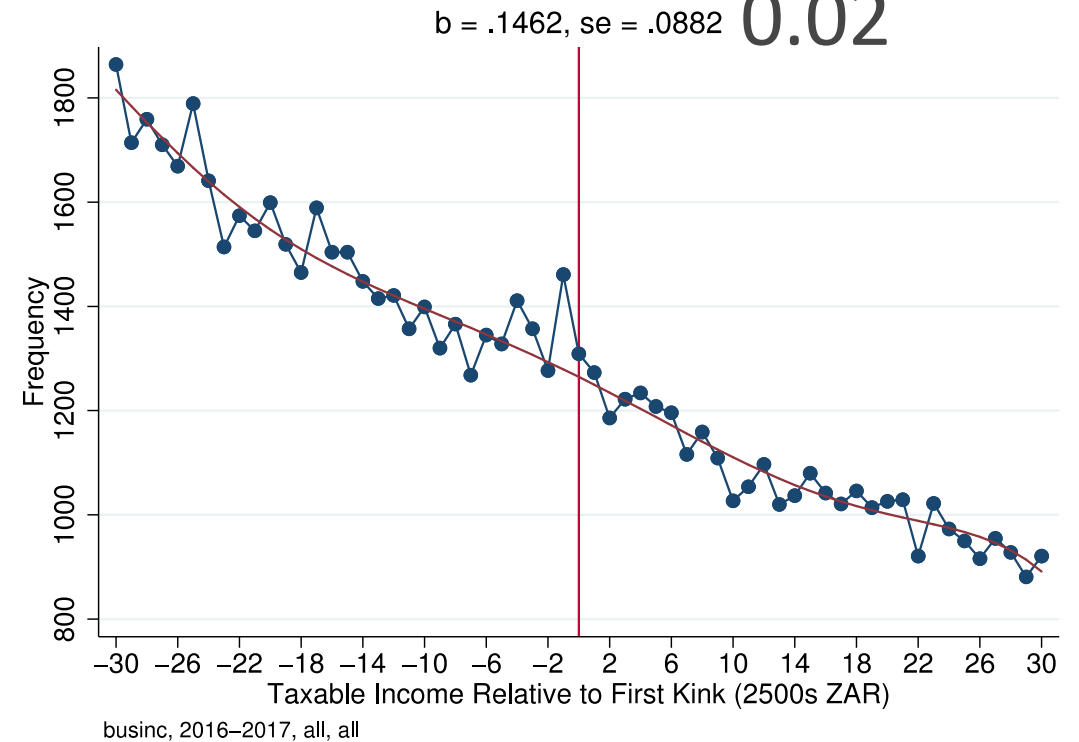# Bunching at the first kink, 2016-2017 (after tax rate changes)

(a) Wage earners

(b) Self-employed

Implied elasticity = 0.02

b = .0318, se = .0544

nobusinc, 2016–2017, all, all

b = .1462, se = .0882

businc, 2016–2017, all, all

Summary of bunching results

- Excess bunching is much greater among self-employed than wage earners

  - Greater ability of the self-employed to adjust hours and/or shift income

- Among the self-employed, bunching is greater

  - In the years after the tax rate changes than before

    - Net-of-tax rate changes became larger only at first kink and were relatively constant at other kinks

  - At the fifth kink (top end of distribution) than the first kink

    - Largest tax change is at the first kink and the smallest is at the first kink

  - Suggests responsiveness might be due to informational considerations

Estimates of the elasticity of taxable income

- Despite significant bunching the implied ETIs are not very large

    - Largest is 0.08 for the self-employed at the fifth kink over 2016-2017

- Kemp (2020) estimate is 0.4 over same period

    - Time horizon: Kemp (2020) uses three-year period so captures longer-run response, bunching estimates have unclear time horizon

- Similarities with Kemp (2020)

    - Greater responsiveness at top end of distribution and in later years

    - Relatively low responsiveness compared to estimates for SA companies in Boonzaaier et al (2019)

Differential results by gender and age

- Look at self-employed only

- Bunching is greater among females than males

  – Consistent with other studies that demonstrate that married women have higher taxable income elasticities

  – Likely that women are secondary earners

- General trend of lower responsiveness as taxpayers get older

  – High elasticity of 0.54 for the high income self-employed who are 15-24 years old, but this is a small group of taxpayers

Anatomy of the response

- Adding back retirement fund deductions reduces the estimates of excess bunching

    – Self-employed use this deduction to reduce taxable income

- Estimates of excess bunching are still significant even after all the deductions have been added back

    – Suggests there is also a real response

- In 2017, retirement fund deduction rules were simplified so look at this year alone

    – Excess bunching at the first kink is now very large and due almost entirely to retirement fund deductions

    – Changes in rules may have particularly benefitted high income self-employed

Conclusion

- Significant evidence of bunching among self-employed but not wage-earners

- Excess bunching is greater in years after tax rate changes and at the top end of the distribution

  - Does not match differences in incentives and suggests responsiveness may be due to informational considerations

- Bunching is greater among females than males, and decreases as taxpayers get older

- Retirement fund deductions are particularly important for adjusting taxable income, but there is also evidence of a real response too

- Despite significant bunching, implied elasticities are low

  - Lower elasticities than Kemp (2019 and 2020) for South Africa – could be due to differences in time horizon

  - Results also provide robustness check for Kemp (2019 and 2020)