Tobacco excise in Indonesia

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Introduction

- Nicotine is addictive and harmful. Controlling tobacco use via taxation requires understanding of demand elasticity of the good (Hidayat and Thabrany 2011).
- Indonesian excise structure is complicated, with various bracket based on firms' production size and types of cigarettes.
- It happes amid various target: demand control, revenue generation, and jobs generation.
- In this project, we are tasked to see whether substitution happened.

Tax structure

type/category	Production	HJE (kIDR)	tariff (kIDR)	AVE(%)
SKM1	> 3 billion	1.95	.985	50.51
SKM2	<= 3 billion	1.14	.6	52.63
SPM1	> 3 billion	2.005	1.065	53.12
SPM2	<= 3 billion	1.135	.635	55.94
SKT1a	> 2 billion	>1.635	.44	26.91
SKT1b	> 2 billion	>1.135	.345	30.4
SKT2	(0.5 < x < 2) billion	>600	.205	34.2
SKT3	<= 0.5 billion	>505	.115	22.77

The tax structure

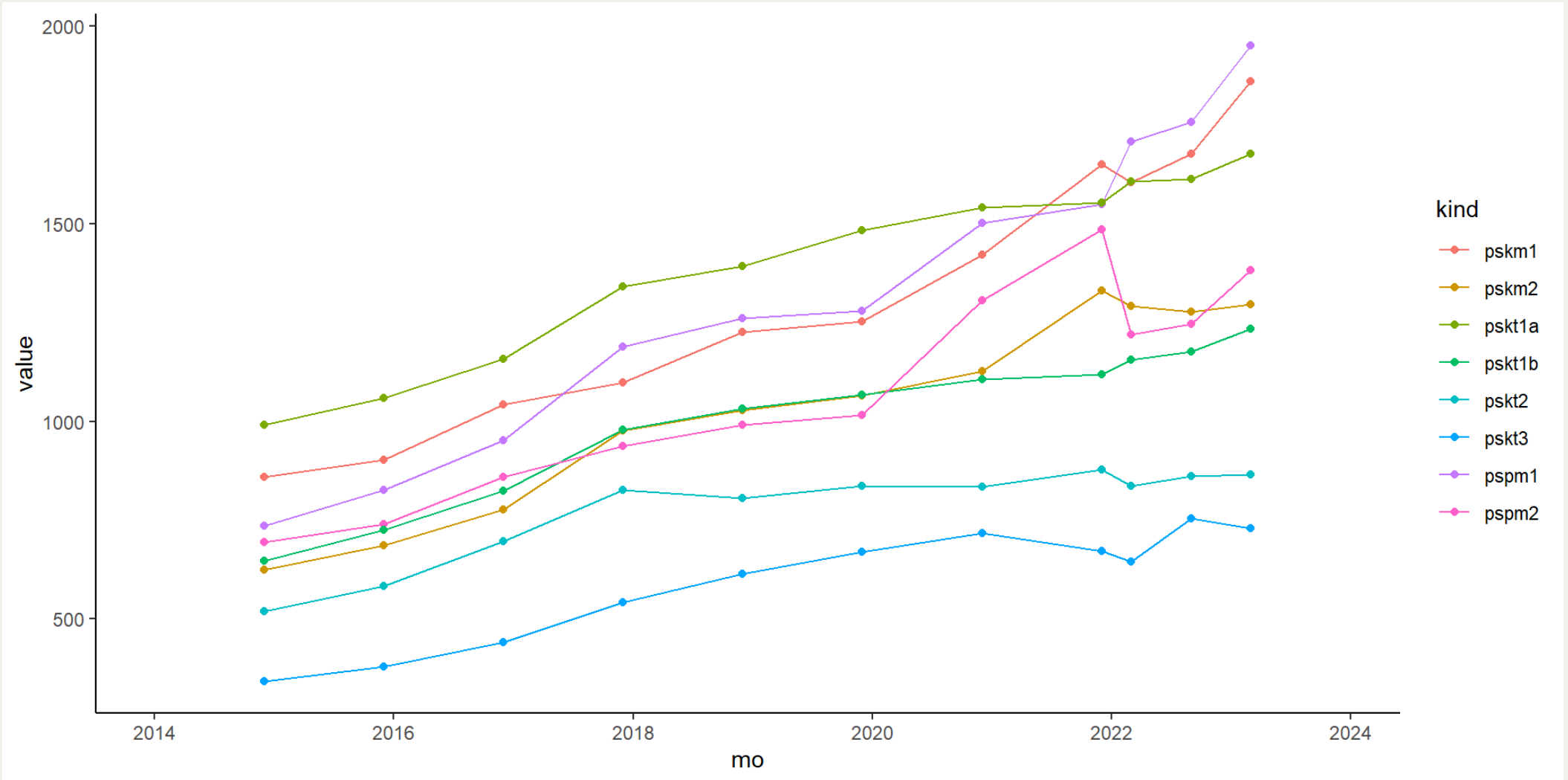
- The tax structure is lower than what WHO suggests (Prasetyo and Adrison 2020).
- The “job” goal leads to a lower tax rate for lower production firm which encourage larger firms to shrink (or at least discourage small firms to go large)
- The “job creation” goal may undermine the “revenue” goal and “control” goal.

