

The relationship between illicit cigarettes and the legal tobacco market in South Africa

by

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Declaration

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Abstract

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This paper investigates the constraint imposed on the legal tobacco market by the presence of illicit cigarettes. You need to use **Latex syntax** in this environment. E.g. Boshoff *et al.* (2020) and Tschantz en Froeb (?).

This is the second paragraph of my English abstract.

Acknowledgements

I would like to express my sincere gratitude to the following people:

- Prof. Willem H. Boshoff for his exhaustive feedback as supervisor.
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Chapter 1

Introduction

This study examines the relationship between the legal and illegal tobacco markets in South Africa. Section 3 discusses the data used and how it was cleaned. Section 4 explains the methodology, where a VECM model is presented. The final section details discussion points (5). The appendix contains the full model outputs.

Chapter 2

The Illicit Tobacco Market

The Financial Action Task Force (2012:7) defines the illicit cigarettes trade as “... the supply, distribution and sale of smuggled genuine, counterfeit or cheap white tobacco products.” In broad terms, the illicit tobacco market comprises any activity regarding tobacco goods that fails to comply with legislation (South African Police Service, Hawks, 2018).

The illicit tobacco market gives rise to concern on three distinct fronts: health, tax and crime. From a public health perspective, illicit cigarettes make smoking more affordable and thereby increases tobacco access. Cheaper cigarettes may induce non-smokers to smoke, increase the volume of cigarettes consumed by smokers, and decrease the likelihood that smokers will quit smoking.

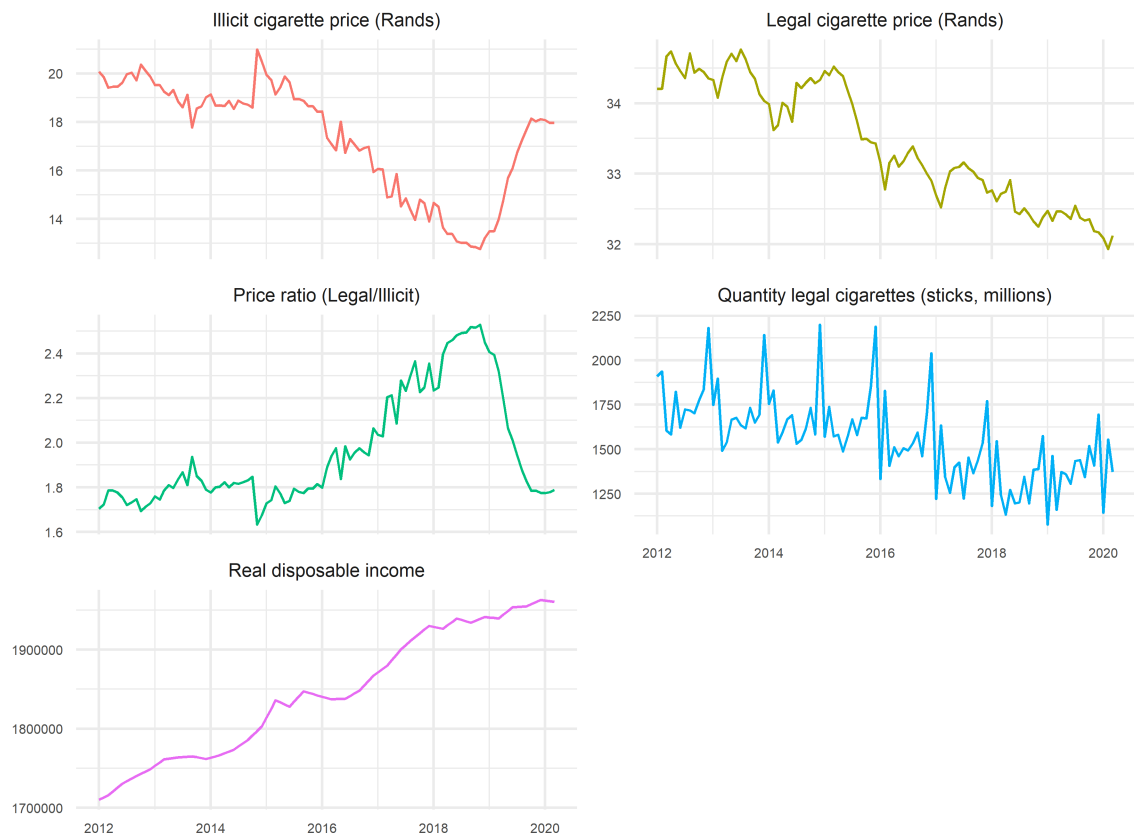
The health problems associated with tobacco use significant and have been well-documented (International Agency for Research on Cancer, 2011). The health issues linked to smoking increase the burden placed on the public healthcare facilities of a country. In South Africa the total cost to the public sector amounted to R. In order to reduce tobacco consumption, many countries implement a tax on cigarettes, which is related to the second problem that the illicit tobacco market raises.

