

Economic analysis of the impact of minimum pricing on alcoholic beverages in Scotland

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Table of Contents

| | |
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| Glossary of concepts and terms | 3 |
| Summary | 5 |
| 1. Introduction..... | 7 |
| 2. Broad Issues of Economic Principle | 11 |
| 2.1 A general economic point, and the source of multiple problems | 11 |
| 2.2 Trade effects in general..... | 12 |
| 2.3 Competition effects in general | 14 |
| 2.4 Impacts on volumes consumed and trade flows..... | 16 |
| 2.5 The wider distortionary effects of MUP | 21 |
| 3. Analysis of the First Drinks Brands survey of retail prices..... | 24 |
| 3.1 Effects on trade..... | 24 |
| 3.2 Effects on retail competition | 35 |
| 4. The economic Impacts of MUP in more detail..... | 38 |
| 4.1 Effects of MUP on retail competition..... | 38 |
| 4.2 Complementarity in more detail | 41 |
| 4.3 Other possible unintended consequences of MUP | 43 |
| 5. Conclusions and Consolidated Responses to Terms of Reference..... | 45 |
| 5.1 Overall conclusions on the impact of MUP | 45 |
| 5.2 Consolidated responses to terms of reference | 47 |
| 6. Responses to Lord Advocate's and Advocate General's Statements | 51 |
| 6.1 Competition at the wholesale level..... | 51 |
| 6.2 Effectiveness of taxation in targeting priority groups | 52 |
| Annex A: Regression Results 1 to 6 | 58 |
| Annex B: Regression Results 7 to 12 | 66 |
| Annex C: Regression Results 13 to 16 | 73 |
| Annex D: Biographies | 79 |

GLOSSARY OF CONCEPTS AND TERMS

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| Complementary goods/products | Two goods are economic complements if an increase (or reduction) in the level of demand for one product, caused for example by a change in the price of that product leads to an increase (reduction) in demand for the other. A good example is computer hardware and software: cheap hardware promotes demand for software, and vice versa. Complementary goods have a negative cross price elasticity of demand (see below). |
| Cross-price elasticity | A measure of the impact on demand for one product (X) resulting from a change in price for another product (Y). Specifically, it is the proportionate change in the level of demand for X divided by the proportionate change in price that gives rise to that change in demand. Thus, if a 10% fall in the price of computer hardware gives rise to a 5% increase in the demand for software, the cross-price elasticity is -0.5. Similarly, if a 10% fall in the price of colas leads to a 15% fall in the demand for other carbonated drinks (which would demonstrate that those products are substitutes, not complements), the relevant cross-price elasticity is +1.5. |
| Discrimination | Price discrimination occurs when two physically identical products are sold at different prices to different customers or groups of customers. The concept has been generalised to include cases where two non-identical but substitutable or otherwise similar products are sold, whether voluntarily or by compulsion of law, at materially different margins on cost. |
| Equi-proportionate increase or decrease in prices or quantities | Indicates an identical percentage increase or decrease in prices for a group of products. |
| Price elasticity of demand | Measures the impact on demand for one product (X) to a change in the price of that product. Specifically, it is the proportionate change in the level of demand for X divided by the proportionate change in the price of X. Since demand usually falls when price increases, the price-elasticity of demand is typically a negative number. For example, if a 20% increase in price of a product leads to a 15% fall in volumes purchased, the price-elasticity of demand is -0.75. |
| Regression analysis | Regression analysis is a method of quantifying the relationship between one variable (such as the quantity of a product sold), usually referred to as the dependent variable, and one or more other variables that are thought to explain it, or to be otherwise |