Data

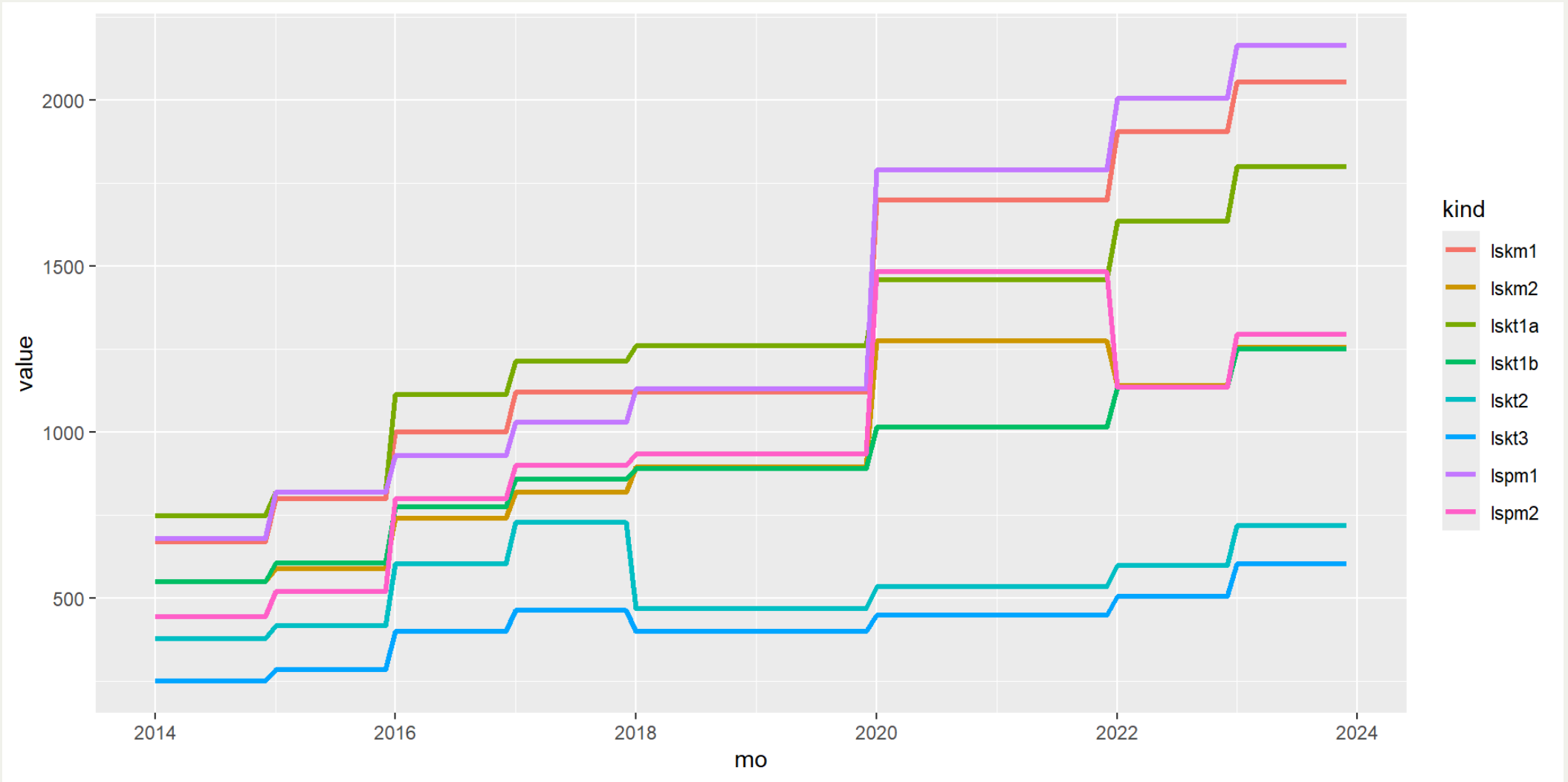
	Mean	SD	N	Histogram
qskm1	15272289807.50	5521195234.89	120	
rskm1	9.5e+12	3.5e+12	120	
tskm1	667.10	235.16	120	
lskm1	1318.90	458.84	120	
pskm1	1327.00	338.51	11	

