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Price-based measures to reduce alcohol consumption

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Introduction

- Governments long been concerned about excess alcohol intake
- Excise taxes have been main price-based intervention to date
 - annual real-terms increases since 2008, planned to 2014
- Recent consideration of alternative policies:
 1. Minimum unit price (MUP)
 - floor price based on alcohol content
 - 1 unit = 10ml alcohol
 2. Banning quantity-based alcohol promotions
 - prohibit multi-buy deals, discounts on multi-packs

Current analysis: preliminary findings

- We compare the effectiveness of different price-based policies:
 - MUP of 45p
 - quantity discount ban
 - *reformed* excise tax system targeting alcohol strength
- We use detailed longitudinal household off-trade purchase data
- Make simple assumptions about behavioural responses and ask:
 - are policies well-targeted on ‘problem’ drinkers?
 - what are the implications for spending, tax revenue, firm revenue?
- Our results so far suggest that:
 - tax reform would be better-targeted than MUP
 - tax reform also raises revenue for government, not industry
 - quantity discount bans are very poorly-targeted

Outline structure

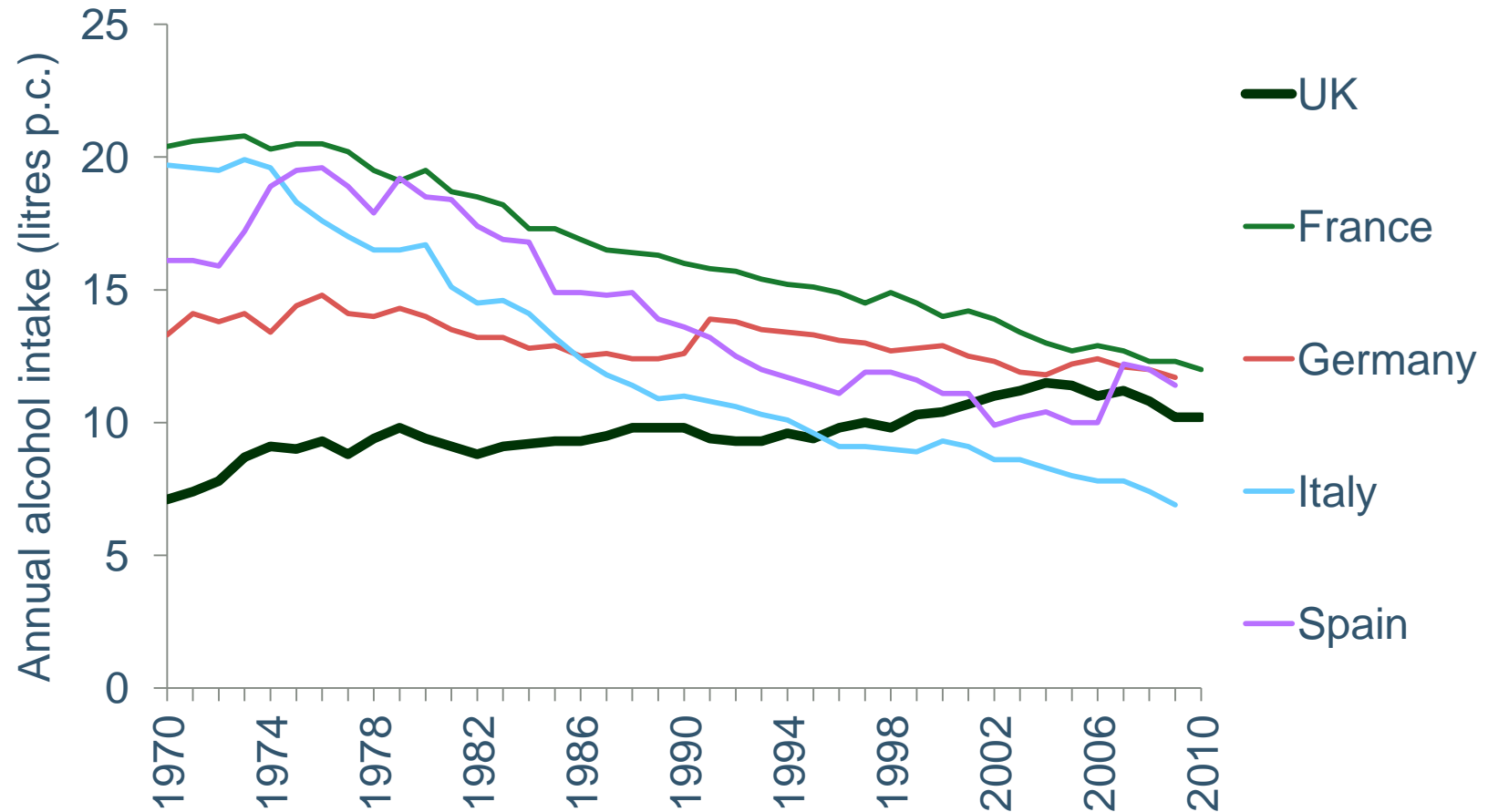
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Intake trend differs in UK from near-neighbours