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| | be related to it (such as the price of the product, the prices of close substitutes and complements, and consumers' incomes). |
| Regression coefficient | The regression coefficient (b) measures the rate of change of the dependent variable (y) with respect to changes in another variable (x), holding everything else equal. For example, in respect of a relationship between advertising expenditure, measured in £ million and quantity sold, the regression coefficient would indicate by how much the quantity sold would increase if advertising spend were increased by £1 million. |
| Regression intercept | The intercept is the expected value of the dependent variable (y) when the value of all other variables (x) is zero. For example, in respect of a relationship between consumers' expenditure and income, the intercept would indicate how much would be spent in a given period if, in that period, income fell to zero (the expenditure being made possible by running down savings or by increasing borrowing). |
| Substitute goods/products | Two goods are economic substitutes if an increase (or reduction) in the price of one product leads to an increase (decrease) in demand for the other. The higher price of one product causes at least some consumers to switch to the other, and the greater the switching the higher the substitutability. A commonly cited example is Pepsi and Coca Cola. Substitute goods have a positive cross elasticity of demand. |

SUMMARY

- i. General economic principles suggest that because minimum unit pricing (MUP) detaches price from relevant costs there are likely to be adverse impacts on trade and competition. Specifically,
 - In terms of the trade effects, the expectation is that the MUP will distort trade flows insofar as lower cost suppliers in other countries will be forced to charge a price that is no lower than the higher cost producers of similar products. Consequently, trade flows are likely to be lower, and economic efficiency reduced.
 - In terms of the impacts of MUP on competition, the expectations are similar to those of trade, and arise from the fact that such a policy restricts the ability of prices to reflect underlying costs. Consequently, the level of retail competition will be suppressed for affected products and the relevant part of the market will effectively become cartelised. The usual defects of cartelisation can, therefore, be expected to eventuate.
- ii. In this report we have examined whether these general expectations are likely to eventuate in the specific case of the introduction of MUP in Scotland. To this end, we have undertaken a preliminary analysis of retail pricing data supplied to us by the Scotch Whisky Association (the First Drinks Retail survey data). Our conclusions from this analysis are as follows:
 - In terms of effects on trade, our analysis of the data provided to us suggests that MUP will result in distortionary/discriminatory effects on producers supplying the Scottish market from different EU countries. The relative impacts differ by product category (wine, spirits, beer, etc.), and the largest, category-averaged effects appear to be in relation to wine. However, there are also strong differential impacts on individual suppliers within product categories and, in the beer and spirits groupings, there are multiple examples of specific producers located outside the UK who will face a large retail price increase for their products and can therefore be expected to be adversely affected by the policy.
 - Our analysis of the data also indicates that MUP will have distortionary effects in terms of retail competition. Specifically, there is likely to be a differential impact on retail prices for products sold in different types of outlet such as

major supermarkets and independents/specialty retailers. Consistent with expectations, for each of the product categories, the analysis suggests that the impacts of MUP will be greater for supermarkets than it is for non-supermarkets.

- iii. We have identified further potential economic distortions that might arise as a consequence of the MUP. One set of potential distortions relates to the impact of MUP on entry into the Scottish market, and here we note that MUP will raise barriers to entry insofar as it limits the ability of lower-cost potential entrants from elsewhere in the EU, or the rest of the world, to set cost-reflective prices in circumstances where their costs are lower than the MUP. This will make it more difficult for such producers to enter the Scottish market than is currently the case. Another set of distortions we discuss arises because the MUP will create greater incentives for retailers, and supermarkets in particular, to sell more of the cheaper ranges of alcoholic beverages as a result of the fact that they will make higher margins on products affected by the policy. This will give retailers incentives to allocate increased resources to the sale of products affected by the MUP compared with what could be expected to be the case if, for example, similar average retail price increases were caused by an across-the-board increase in duty, which is an obvious alternative policy option for reducing consumption. In economic terms, this makes MUP a less effective means of reducing consumption than duty increases.
- iv. Finally, we note that MUP may potentially give rise to other unintended consequences that may impact on economic outcomes. We outline only a few of the obvious possibilities in this report, such as the potential for regulations aimed at reducing consumption of a product to inadvertently increase consumption of that product through the stimulation of the development of distribution channels for low-priced personal imports or for illegal imports.