We have monthly data on production and excise from 2014-2023 except for market price. Small degree of freedom compared to the tax brackett.

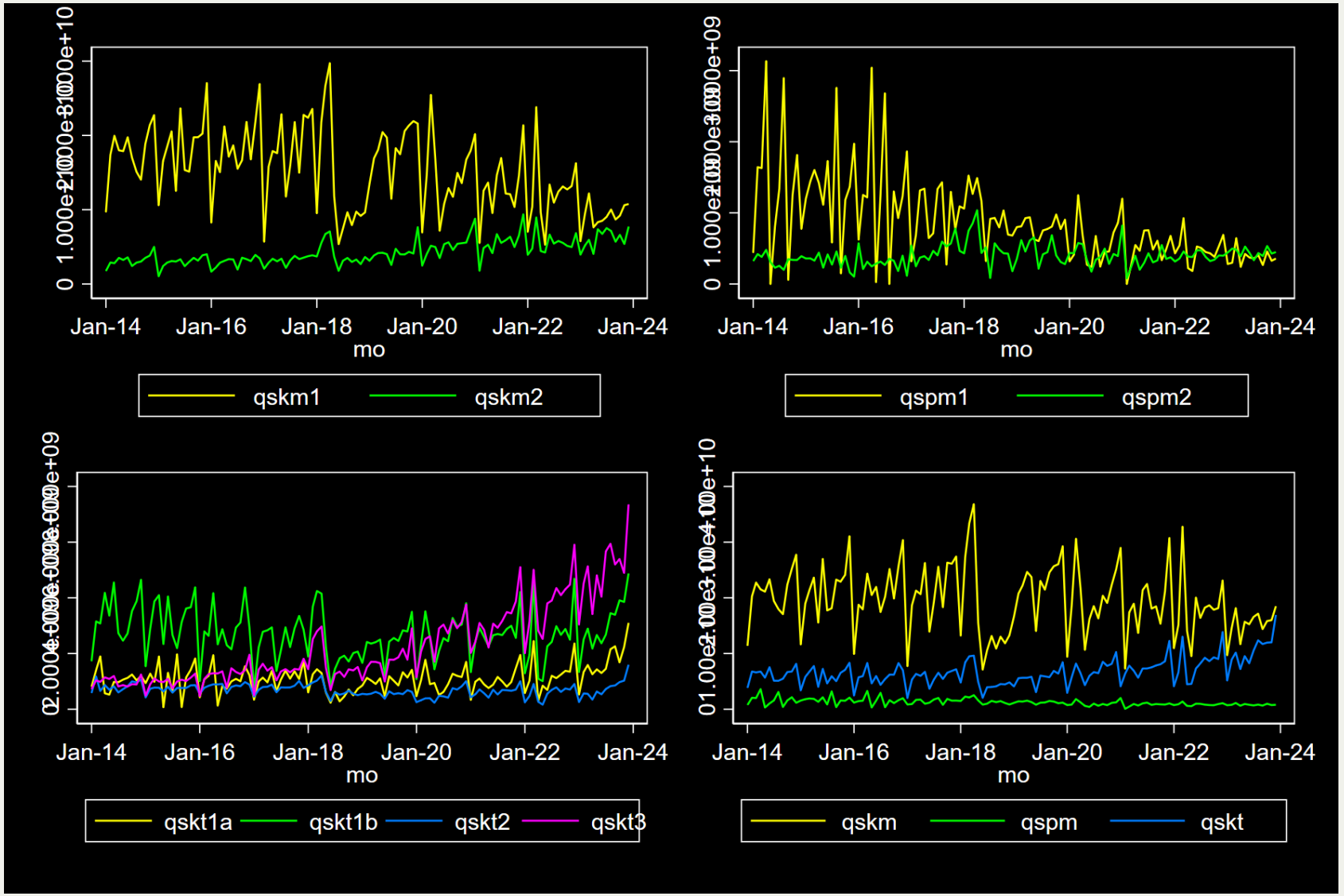