Average intake of alcohol (litres per adult), 1970 to 2010

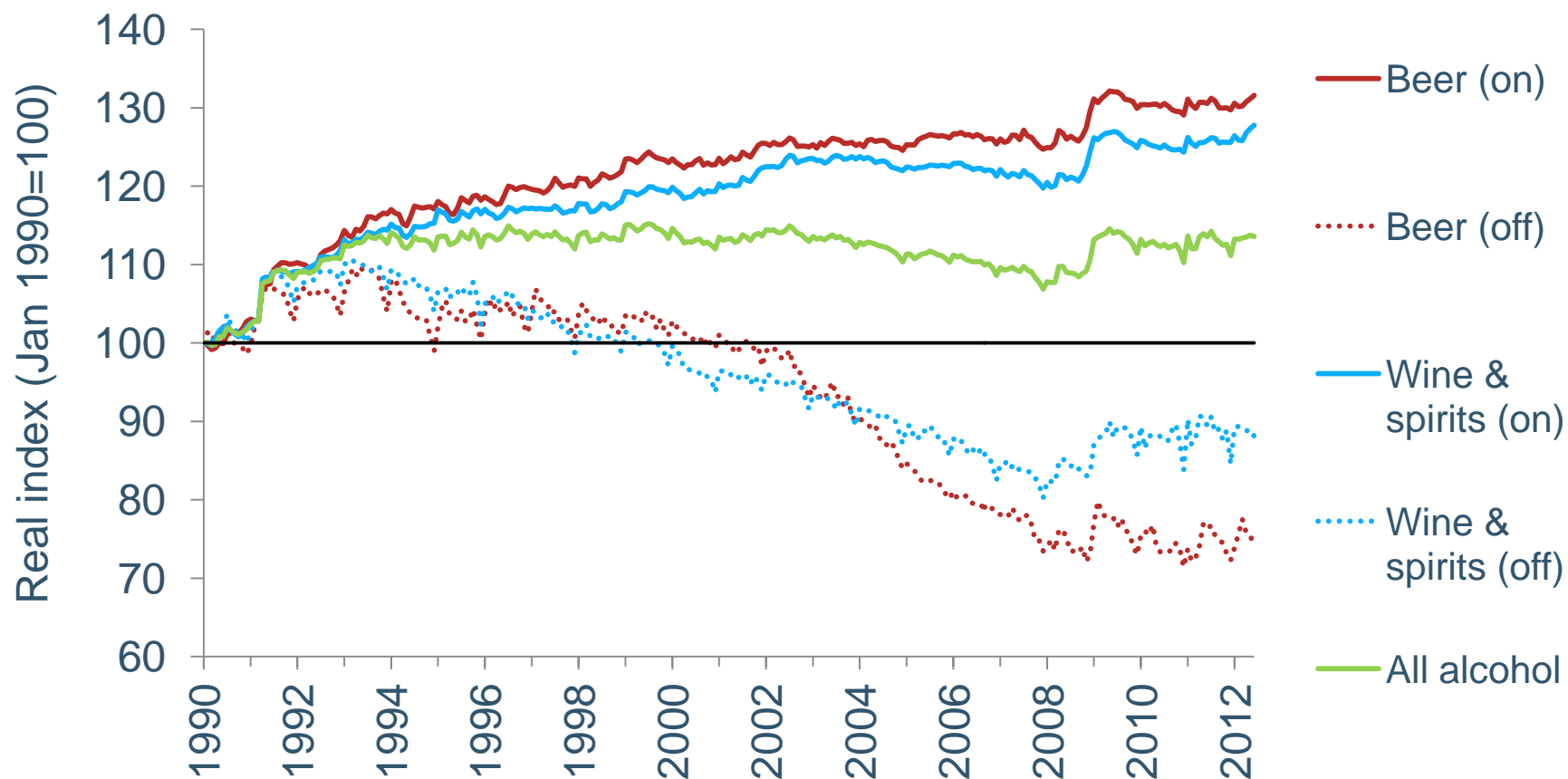


Source: OECD Health Statistics 2012

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Real alcohol price flat, but on/off differential

