

SUPPLEMENTARY MATERIAL

1. Sensitivity analysis using various sets of price elasticity

	Lower bound elasticity			Main analysis			Upper bound elasticity		
	2020 tax level	30% tax increase	45% tax increase	2020 tax level	30% tax increase	45% tax increase	2020 tax level	30% tax increase	45% tax increase
Price elasticity of kretek cigarette	-0.231	-0.231	-0.231	-0.800	-0.800	-0.800	-0.840	-0.840	-0.840
Price elasticity of white cigarette	-0.300	-0.300	-0.300	-0.338	-0.338	-0.338	-0.967	-0.967	-0.967
Cross-price elasticity	0.163	0.163	0.163	0.163	0.163	0.163	0.163	0.163	0.163
Tax increase (kretek)	24%	30%	45%	24%	30%	45%	24%	30%	45%
Tax increase (white)	27%	30%	45%	27%	30%	45%	27%	30%	45%
Price increase (kretek)	21%	24%	33%	21%	24%	33%	21%	24%	33%
Price increase (white)	23%	25%	35%	23%	25%	35%	23%	25%	35%
Changes in cigarette consumption	-1.09%	-1.59%	-2.04%	-12.40%	-14.84%	-19.98%	-13.87%	-16.50%	-22.24%
Changes in cigarette spending	19.55%	22.38%	30.29%	5.91%	5.94%	6.49%	4.10%	3.84%	3.41%
Changes in tax revenue									
Cigarette excise revenue	22.58%	27.91%	42.00%	8.68%	10.81%	16.18%	6.71%	8.52%	12.68%
Subnational tax revenue	22.58%	27.91%	42.00%	8.68%	10.81%	16.18%	6.71%	8.52%	12.68%
VAT revenue	19.55%	22.38%	30.29%	5.91%	5.94%	6.49%	4.10%	3.84%	3.41%
Changes in total cigarette tax revenue	22.09%	27.03%	40.13%	8.23%	10.03%	14.63%	6.29%	7.77%	11.20%
Impact in Simulation A (<i>The optimal government spending allocation</i>)									
Impact on output (Rp trillion)	122.15	150.19	224.48	46.22	56.95	84.15	35.51	44.47	65.17
Impact on income (Rp trillion)	36.58	44.72	66.35	13.61	16.56	24.12	10.39	12.81	18.43
Impact on employment (thousand)	531.27	661.38	1,004.04	208.30	263.29	400.27	162.23	209.51	317.88

2. Sensitivity analysis using a different assumption of tax pass-through

	Tax under-shift			Full tax pass-through			Tax over-shift		
	2020 tax level	30% tax increase	45% tax increase	2020 tax level	30% tax increase	45% tax increase	2020 tax level	30% tax increase	45% tax increase
Tax increase (kretek)	24%	30%	45%	24%	30%	45%	24%	30%	45%
Tax increase (white)	27%	30%	45%	27%	30%	45%	27%	30%	45%
Price increase (kretek)	7%	11%	19%	21%	24%	33%	44%	47%	56%
Price increase (white)	21%	22%	32%	23%	25%	35%	58%	60%	70%
Changes in cigarette consumption	-2.50%	-4.93%	-10.07%	-12.40%	-14.84%	-19.98%	-24.71%	-27.15%	-32.28%
Changes in cigarette spending	5.03%	5.73%	7.82%	5.91%	5.94%	6.49%	8.69%	7.73%	6.04%
Changes in tax revenue									
Cigarette excise revenue	20.83%	23.58%	30.42%	8.68%	10.81%	16.18%	-6.53%	-5.15%	-1.62%
Subnational tax revenue	20.83%	23.58%	30.42%	8.68%	10.81%	16.18%	-6.53%	-5.15%	-1.62%
VAT revenue	5.03%	5.73%	7.82%	5.91%	5.94%	6.49%	8.69%	7.73%	6.04%
Changes in total cigarette tax revenue	18.30%	20.72%	26.81%	8.23%	10.03%	14.63%	-4.10%	-3.09%	-0.39%
Impact in Simulation A (<i>The optimal government spending allocation</i>)									
Impact on output (Rp trillion)	106.81	120.92	156.21	46.22	56.95	84.15	-28.87	-22.34	-5.40
Impact on income (Rp trillion)	30.12	34.10	44.12	13.61	16.56	24.12	-6.59	-4.94	-0.55
Impact on employment (thousand)	523.76	592.75	763.71	208.30	263.29	400.27	-190.89	-152.65	-57.33