Market Prices



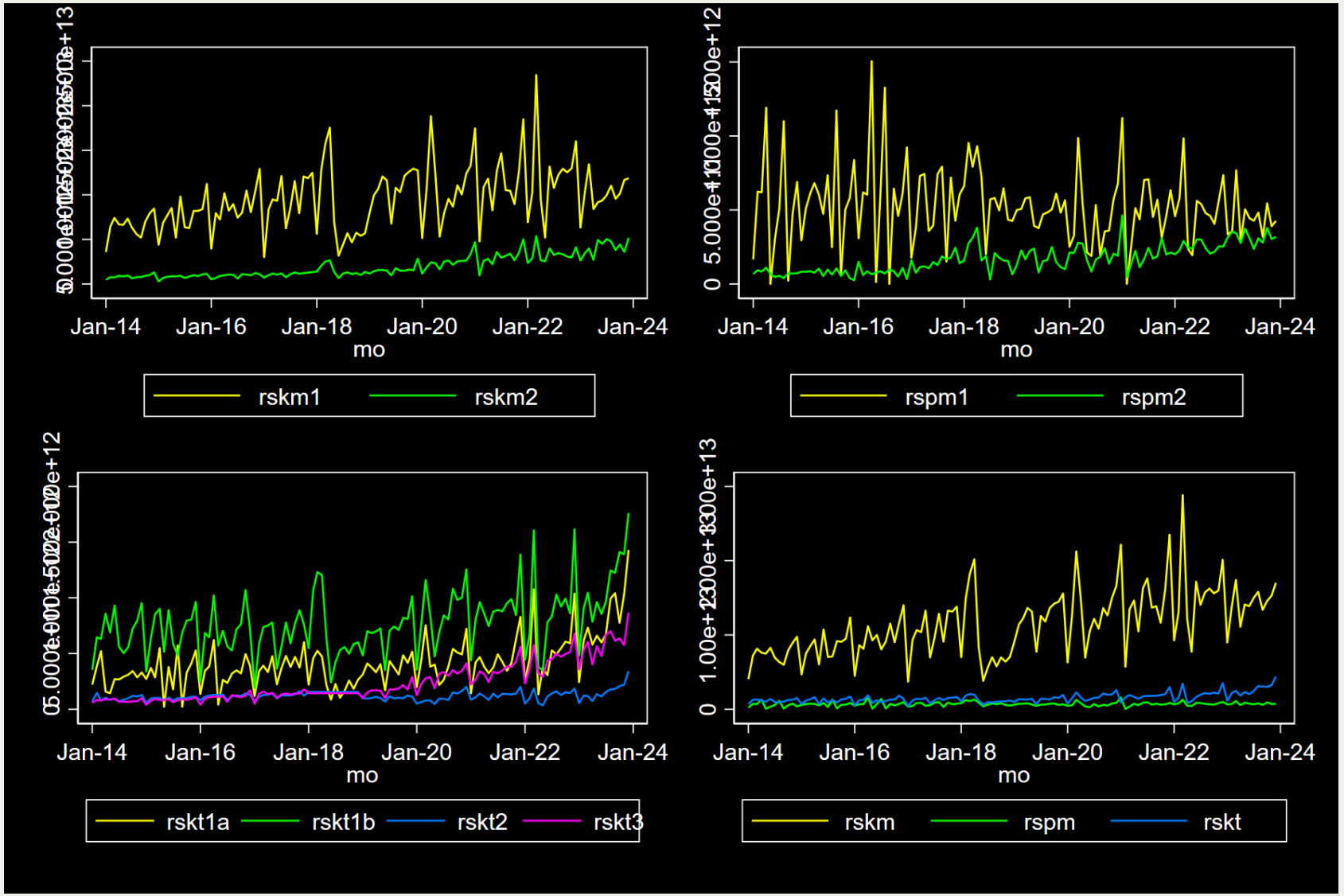
Base price


2000
1500
1000
500
value
2014
2016
2018
2020
2022
2024
mo
kind
lskm1
lskm2
lskt1a
lskt1b
lskt2
lskt3
lspm1
lspm2