Relative alcohol price indices, 1990 to 2012

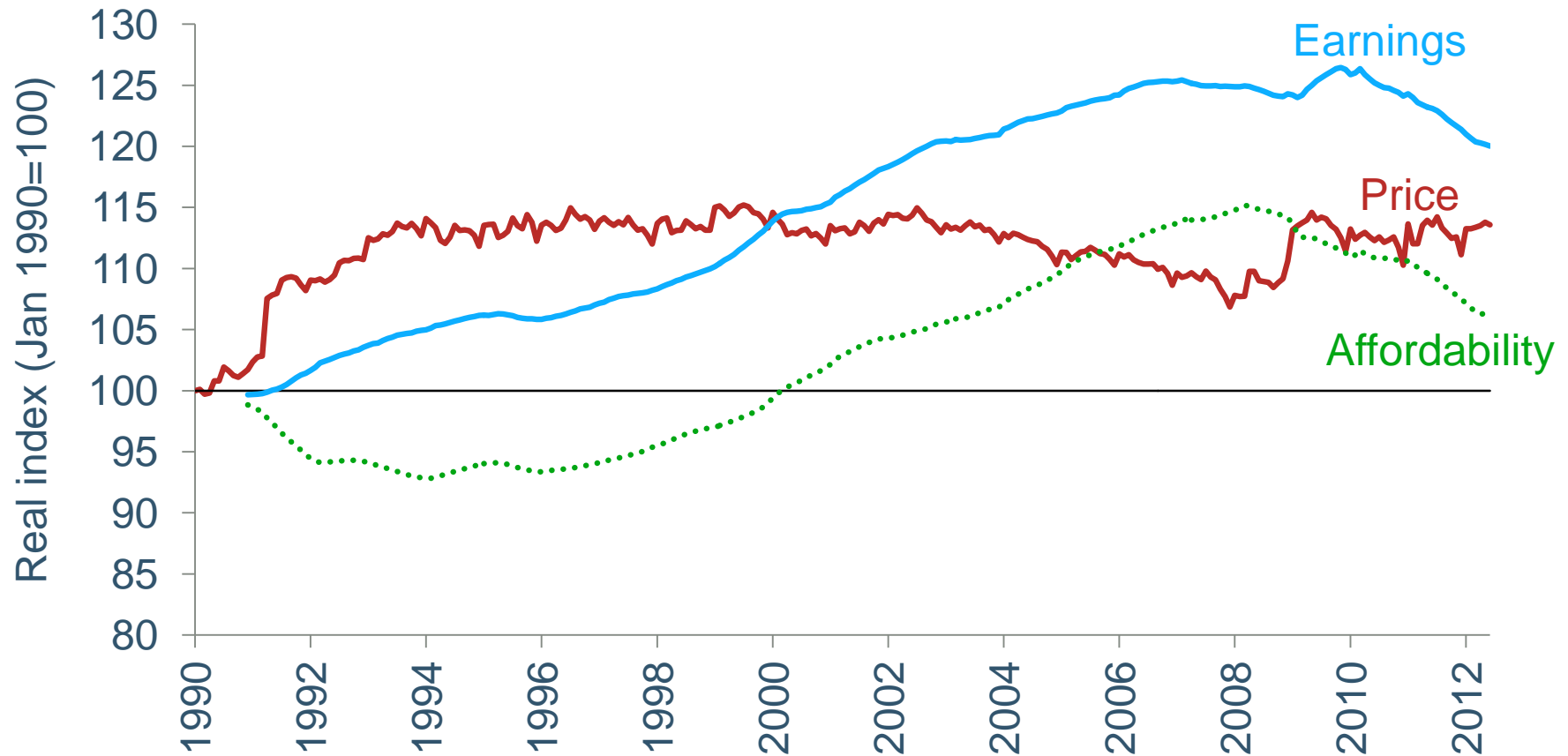


Source: Calculated from ONS Retail Prices Index data

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Alcohol affordability has recently fallen back

Real alcohol prices and real incomes, 1990 to 2012



Source: Calculated from ONS Retail Prices Index data and average earnings data.

Note: average earnings and affordability indices are 12-month moving averages.

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Rationale for price-based intervention

- Excess alcohol intake generates external costs
 - crime, anti-social behaviour, family problems
 - public costs of treating health harms, productivity spillovers
 - time inconsistency could generate externalities for future self
- Effective interventions depend on:
 - targeting ‘problem’ drinking: price according to marginal externality
 - varies across drinkers and drinks
 - may not be able to target high cost consumption directly
 - response to price changes
 - does demand for high cost units fall as price rises?
 - how do firms respond to intervention?
- Optimal policy needs to trade-off benefits from reducing problem consumption against costs of reducing low-cost consumption

Our analysis

- We explore whether policies effectively target heavy drinkers
 - average weekly intake above recommended levels
 - drinking small amounts unlikely to generate external costs
- Other drinking habits may also be of policy concern
 - binge drinking, under-age drinking
 - we do not have data on this specifically but interesting to explore
- Different reforms effectively targeted if heavy drinkers tend to:
 - buy cheap alcohol (minimum pricing)
 - buy strong alcohol (tax reform)
 - buy in bulk (quantity discount ban)

} assess with data
- We do not directly estimate price responsiveness to policy
 - assume values drawing on literature

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Data

- Market research in home scanner data from Kantar Worldpanel
 - GB household-level panel, sample size c. 25,000
 - households can drop out at any time, mean duration c. 2 years
 - demographics recorded at sign up, update approx. every 9 months
- Records each item purchased on each trip at barcode level
 - price matched in from till receipts, includes deal information
 - calculate ABV % from data, online sources and ONS
 - use HMRC data to match in excise tax levied on each purchase
- Use 52 weeks from Nov 2009 to Oct 2010
 - select sample of households who report spending consistently
 - 21,542 hhs (median: 301 day duration), 522,125 alcohol purchases
- Calculate units purchased per adult per week for each household

Data

- Data weighted so that observed spending in sample matches total off-trade spending from ONS National Accounts
 - lines up well with tax and quantity data from HMRC by alcohol type
- Key strengths
 - long observation period: purchases should approximate intake
 - large sample size
 - detailed purchase and price information
- Key weaknesses
 - no on-trade purchases
 - household-level not individual-level data
 - purchase not consumption (cannot measure e.g. bingeing)

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Alcohol purchase behaviour by intake level

Grouped by average off-trade units per adult per week

Units	N	%	Litres of drink per adult/week	Avg. strength (ABV)	Avg. pence per unit	% units on quantity discount
≤7	16,427	76%	0.2	10.5%	45.4	17.0%
>7, ≤14	2,586	12%	1.1	11.0%	42.5	16.1%
>14, ≤21	1,103	5%	1.8	12.3%	41.4	14.5%
>21, ≤35	898	4%	2.7	12.9%	39.5	13.7%
>35	528	2%	4.9	14.3%	37.5	11.5%

- NHS guidelines for ‘hazardous’ drinking:
 - 14+ units per week (6+ in one session) for women
 - 21+ units per week (8+ in one session) for men
- Our figures suggest 6 to 11% of households ‘hazardous’ on basis of average off-trade consumption