1. INTRODUCTION

1. We have been instructed by the Scotch Whisky Association, to prepare an independent, expert opinion on the effects that the Alcohol (Minimum Pricing) (Scotland) Act 2012, together with the statutory instruments necessary to bring it into effect and impose a minimum price per unit (MUP) for sales of alcoholic drinks, can be expected to have on the alcoholic beverages market in Scotland. The detailed instructions from Bird & Bird LLP are attached as Annex F to this paper. We received supplementary instructions from Brodies LLP by email on 3 and 4 October, which asked us to review the Petition and the Answers for the Lord Advocate (both as adjusted to 1 October 2012) as well as the draft notes of argument of each party. We understand that this report will be submitted to the European Commission in relation to a submission made to the Commission by the Scotch Whisky Association (SWA). We also understand that it may be used in connection with a petition for judicial review of the 2012 Act raised in the Court of Session by the SWA, CEPs – the European Spirits Organisation, and CEEV – Comite Europeen Des Enterprises Vins.
2. In responding to these instructions, the approach we have adopted is to start with some broad points of economic principle that are directly relevant to the questions we have been asked to consider. We then address some of the most significant aspects of the detail of the likely economic effects, and of the processes giving rise to those effects. The detailed analysis is necessarily non-exhaustive, not only because of the time constraints for delivery of this opinion but also because, for reasons to be explained, regulatory policies with the types of characteristics possessed by the MUP scheme are liable to lead to chains of unintended consequences. Whilst it is possible to identify and analyse the tendencies involved in these chains of consequences, they are impossible to pin down with anything approximating total precision, because in part they are governed by future adaptations and innovations to changed incentive structures, knowledge of which is today necessarily limited.
3. In terms of evidence, we have been directed specifically to the survey data on alcoholic beverage prices in Scotland collected by First Drinks Brands Ltd, at the request of the SWA. In addition to these data, which are analysed in section 3 of this report, we have also relied upon a wide, background economics research literature on the effects of regulation and on a range of more specific studies, reports and other materials on alcohol pricing and the possible effects of MUP.¹ Generally speaking,

¹ The latter include: Rand Europe (2006) “An ex ante assessment of the economic impacts of EU alcohol policies” A report prepared for DG SANCO; NHS Scotland (2010) “Monitoring and Evaluating Scotland’s Alcohol Strategy (MESAS): Analysis of alcohol sales data, 2005-2009” January 2010; HMRC (2010)

the latter, more specific studies have focussed on different issues to those addressed in this opinion, which is principally concerned with the trade and competition effects of MUP. Many (but not all) of the studies have focussed on the effects that reduced alcohol consumption – which would be expected to follow from an increase in the price of alcohol products arising from the imposition of MUP – would have on various health measures and other social indicators, including crime and the effects on families of hazardous drinking. That is, these studies have typically tended to take the effectiveness of the MUP policy (in terms of its capacity to reduce alcohol consumption) as given, and to then focus on the magnitude of the beneficial social and health effects associated with the reduced consumption that would follow from different levels of minimum prices for alcohol (including specific aspects of those effects such as changes in consumption by different types of drinkers within a population, or changes in health care costs and outcomes).

4. For reasons described below, we do not disagree with the proposition that increases in the prices of alcoholic drinks could, other things being equal, be expected to lead to reduced demand for those drinks.² Our focus in this opinion is on a different question for public policy, which is whether a MUP policy, which would lead to higher prices of many (but far from all) alcoholic drinks and hence to an expectation of reduced consumption, is likely to be the most effective and least market distorting policy that could be introduced to produce such an outcome. This question requires an approach that is similar to, but not identical with, the analysis undertaken by the Institute of Fiscal Studies (IFS) on MUP,³ and we attach particular weight to the evidence and analysis of the IFS on this topic.⁴ Where we cover similar ground to the IFS, our views are highly consistent if not identical, although it can be noted that the IFS