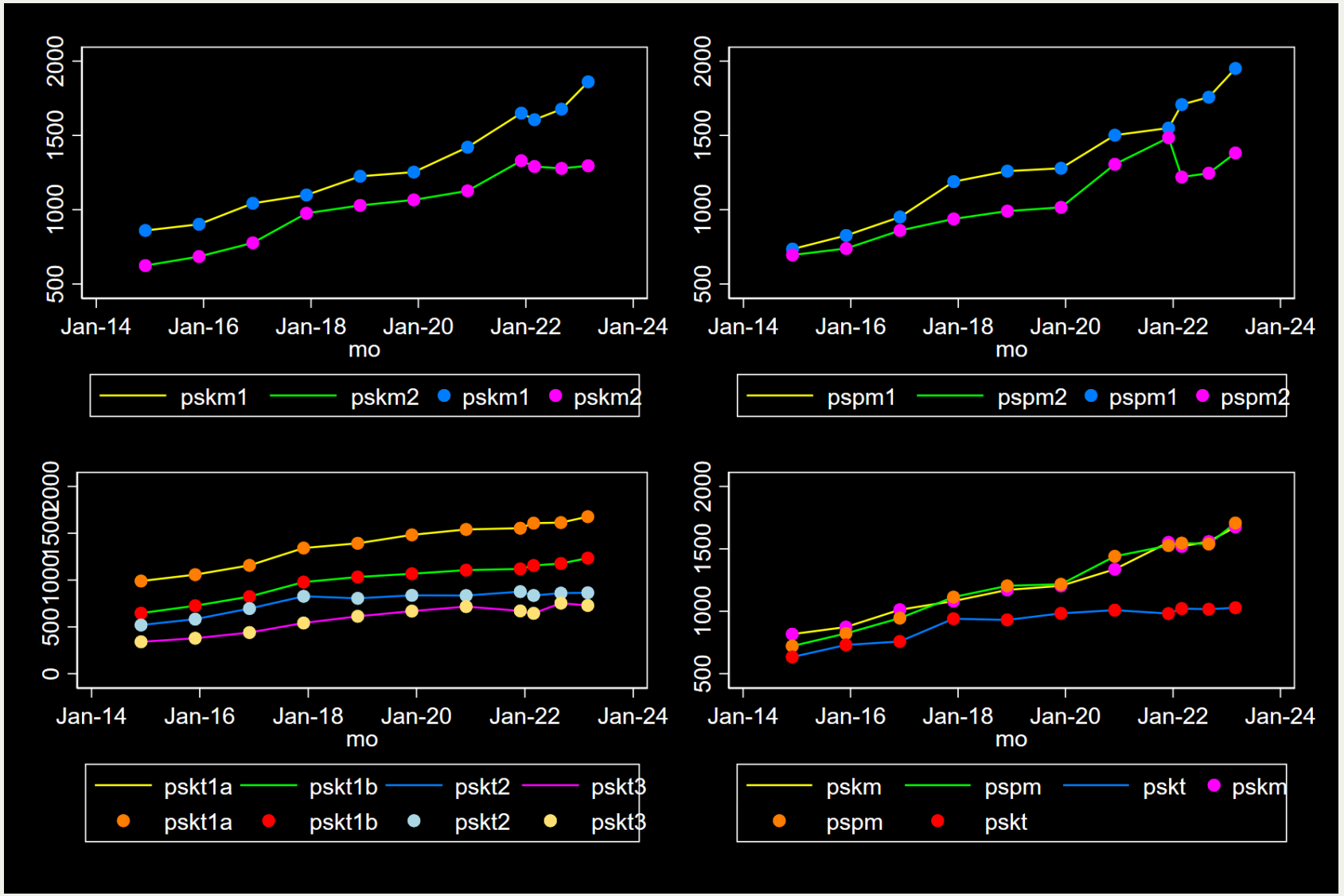
Demand


Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
mo
qskm1
qskm2
qspm1
qspm2
qskt1a
qskt1b
qskt2
qskt3
qskm
qspm
qskt