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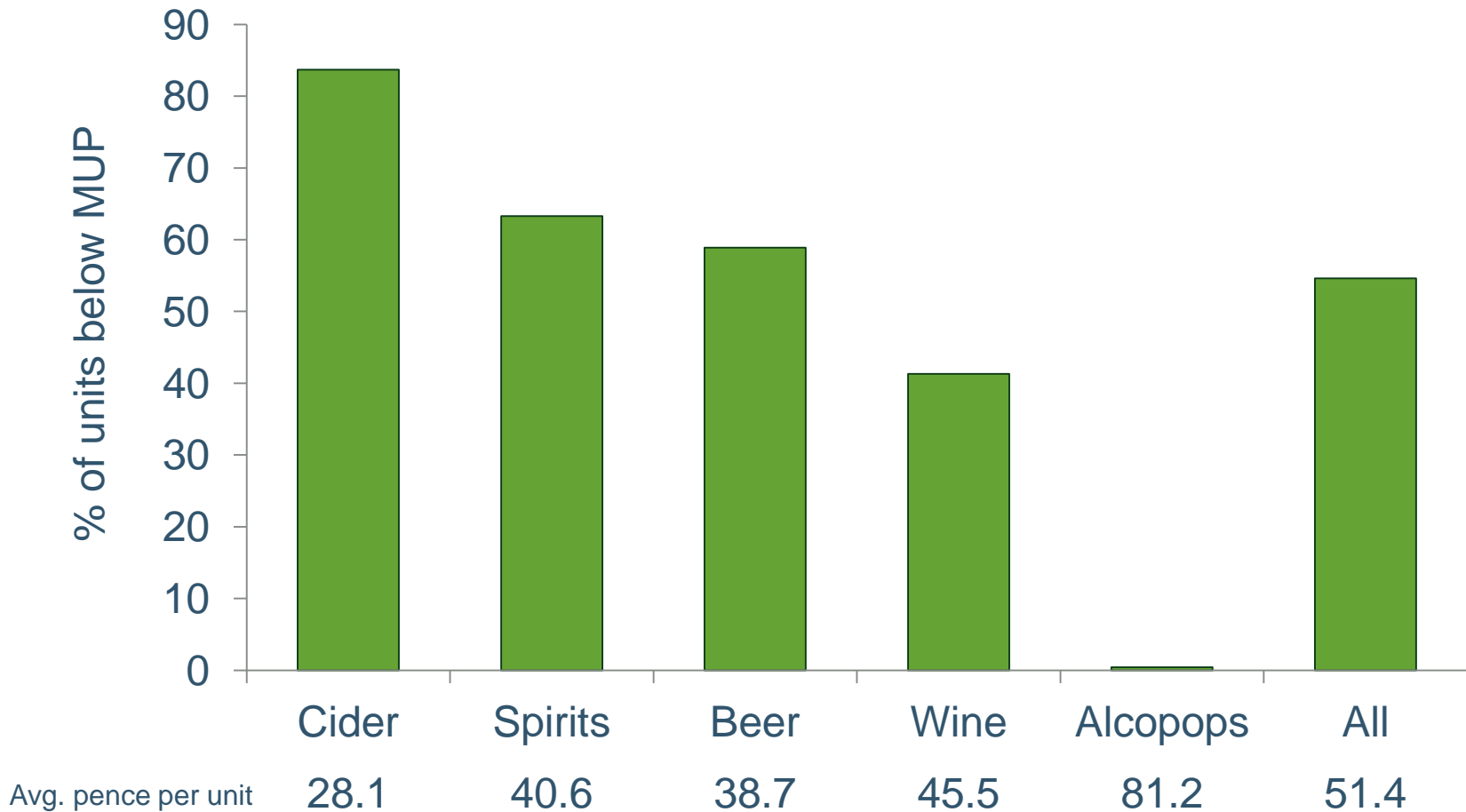
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Minimum unit price

- Home Office has recommended a 45p MUP for England & Wales
 - policy currently under consultation
- Scottish government has legislated for a 50p MUP
 - implementation delayed pending a legal challenge
- We assess the impact of a 45p MUP across Britain
 - assume the 45p rate was applicable in April 2012
 - assume rate updated each year in line with excise duties
 - thus we actually simulate rates of **38p** and **40p**
 - change applies on 29 March 2010 when excise taxes rose