“Estimating Price Elasticities of Demand for Alcohol and Tobacco In The UK” HMRC Working Paper, 27 May 2010; Gallet C A (2007) “The demand for alcohol: a meta-analysis of elasticities” *The Australian Journal of Agricultural and Resource Economics*, vol 51, pp. 121–135; Karlsson T & Österberg E (2009) “Alcohol affordability and cross-border trade in alcohol”, Department of Alcohol, Drugs and Addiction, National Institute for Health and Welfare (Finland); HMRC (2012) “Alcohol Bulletin” May 2012; NHS National Services Scotland (2011) “Alcohol Statistics Scotland 2011”; The Scottish Parliament (2010) “SPICe Briefing Alcohol etc. (Scotland) Bill” 18 February 2010; Purshouse RC, Meier PS, Brennan A, Taylor KB and R Raifi (2010) “Estimated effect of alcohol pricing policies on health and health economic outcomes in England: an epidemiological model” *The Lancet*, vol 375; Stockwell T, Auld MC, Zhao J and Martin G (2011) “Does minimum pricing reduce alcohol consumption? The experience of a Canadian province” *Addiction*, 107, 912–920.

² It is beyond the scope of this report to assess the impacts on levels of demand for different groups of consumers, such as those groups that might be at most risk of harm from alcohol consumption.

³ The IFS have looked at the issue of minimum pricing of alcohol in a number of reports including: Institute of Fiscal Studies (2011) “Alcohol pricing and taxation policies” IFS Briefing Note BN124.; Institute of Fiscal Studies (2012) “How significant is a minimum unit price for alcohol of 40p?”, IFS Observations March 2012.; Institute of Fiscal Studies (2010) “The Impact of Introducing a Minimum Price on Alcohol in Britain”, IFS Briefing Note 109; Institute of Fiscal Studies (2010) “Minimum alcohol price of 45p per unit could transfer £700 million from drinkers to firms” Press Release 28 September 2010.

⁴ The IFS, co-founded and developed by Professor John Kay, is very widely regarded as the most authoritative, independent research institute in the UK on matters to do with taxation and fiscal policy more generally.

analysis was heavily focused on fiscal policy flaws in MUP proposals, whereas we are concerned much more with competition and trade effects.

5. The assessment of the effects of the MUP regulation in this case is greatly simplified by the existence of a simple policy alternative: if the goal is, for health policy reasons, to reduce alcohol consumption via increasing the prices of alcoholic beverages, that goal can be achieved by raising alcohol taxation across the board.⁵ This is the alternative option that forms the basis of the IFS's analysis of the fiscal policy implications of MUP. It also plays a central role in our opinion because raising duties acts in the same way as a MUP, by increasing prices, but without causing the potential myriad market distortions that, as we will show below, can be expected to flow from MUP. That is, it is our view that there is at least one alternative, regulatory option to MUP that is less restrictive of trade and less distorting of competition in relevant drinks markets. Beyond that we do not go, and hence our use of the alternative option in the reasoning to follow should not be interpreted as implying that we believe it to be the most preferable of all possible policy options.⁶
6. The analysis that follows bears the alternative policy option (a general increase in duty rates for alcoholic beverages) in mind throughout, but two points can be made at the outset:
 - Not only is there an obvious alternative to MUP as a component of a broader public health strategy, but that alternative can be expected to be a more effective instrument for the achievement of the relevant health policy goals.
 - Hence, there is no need in this case to consider balancing trade-offs between health policy goals and other aspects of economic policy, such as the promotion of unimpeded trade flows and the promotion of competition. (Although this is the way matters are frequently presented by those without specialist knowledge of the relevant economics, these are, in fact, false alternatives). Put differently, given the existence of a superior (in economic terms) policy measure in this case, there is no need to consider the health and other trade-offs of an inferior policy measure.

⁵ Since taxes on alcoholic beverages comprise a mix of specific and ad valorem elements (duty, value added taxation), there are potential issues to consider concerning the mix of elements to be adopted, but these are beyond the scope of this opinion, and are not central to the key issues. For our purposes it suffices to recognise that there is a 'broad spectrum' alternative to MUP for achieving the intended effect of raising the retail prices of alcoholic beverages.

⁶ Social problems associated with excessive consumption are generally correlated with a range of other social issues/problems, and policies typically comprise a spectrum of public actions. Achieving effective policies will typically depend upon finding a balance among the various strands of public policy, and between public and voluntary/civic action.