Note: Tax under shift assumption is based on tax pass-through coefficients estimated by Prasetyo & Adrison, (2020). Meanwhile, the over-shift assumption is estimated based on level of cigarette tax pass-through in 2020 (MoF's regulation No. 152/PMK.010/2019)

3. Analysing tax pass-through by year and by cigarette segment

The trends in actual HJE and estimated HJE over the past 10-15 years show that the tax pass-through fluctuates year-to-year. The estimated HJE is obtained by assuming the actual weighted average excise tax per year and an annual increase in NOT (net-of-tax) price equal to annual inflation. In the case of machine-made cigarettes, the industry over-shifted the tax during 2007-2010 for SKM (machine-made kretek cigarettes) and in 2007-2008 for SPM (machine-made white cigarettes), then under-shifted until 2015, and over-shifted again in 2016 and 2017 (Figure 1 and Figure 2). On the other hand, in the case of SKT (hand-rolled kretek cigarettes) (see Figure 3), the industry has been consistently over-shifting the tax onto the consumers.

Figure 1. Actual versus estimated HJE, SKM

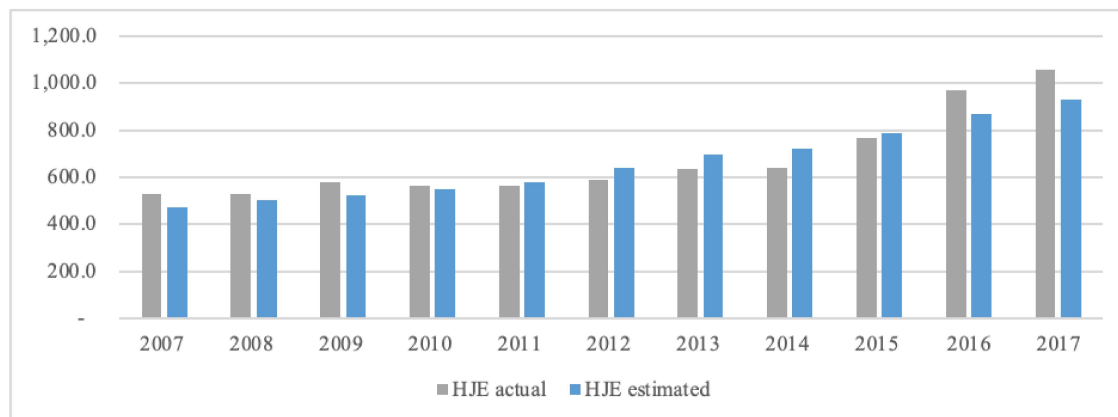


Figure 2. Actual versus estimated HJE, SPM

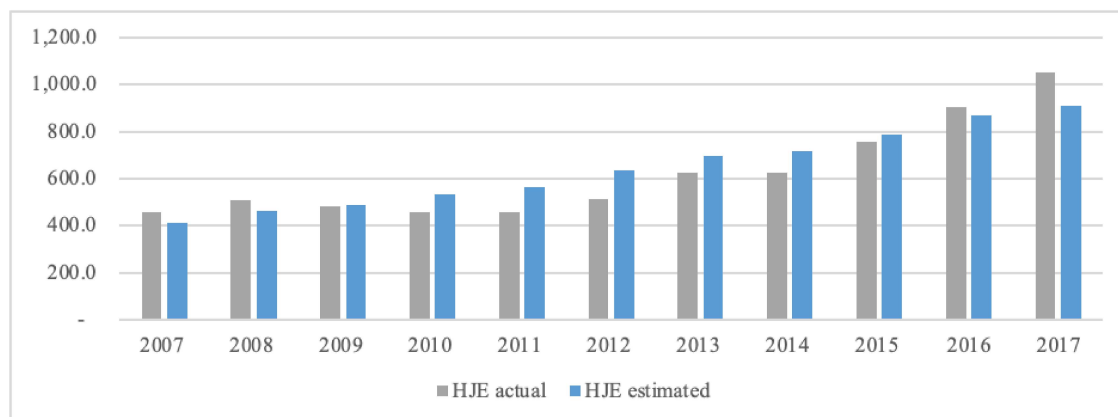


Figure 3. Actual versus estimated HJE, SKT

