Project: accelerating tobacco taxation policy in lower-middle income countries

Estimating tobacco price elasticity in Kosovo: using the micro data from Household Budget Survey (2007-2017) and Deaton demand model

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Kosovo country profile and main macroeconomic indicatiors:

- It's a small country located in SEE/Western Balkans
- Territory of 10,905.25 km2
- Capital city: Prishtina
- Income Category (2018): Lower Middle Income
- Population: 1, 798,506 (2011)
- Gross domestic product, (2017 in millions EUR): 6,282.2
- Unemployment rate (2017 in %): 30.5%
- Net wages (2017 in EUR): 452

Smoking prevalence and cigarette prices

- **Kosovo Statistical Office, data:**

16% total
24% male and 8% female
- **Alternative estimates:**
28.4% total
37.4% male and 19.7% female
(age 15-64), Gashi et a*l* (2017)
- **Low price** for a pack of cigarettes, the cause for high prevalence of tobacco smoking: **average € 1.94 Kosovo, average €4.8 EU**
- Tobacco excise tax standards: **EU 90 EUR,** Kosovo 47 euro per unit (1000 cigarette)
- All tobacco products are imported, irrelevant productions
- The government is concerned on revenue loss, if the taxes are higher.

Estimating tobacco price elasticity in Kosovo

Tax increase is proved to be the single most effective policy in reducing tobacco consumption.

Literature shows that in LMIC, households' consumption to the price changes are typically more pronounced than in the developed countries.

Evidence from international research shows that price elasticity of demand for cigarettes in developed countries ranges between -0.25 to -0.5, as compared to the low an middle-income countries where the estimates vary between -0.5 and -1.

Methodology: Deaton Model (1988)

- For this model Household expenditure data are used, and typically these data do not contain prices;
- model of consumer choice, uses the ratio between consumption and quantity to calculate unit value of cigarettes, which is a proxy for prices;
- Deaton Model, is a three-stage model which utilizes regional (and time) variation in budget shares and unit values to estimate the price elasticity
- It controls for household total consumption, household size and other household characteristics (gender, age, education, settlement)

Data

- In this paper the Household Budget Survey data from 2007 to 2017 are used
- We restrict the sample to household with positive cigarette consumption, therefore calculating only the elasticity on the intensive margin

Unit value of cigarettes, budget shares for cigarettes from total household expenditure

VARIABLES	Real Cigarette Unit Value (mean per month)	Cigarettes budget share (mean per month for HHs buying cigarettes)	Real Average monthly household expenditures for all HHs
2007	1.03	0.06	604.36
2008	0.99	0.06	639.84
2009	1.22	0.06	655.80
2010	1.13	0.06	663.03
2011	1.13	0.07	619.25
2012	1.26	0.08	645.67
2013	1.22	0.07	647.43
2014	1.23	0.08	641.88
2015	1.34	0.08	643.83
2016	1.43	0.08	646.83
2017	1.52	0.09	657.68

Regression results

VARIABLES	Unit Value (per pack, ln)		Cigarettes budget share (in %)	
Total expenditure (ln)	0.208***	(0.010)	-0.042***	(0.001)
Household size (ln)	-0.121***	(0.011)	0.005***	(0.001)
Male ratio	-0.019	(0.025)	0.014***	(0.002)
Adult ratio	-0.086***	(0.025)	0.013***	(0.002)
Mean education	0.001	(0.002)	-0.001***	(0.000)
Maximum education	0.001	(0.002)	-0.001**	(0.000)
Household type – Employed	omitted			
Unemployed	-0.044	(0.038)	-0.003***	(0.003)
Pensioners	-0.002	(0.014)	0.001	(0.001)
Self-employed	0.028**	(0.010)	0.001	(0.001)
Cluster dummies	$F_{(340, 8643)}$		$F_{(343, 9864)}$	
	5.674***		3.975***	
Constant	-0.964***	(0.065)	-0.331***	(0.006)
Observations	8,993		10,217	
R-squared	0.2612		0.2924	

Results

- Results of the estimation indicate a negative price elasticity of cigarettes which amounts to −0.288 and this means that, if the prices in Kosovo increase by 10% the demand for cigarettes will decrease by 2.8%.
- Standard error of the elasticity calculated via bootstrapping procedure (1000 replications) indicates that the elasticity is significantly lower than zero (ξ= -0.288; SE_ξ = 0.097, t = -2.969)
- total expenditure elasticity is, in line with the expectations; positive and estimate at 0.242.
- When interpreting this result, we have to be cautious of the sample of the analysis; the households with positive consumption, with such sample the estimate indicates the elasticity on intensive margin.

Conclusions

- The price elasticity is negative but inelastic.
- If the government increases the prices, the decrease of demand will not be proportional
- This would in turn increase the government revenue from cigarettes (if nothing else changes)

- We need a broader regulation (Western Balkans level) so that the consumers do not go to other countries to by cigarettes or to prevent illicit trade

- Wider policy perspective : main concern of the government should be people's health and not revenues