MUP affects majority of off-trade units

Proportion of units below simulated MUP by alcohol type, 2010



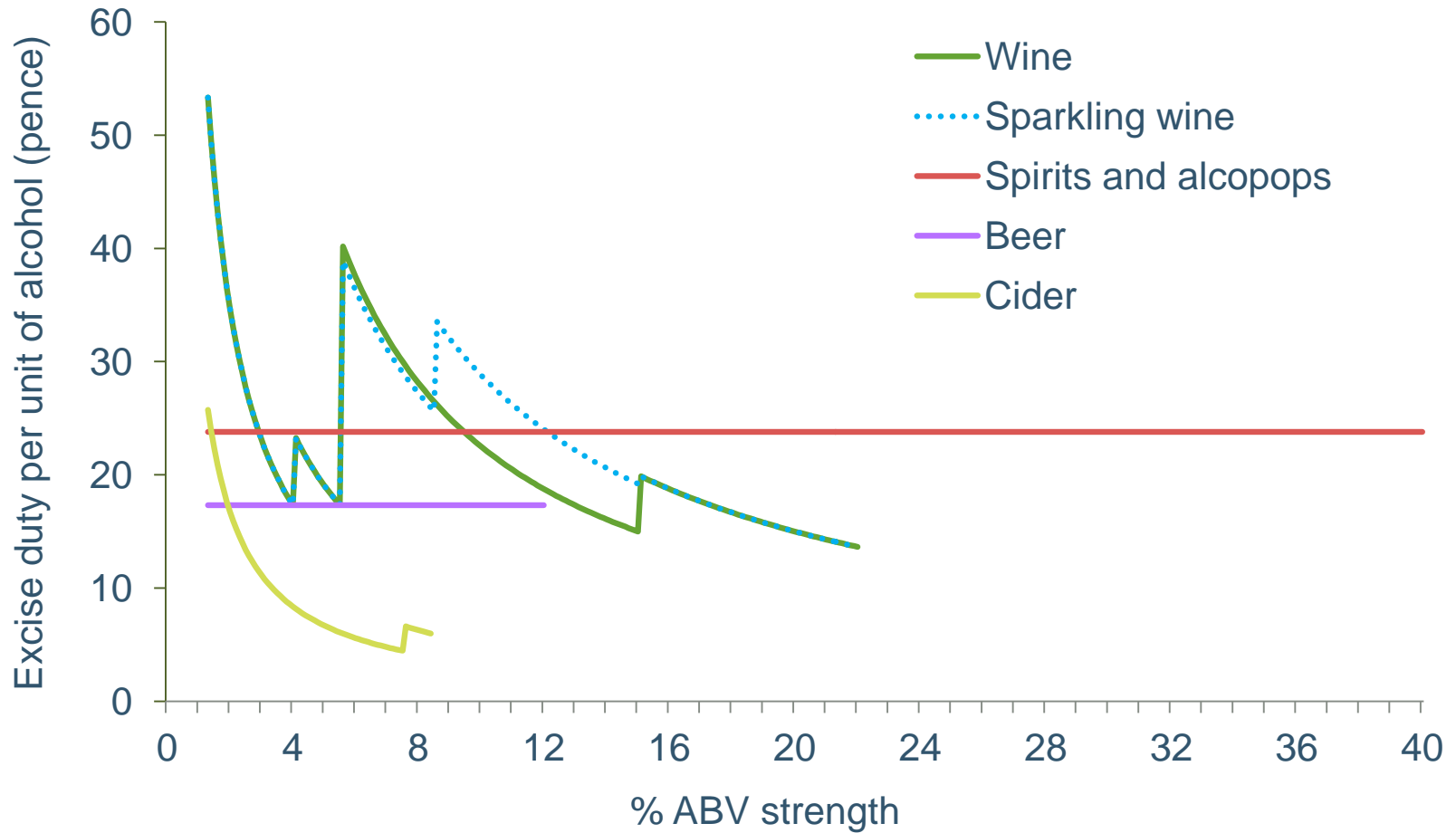
Source: Calculated from Kantar Worldpanel 2010 data. MUP applied is 38p, rising to 40p from 29/3/10.

Reforms to alcohol excise taxes

- Excise taxes are specific, vary by alcohol type and strength
 - raise around £10 billion, just under 2% of receipts
- Broad structure governed by EU Directive (92/83/EEC)
 - beer, spirits taxed by alcohol content
 - wine, cider taxed by volume of product (within strength bands)

Baseline alcohol excise tax structure, 2009/10

Excise duty rate per alcohol unit, by type and strength



Source: Calculated from HMRC data.

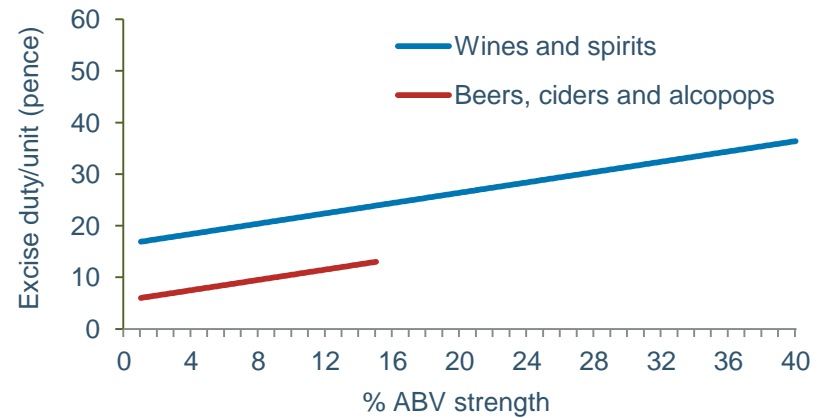
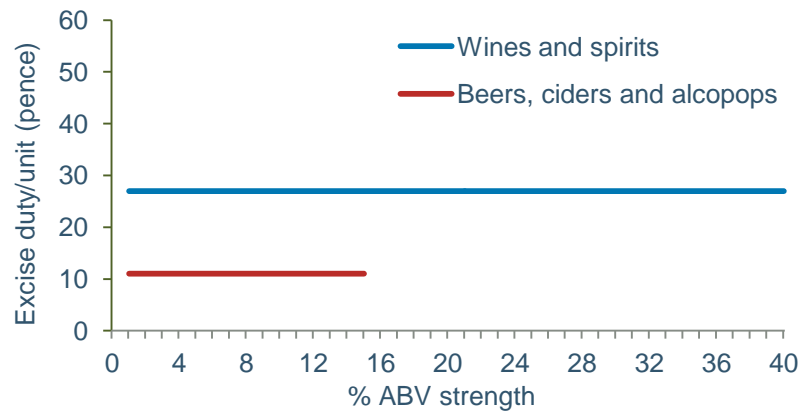
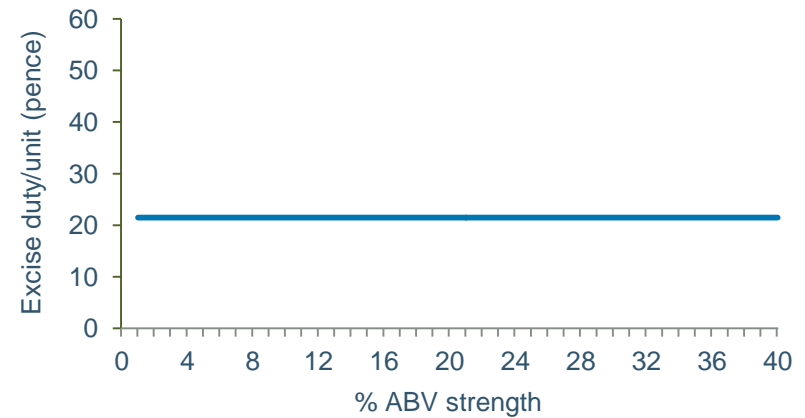
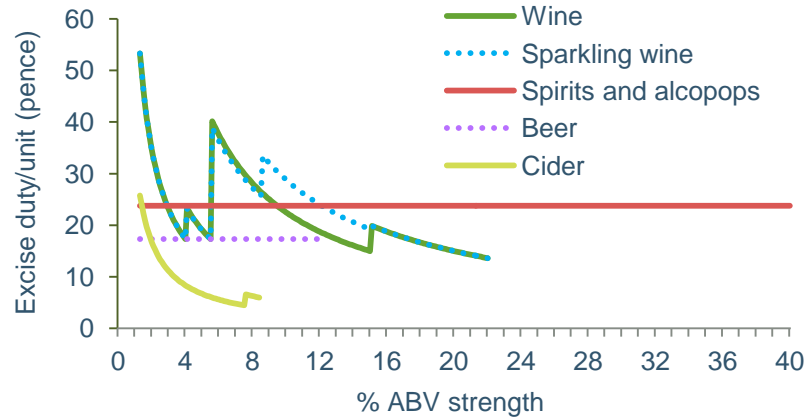
Reforms to alcohol excise taxes

