Taxing Beverages that Drive Irresponsibly?

Dennis Petrie
Chris Doran

School of Population Health/School of Economics

University of Queensland

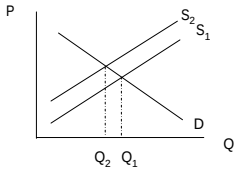
Email : d.petrie@uq.edu.au

SCHOOL OF POPULATION HEALTH
THE UNIVERSITY OF QUEENSLAND

Externalities of Alcohol

- From an "economic perspective"
- If a (fully informed) individual's consumption effects only themselves then no taxes should exist on that product.
- However with alcohol this is not always the case.
- Externalities exist with alcohol - someone drinking can effect (imposes a cost on) someone else.

Externalities of Alcohol



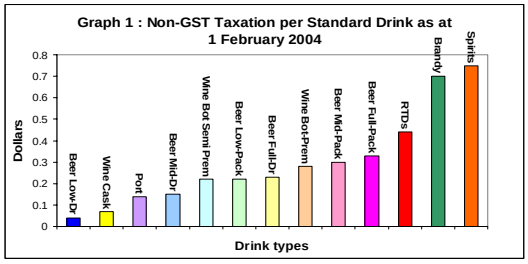
- S_1 Cost of producing good
- S_2 Cost of producing good plus the extra cost to society

- Due to these externalities with alcohol too much alcohol is consumed from a societal perspective.
- This provides a reason for taxes to be used in order to decrease alcohol use to a more optimal level

Alcohol Externalities

- Alcohol is unique, not all drinking causes the same degree of harm
- In theory we want to be able to tax risky drinking behaviour rather than tax all drinking behaviour
- In reality no easy mechanism to tax risky drinking exists
- One option - impose a higher tax on those alcoholic beverages – which promote risky drinking behaviour

Taxation



Question

- Which beverage types are associated with risky drinking/cause the most harm?
- Which beverages should be taxed the heaviest?
- Stockwell (1998) found that high-strength beer and cask wine were significantly related to night-assaults and acute alcohol related morbidity in Western Australia, no significant effect was found for bottled wine
- It was also found that low-strength beer was negatively associated with these harms

Road Fatalities and Alcohol Use

- Alcohol impairs cognitive ability
- DUI can contribute to traffic accidents and traffic fatalities.
- This is just one of the many externalities due to alcohol use
- A type of tax is imposed on those who get caught for DUI via a fine/loss of license.

Road Fatalities and Alcohol Prices

- We investigate the relationship between the price of different alcohol products (beer, wine and spirits) and the number of weeknight/weekend traffic fatalities
- Weeknight/weekend classified as 6pm-6am weekdays plus all day Saturday and Sunday.

Panel Data

- Time frame – 1989 March till 2006 June
- Dependent variable – weeknight/weekend fatalities in each state (RTA)
- Independent variables –
  - "Real Prices indices" beer, wine, spirits (ABS data)
  - Weekday fatalities
  - Seasonal effects
  - Time trend

Regression Model

- Log-log model used
- Cross-sectional fixed effects model

(controls for constant factors in each state)

- Prices indices for beer, wine and spirits adjusted using total CPI for each capital city

NT, ACT and TAS not included because of low number of fatalities

Regression Results

Variable	Coefficient	Std error	P-value
Log(beer)	**-0.802**	**0.427**	**0.061**
Log(wine)	0.160	0.289	0.581
Log(spirits)	**-0.863**	**0.345**	**0.013**

Regression Results

- 10% increase in the real price of beer results in a 8.0% reduction of weeknight/weekend fatalities
- 10% increase in the real price of spirits results in a 8.6% reduction of weeknight/weekend fatalities

Regression Results

- Over 2 times more income is spent on beer than spirits in Australia
- Suggesting that the consumption of spirits are more likely to be associated risky driving behaviour than beer
- Given many more people are likely to be effected by a 10% increase in the price of beer than a 10% increase in the price of spirits

Conclusion

- Price changes of beer and spirits appear to have the largest impact on the reduction of weeknight/weekend road fatalities.
- Price changes of wine does not appear to have an effect on weeknight/weekend road fatalities

Limitations

- No consistent data on the number of RBT's for each of the 5 states over the time period.
- Prices data are from capital cities and therefore do not take into consideration prices in rural areas
- Preferences over time may change

Limitations

- The prices for beer, wine and spirits are from a collection of products within this class
- This is mainly driven by prices changes of those goods which are heavily consumed by the population.
- Therefore some products within each product class may have a different effect.
- For example changes in the price of cask wine may have a different effect from price changes for bottled wine.

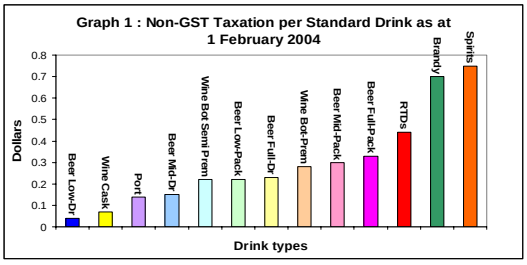
What should taxes aim to do?

- Discourage risky drinking behaviour
- and encourage safe drinking behaviour

Further Research

- Ideally if we had better data on the price of more specific alcohol products we could further investigate which products are causing the most harm and therefore which products should be taxed the heaviest.

Taxation



Thanks

SCHOOL OF POPULATION HEALTH
THE UNIVERSITY OF QUEENSLAND