# Using public policy to improve diet 

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## Introduction

- Over past decade IFS has developed a research agenda focused on understanding behaviour of consumers, manufacturers and retailers in the grocery market
- Motivation is to provide evidence of effectiveness of measures aimed at changing food consumption and improving diet
- Looked at a host of policies including
- taxation and minimum pricing
- information campaigns
- advertising restrictions
- encouraging product reformulation


## Introduction

- Key determinants to the success of policy (and our focus) include:
- Is it well targeted?
- Does policy impact on people where case for influencing behaviour is strongest? How are other people affected?
- How will consumers respond?
- How strongly do they switch away (towards) targeted goods? What do consumers switch towards (away from) instead?
- How will industry respond?
- Prices, advertising, product reformulation


## Outline of talk

Summarise work on two specific policy areas

- Price based measures to reduce alcohol consumption
- Sugar taxes and new soft drinks industry levy


## Taxation and minimum pricing in the alcohol market <br> 

## Aim of policy

- Motivation for intervention are:
- External costs associated with drinking (e.g. victims of violence, costs of funding NHS, lost tax revenue)
- "Internalities" - costs imposed on consumer that he/she doesn't take account of at point of consumption
- Extent of both likely to vary with:
- quantity consumed (first pint vs. umpteenth)
- across people (abusive vs. convivial drunk)
- Aim of policy should be to target most socially costly form of consumption


## Aim of policy

- Very difficult to target most socially costly type of consumption exactly
- But evidence suggests majority of social costs are down to a small group of heavy drinkers
- Policy that targets the consumption of heavy drinkers, while minimising impact of moderate consumers is likely to be well targeted


## In soon to be published work...

- We exploit data on off-trade alcohol purchases of a representative sample of over 10,000 households
- To model the effects on alcohol demand of introducing a minimum unit price (MUP) and of various tax reforms
- We estimate consumer price responsiveness in the alcohol market
- Allowing for the possibility of differential price responses between light, moderate and heavy drinkers


## Heavy drinkers tend to purchase cheaper and stronger alcohol

|  | Households |  |  | Average |  |
| :--- | ---: | ---: | ---: | ---: | :---: |
| Group | $\%$ |  | Price (p/unit) | ABV |  |
| Less than 7 units | 62.5 | 51.0 | 10.1 |  |  |
| $7-14$ units | 17.9 | 46.6 | 11.4 |  |  |
| $14-21$ units | 7.9 |  | 44.3 | 11.7 |  |
| 21-35 units | 7.2 |  | 42.8 | 12.3 |  |
| More than 35 units | 4.5 | 41.0 | 13.8 |  |  |
| Total | 100 | 48.6 | 10.8 |  |  |

Notes: We group households according to average units of alcohol they purchase per adult per week over calendar year 2010. Average price per unit and ABV show quantity weighted mean across all 2011 transactions. Data are from Kantar Worldpanel.

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## Targeting of policy

- Heavy drinkers tend to purchase both relatively cheap and relatively strong alcohol
- Policy that raises the price of cheap and/or strong alcohol will therefore be reasonably well targeted
- However effectiveness of policy will also depend on differential response to price changes of heavy and light drinkers


## Model of alcohol demand

- We use econometric model to estimate price elasticities in alcohol market; estimate:
- Price elasticities for disaggregate products
- If there is $1 \%$ price increase for a 1 bottle of branded gin; how would purchases of this product change? to what would people switch?
- Important as MUP/tax affect prices of similar products differentially
- How price elasticities vary across light, moderate, heavy drinkers


## Our estimates show:

- Heavy drinkers have higher product level own price elasticities


## Own price elasticities for alcohol products



Notes: The bars show the mean own price elasticities across products for each group of households. $95 \%$ confidence intervals are shown in grey|

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## Our estimates show:

- Heavy drinkers have higher product level own price elasticities
- But they also have higher cross price elasticities
- And overall their response to an increase in the price of all alcohol products is less


## Price elasticities for all alcohol



Notes: Bars show the percentage reduction in total alcohol units demanded following a $1 \%$ increase in the price of all alcohol products||for each group of households. $95 \%$ confidence intervals shown.