- Taxes do not look well-targeted on strong alcohol
- We consider more radical reform in which tax is levied on alcohol content directly for all alcohol types
- Examine three possibilities:
 - tax all units of alcohol equally
 - vary rate by type but not strength
 - vary rate by type, rate increases with strength

Note: These rates applied before April 2010. We assume rates then rise in line with actual duties.

Reformed alcohol tax structures, 2009/10

Simulated excise duty rates per alcohol unit, by type and strength



Reforms to alcohol excise taxes

- Taxes do not look well-targeted on strong alcohol
- We consider more radical reform in which tax is levied on alcohol content directly for all alcohol types
- Examine three possibilities:
 - tax all units of alcohol equally
 - vary rate by type but not strength
 - vary rate by type, rate increases with strength
- The particular rates we choose are designed to achieve same aggregate reduction in units as the MUP simulation
 - impact across households and on revenues will differ
- Aim is not to suggest these particular reforms are ‘optimal’
 - want to compare to MUP on basis they achieve a common outcome

Quantity discount ban

- Implemented in Scotland (off-trade) in October 2011
- Under consultation in England and Wales
- Policy applies to:
 - quantity-based special offers (BOGOF, 3F2, 5% off 6 bottles, etc.)
 - bulk discount of given container size/brand combination (single 500ml can = £1, 24-pack \geq £24) *if* smaller pack available in-store
- Policy does not apply to:
 - price-based special offers (50% off), extra free offers
 - bulk discount across container sizes (2-litre bottle costs less than 2 \times 1-litre bottle)
- We describe importance of quantity discounts and large multi-packs in alcohol purchases of each household

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Assumed responses to policy interventions

- Demand-side
 - assume all consumers have alcohol price elasticity of -0.5
 - central figure in Wagenaar et al. (2009) meta-analysis of 112 studies
 - calculate policy-induced change in avg. price for each household
 - apply elasticity at the household level
 - no wider demand-side responses
 - e.g. cross price effects between alcohol and other consumption
- Supply side
 - assume firms are essentially passive
 - changes in excise tax are fully passed into final prices
 - prices below MUP are raised to threshold, no other price changes
 - no impact on product range, advertising and promotion etc.

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Multibuy deals in off-trade alcohol (% units)

By purchase level and alcohol type, 2010 data

	Beer	Cider	Wine	Fabs	Spirits	All
≤ 7 units	25.9	22.8	16.1	23.8	4.5	17.0
≤ 14 units	24.6	18.7	17.1	23.6	4.4	16.1
≤ 21 units	23.4	17.9	16.2	18.7	3.5	14.5
≤ 35 units	21.9	17.5	16.3	19.1	3.3	13.7
> 35 units	17.7	22.1	14.4	14.5	2.3	11.5
All	23.4	20.2	16.0	22.0	3.5	14.6

Source: Calculated from Kantar Worldpanel

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Multipacks in off-trade alcohol

Average 'items per pack', by purchase level and alcohol type, 2010 data

	Beer	Cider	Wine	Fabs	Spirits
≤ 7 units	6.1	2.5	1.0	1.9	1.0
≤ 14 units	6.8	2.8	1.0	1.7	1.0
≤ 21 units	6.9	2.9	1.0	1.8	1.0
≤ 35 units	7.2	2.8	1.0	1.7	1.0
> 35 units	6.2	2.5	1.0	1.6	1.0
All	6.5	2.7	1.0	1.8	1.0

Source: Calculated from Kantar Worldpanel

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Typical 'item size' in off-trade alcohol

Avg. bottle/can size (mls), by purchase level and alcohol type, 2010 data

	Beer	Cider	Wine	Fabs	Spirits
≤ 7 units	437	831	746	458	719
≤ 14 units	443	1,077	788	495	762
≤ 21 units	452	1,171	825	427	768
≤ 35 units	449	1,409	874	457	795
> 35 units	455	1,513	1,000	457	853
All	445	1,126	828	460	778