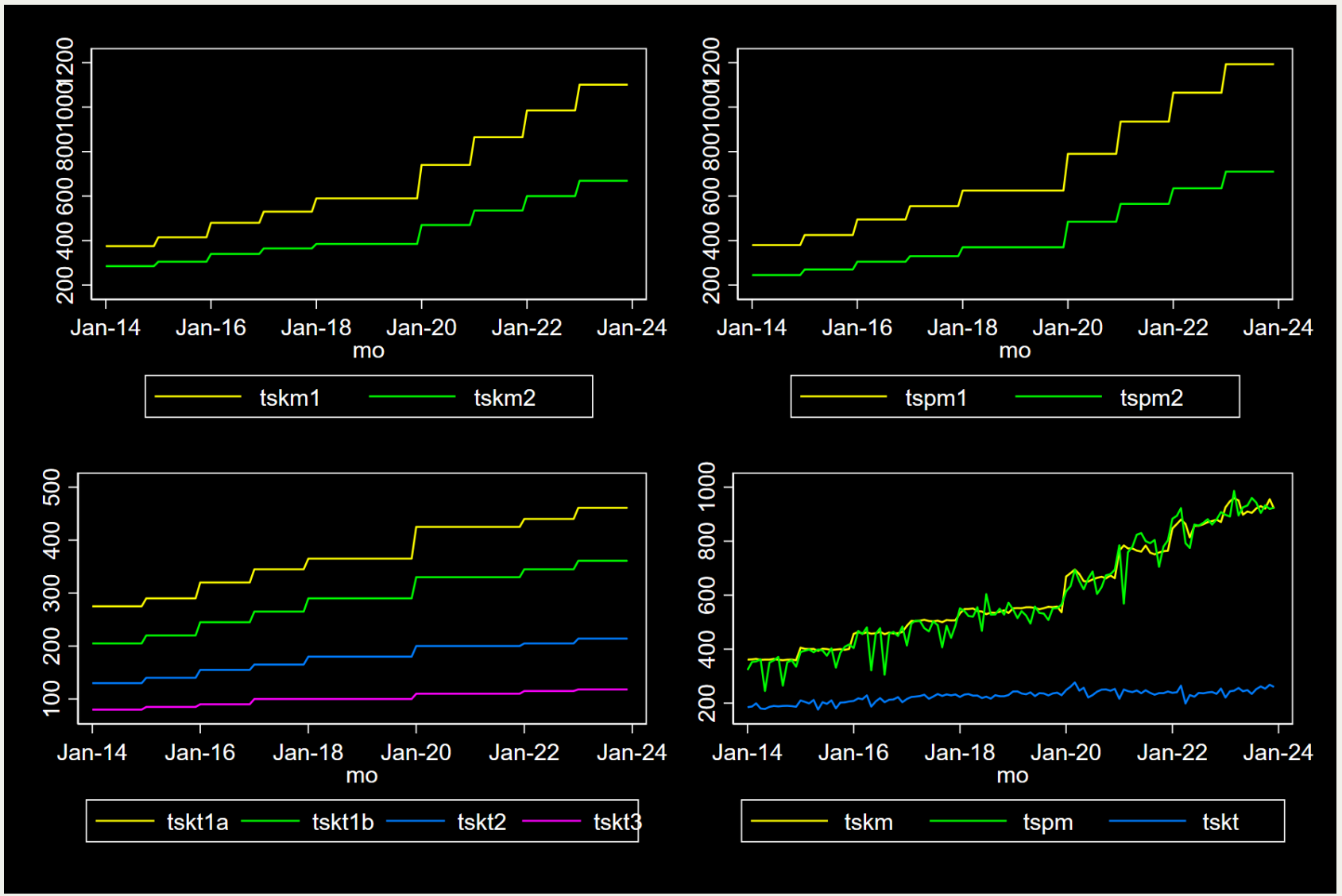
Tariff revenue



Market price per stick



Tariff per stick



Analysis

- There are clear negative trend on the higher tariff brackett, positive trend on the lower tariff brackett.
- There is an important cutoff point on early 2018, coincident with the divergence point of the base price.
- Quantity: Hand-rolled kretek (SKT) catched up with the machine kretek (SKM). Limited growth in revenue. Jobs is unclear, but since SKT is more labor intensive, it is possible we have net positive on labor absorption.
- “Control” goal doesn’t seem to progress.

SURE reg

VARIABLES	(1) lgskm	(2) lgspm	(3) lgskt
lpkf	-1.077	-0.395	6.988***
	(1.752)	(2.820)	(1.701)
lpp	-3.182***	1.781	-2.114*
	(1.181)	(1.901)	(1.147)
lpk	5.334**	-1.026	-5.712**
	(2.502)	(4.027)	(2.429)
lgni	0.0777	-2.039*	1.081
	(0.711)	(1.144)	(0.690)
Constant	12.76*	49.92***	12.99*
	(7.578)	(12.20)	(7.360)
Observations	120	120	120
R-squared	0.105	0.153	0.314

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- Use limited (but monthly) box price
- cross-price seems strong.
- filtered=machine is assumed.
- No information how much stick in the box.

Conclusion

- Cannot say too strongly on “substitution” amid price data limitation. E-cigs may have effects, but also no data.
- More granular data (both firms and retail) would be necessary.
- But support towards substitution is there, with indicative price elasticity of substitution at 5%.
  - without quantity per box, hard to say tax elasticity.

Referred

Hidayat, Budi, and Hasbullah Thabrany. 2011. “Are Smokers Rational Addicts? Empirical Evidence from the Indonesian Family Life Survey.” Journal Article. *Harm Reduction Journal* 8: 6. https://doi.org/https://doi.org/10.1186/1477-7517-8-6.

Prasetyo, Bagus Wahyu, and Vid Adrison. 2020. “Cigarette Prices in a Complex Cigarette Tax System: Empirical Evidence from Indonesia.” *Tobacco Control* 29 (6): 618–23. https://doi.org/10.1136/tobaccocontrol-2018-054872.