From a fiscal perspective, the illicit tobacco industry threatens government revenues. It is estimated

Chapter 3

Data

The sample period for this study runs from January 2012 to March 2020. Monthly data is used such that there are 99 observation points for each variable in the data set. One of the advantages of using monthly data rather than annual data is that it allows for more degrees of freedom. The data used includes figures for the prices and volumes of cigarettes in South Africa, tobacco excise duties, VAT, and disposable income. To prepare the data for analysis the most popular price category (MPPC) was identified as the 20-cigarette pack. Then a weighted average of before-tax 20-pack prices was used as a base price. The excise duty per 20's pack and VAT and were then added to the base price to calculate the price of licit cigarettes. The licit, illicit and disposable income amounts were adjusted for inflation, taking December 2016 as the base month and year. All of the variables have been transformed into log form.



Chapter 4

Methodology

4.1 Stationarity

Running the ADF tests.

Table 4.1: This is my caption

Statistic	p.value	parameter	method	alternative
-4.67	0.0100	4	Augmented Dickey-Fuller Test	stationary
-1.44	0.8084	4	Augmented Dickey-Fuller Test	stationary
-3.31	0.0739	4	Augmented Dickey-Fuller Test	stationary

4.2 Cointegration

4.3 VECM

The price ratio captures a relative change of the legal price compared to the illicit price. If the ratio shrinks, it indicates that the cost of legal cigarettes decreased relative to the cost of illicit cigarettes. There should be a negative long run relationship between the price ratio and the quantity of legal cigarettes. There should be a positive sign for the cointegrating relationship, which there is. The coefficient for the real disposable income variable should be negative for the long-run relationship (so that the reverse sign is positive); whereas the sign is positive in the Vecm results below.

Table 4.2:
This is
my
caption

r1
1
0.398
1.5

Table 4.3: This is my caption

ECT	Intercept	QDP -1	PRATIO -1	REAL -1
-0.9443(0.1526)***	27.7687(4.4890)***	-0.1910(0.0964).	-0.9964(0.3181)**	2.3116(4.4102)
-0.0077(0.0511)	0.2274(1.5033)	0.0148(0.0323)	-0.1555(0.1065)	0.3575(1.4769)
0.0010(0.0030)	-0.0299(0.0870)	0.0004(0.0019)	0.0019(0.0062)	0.5833(0.0855)***

If the real disposable income variable is excluded then the Vecm results are as follows. The coefficient for

1.00	r1.00
QDP	1.00
PRATIO	0.75

	ECT	Intercept	QDP -1.00	PRATIO -1.00
Equation	-	-		
QDP	0.64(0.14)***	5.05(1.08)***	0.35(0.09)***	-0.91(0.35)*
Equation				
PRATIO	0.01(0.04)	-0.07(0.34)	0.01(0.03)	-0.17(0.11)

4.4 Residual Testing

Chapter 5

Analysis

Chapter 6

Conclusion

Appendices

Appendix A

Behind the Scenes

This is the example appendix.

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