Source: Calculated from Kantar Worldpanel

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Quantity discount ban: key points

- Policy seems badly-targeted:
 - heavy drinkers do not rely more heavily use of multibuys
 - have not yet looked at variation in type or ‘size’ of offers used
 - heavy drinkers do not buy larger multi-packs
 - heavy drinkers buy larger containers, but not affected by policy
- Supply-side response means policy need not raise prices:
 - increase use of price discounts (£3.33 per bottle, not 3 for £10)
 - reduce price of small packages
 - both allow people to obtain lower unit price at lower quantity – could be beneficial
 - remove small packages from sale
 - limit ability to obtain small quantities – could be harmful

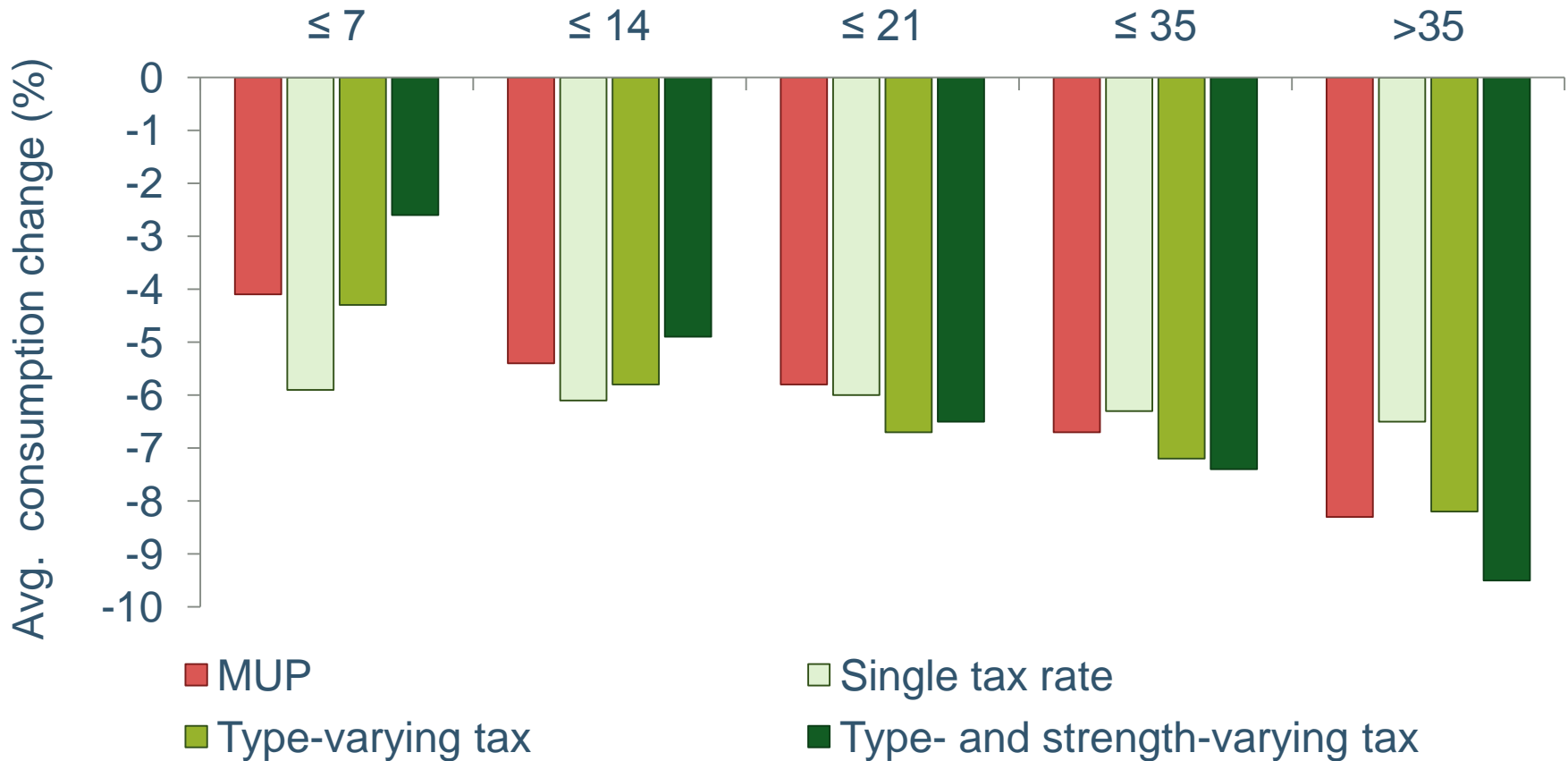
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Consumption response to reforms