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## Policy simulations - MUP

- We use the model of alcohol demand to simulate the introduction of a minimum unit price for alcohol - illustrative rate of 45 p in 2012
- Policy affects a higher proportion of units purchased by heavy drinkers



## But proportionate demand effect is similar for light and heavy drinkers



Notes: $95 \%$ confidence intervals shown.

## Policy simulations－tax reform

－Alternative to MUP is reform of alcohol duties
－System is ripe for reform ．．．

## Current alcohol duties



## Current alcohol duties



## Current alcohol duties



## Policy simulations - tax reform

- Alternative to MUP is reform of alcohol duties
- System is ripe for reform ...
- Here I'll consider simple reform, not in conflict with EU law ...
- Increase in spirits duties
- We choose increase that results in same reduction in total units sold as under MUP
- Would reverse long run decline in spirits duty (same as real level in early 1980s)


## Results in similar reductions across light-heavy drinkers as

 MUP

| Household groups defined based on <br> average number of units per adult per week: <br> $<7$ <br> $21-35$$\quad 7-14$ |  |  | $14-21$ |
| :---: | :---: | :---: | :---: |

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## MUP vs. simple tax reform

- Both reforms lead to similar reductions in alcohol for heavy drinkers, with tax reform having less effect on lightest drinkers
- However tax reform has the significant advantage of raising more revenue
- While the MUP reduces tax revenue by $2.4 \%$ (while also raising industry revenue by $12.5 \%$ )
- The tax reform raises tax revenue by $4.5 \%$


## Taxing sugar: the soft drinks industry

 levy

## Aim of policy

- Rationale for intervention to curb sugar consumptions similar to that for alcohol
- Rests on existence of external and unanticipated future costs associated with (excess) consumption
- Again policy should be designed to best target those for whom these costs are most severe
- Over $90 \%$ of households get more than the recommended share of ( $5 \%$ of) calories from added sugar
- Taxing sugar has some additional complications over taxing alcohol


## The "soft drinks industry levy"

- Tax paid by producers and importers of soft drinks that contain added sugar implemented from April 2018 onwards
- excludes pure fruit juices and milk-based drinks
- The tax will operate with a specific revenue target of $£ 500$ million for the second year of implementation (2019-20)
- The OBR estimates that this implies levy rates of:
- Main rate charge: $18 \mathrm{p} /$ litre for drinks with $5-8 \mathrm{~g}$ of sugar per 100 ml
- Higher rate charge: 24 p /litre for drinks with more than 8 g per 100 ml
- Explicit justification of measure is to target excessive sugar consumption of children


## Soft drinks make up more of households with children's calories



Notes: Bars show the share of total added sugar bought (across all households) in 2013 from each food group shown on the horizontal axis. Data are from the Living Cost and Food Survey.

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## Tax design

- A sensible starting point for the tax would be a constant tax per gram of sugar
- The proposed tax is levied per litre of product, which means that tax per gram of sugar is lower for more sugary products


## Drinks that contain more sugar per 100 ml will attract a lower tax per gram of sugar



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## Soft drinks tax - summary

- Tax on sugary drinks may be a good starting point at reducing excess sugar consumption
- Soft drinks have little nutrients other that sugar
- But extent of switching to sugary alternatives will be an important determinant of policy's effectiveness
- Tax should be levied directly on sugar content


## Further questions: industry response

- Important in both alcohol and sugar cases
- How will prices changes?
- Will tax be fully passed to consumer prices? How will prices of untaxed products change?
- Will products above MUP see a changes in their prices?
- Will manufacturers reformulate products?
- MUP provides an incentive to lower alcohol content of products just above below price floor
- Soft drinks industry levy creates poor incentives for lowering sugar content
- These are large uncertainties that future work will hopefully shed light on ...