Average of household-level responses, by intake group

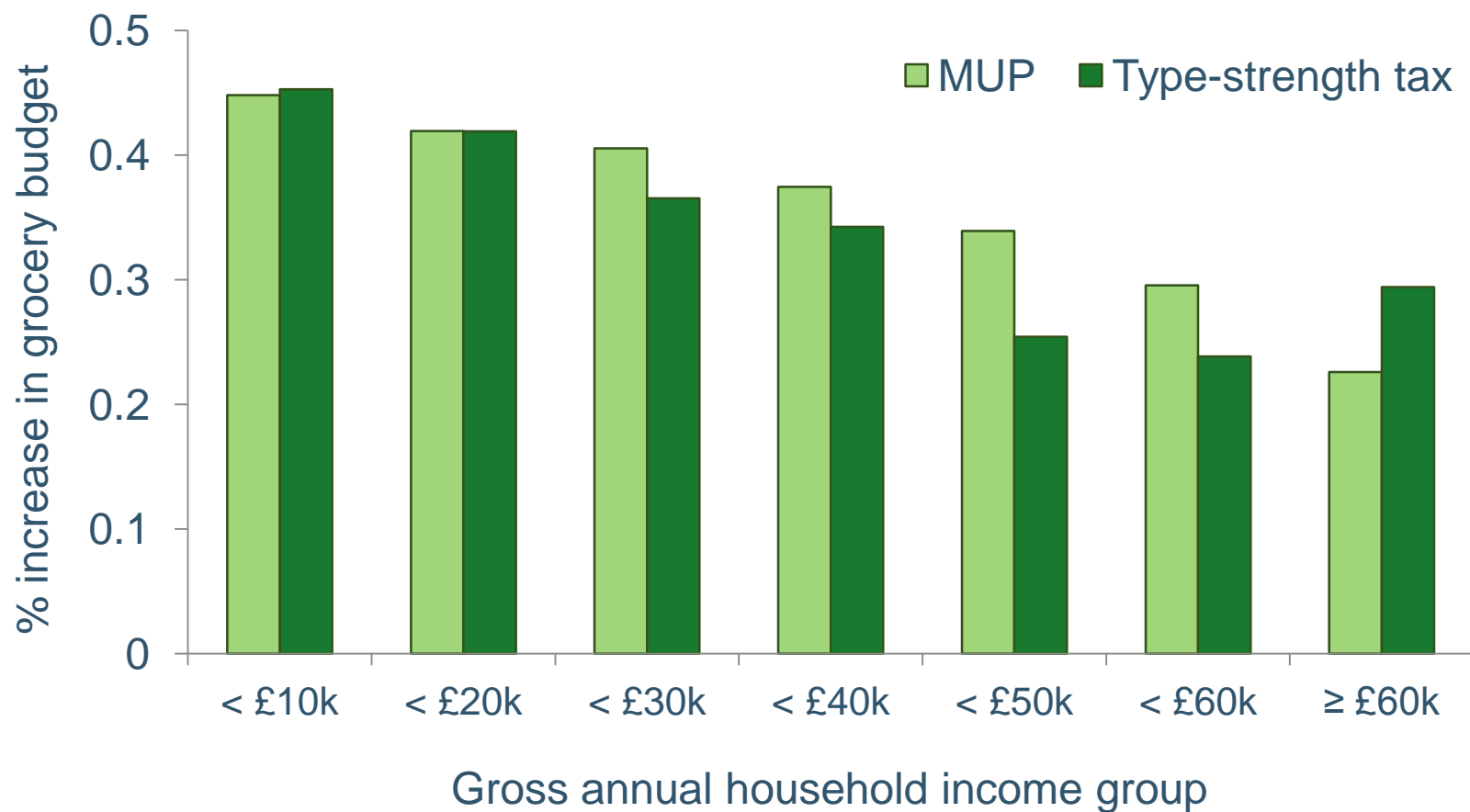
Units per adult per week



Source: Calculated from Kantar Worldpanel. Note: excludes abstainers.

Distributional issues

Effect on household grocery budgets, by income and intake group



Source: Calculated from Kantar Worldpanel. Note: excludes abstainers.

Aggregate effects

	Off-trade units (bn)	Alcohol spending (£ bn)	Tax revenue duty+VAT (£ bn)	Firm revenue (£ bn)
Baseline	37.04	15.33	8.95	6.39
<i>Change due to policy reform:</i>				
MUP	-2.40 (-6.5%)	+0.55 (+3.6%)	-0.29 (-3.3%)	+0.84 (+13.2%)
Single tax rate	-2.39 (-6.5%)	+0.65 (+4.3%)	+1.04 (+11.6%)	-0.39 (-6.0%)
Type-varying tax	-2.41 (-6.5%)	+0.75 (+4.9%)	+1.15 (+12.9%)	-0.40 (-6.3%)
Type-strength tax	-2.40 (-6.5%)	+0.64 (+4.2%)	+0.98 (+11.0%)	-0.34 (-5.4%)

Source: Calculated from Kantar Worldpanel.

Summary of policy impacts

- MUP equivalent to 45p in 2012 prices
 - average impact roughly 2×bigger for heavy drinkers than light
 - mildly regressive
 - generates windfall of around £840m for industry
 - loss of around £290m in tax receipts (duty -£370m, VAT +£80m)
- Excise tax reform targeting stronger alcohol
 - average impact roughly 3×bigger for heavy drinkers than light
 - mildly regressive
 - reduces industry revenue by around £340 million
 - generates around £980m in tax receipts (duty +£890m, VAT +£90m)

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Conclusions

- Quantity discount ban poorly targeted and may well have limited price effect – does not seem like a good policy
- MUP often seen as more targeted than increase in excise duty
- But *reform* of duty targeting strong alcohol even better-targeted
 - and would raise tax revenue rather than give industry a windfall
- European dimension important ...
 - EU Directive prohibits reform of alcohol taxes as we suggest
 - government should lobby for necessary reform to allow tax change
 - MUP legality under EU Directives?

Further analysis

- Allow elasticity to vary across alcohol types and intake level
 - draw on literature and meta-analysis
 - relatively consistent variation by type (e.g. beer more elastic)
 - less clear how elasticities vary across intake group
 - estimate off-trade demand model using Worldpanel data
- Relax assumption of passive firm responses
 - allow firms to re-optimize
 - wider price responses, product choices, advertising and promotion strategies
 - make particular assumptions or try to model explicitly