7. The last point may seem a very strong one in the relevant circumstances, but, at a general level, it rests on a fairly obvious point: whatever the objectives, inefficiency in the execution of public policies can only detract from them. Competition, trade specialization, and the EU's Single Market Programmes are all means to an intermediate end: increasing the resources available for the pursuit of final social ends, among which is improved public health. It is at this latter stage that trade-offs (between final ends) are directly relevant.
8. The remaining sections of this opinion are structured as follows:
 - Section 2 focuses on broad issues of economic principle, and in particular notes that because of the forced disconnection between prices and costs which MUP entails, the general expectation concerning the effects of such a policy is that there are likely to be adverse effects of the policy in terms of trade and competition.
 - Section 3 presents the results of the preliminary analysis of the survey undertaken by First Drinks Brands Ltd. The purpose of this analysis is to check whether there is anything in the evidence that suggests that the expectations derived from general principles (as described in section 2) are unlikely to be reliable in this specific case.
 - Section 4 examines some of the potential distortionary/discriminatory effects of MUP in greater detail. Specifically, we focus in this section on the likely effects of MUP on retail competition, as well as unintended effects that might arise because of the complementarities among the products that retailers sell. Finally, we consider other possible unintended consequences of MUP, such as increased personal imports and smuggling, as well as self-supply.
 - Section 5 presents conclusions, and draws together our responses to the specific questions asked in our Instructions.
 - Section 6 outlines some observations on economic issues raised in the Petition and the responses of the Lord Advocate and the Advocate General for Scotland.
9. Annex D contains our declaration of duty to the Court. Details of our qualifications and experience are set out at Annex E.

2. BROAD ISSUES OF ECONOMIC PRINCIPLE

2.1 A general economic point, and the source of multiple problems

10. A major and immediate effect of MUP is, at least for those products affected, *to prevent prices from reflecting relevant costs*. Thus, if two, competing or (in the mind of the consumer) substitutable products have differing costs, MUP prevents that cost difference being reflected in a price difference. This very basic economic effect has been reflected in legal reasoning on the implications of minimum pricing. For example, in recent proceedings relating to minimum prices for tobacco products, Advocate General Kokott, said that:

“Where a minimum price is set by a Member State there is a danger that manufacturers from other Member States who wish to obtain a competitive price advantage on the market by charging lower maximum retail selling prices will be placed at a disadvantage. Fixing a minimum price would cancel out the competitive advantage deriving from the lower production cost of the imported product.”⁷

The only point we would add is that this statement could, in strict economic terms, reasonably be strengthened: the manufacturers referred to would, normally, be placed at a disadvantage, not just the risk of a disadvantage.

11. This forced disconnection between prices and costs strikes at the heart of the economic processes of market economies, by preventing prices playing their normal roles in providing information signals about relative scarcities to consumers and suppliers alike, and in providing incentives that guide the allocation of resources to their most efficient uses. At the most general level, the expected results are inefficient and distorted markets.
12. As we discuss below, MUP is, in economic terms, equivalent to a horizontal collusive agreement, encompassing a wide range of alcoholic beverages, between otherwise

⁷ Opinion of Advocate General Kokott in (Case C 197/08) *Commission of the European Communities v French Republic* and (Case C 198/08) *Commission of the European Communities v Republic of Austria* and (Case C 221/08) *Commission of the European Communities v Ireland*, 22 October 2009, para 40. Elsewhere in that opinion at para 58 it is again noted minimum prices can potentially cancel out any competitive advantage conferred by lower cost prices: “The Court has already held that a minimum price for the final sale of imported cigarettes constitutes in any case a measure of equivalent effect within the meaning of Article 28 EC if it is fixed at such a level that the competitive advantage conferred by lower cost prices is cancelled out.”

rival retail suppliers and we can see no reason why the normal expectations of inefficient and adverse economic outcomes should not apply.⁸

13. More specifically in relation to the issues we have been asked to consider, the disconnection of prices from the cost influences to which they are normally subject acts to prevent the working of two, major, economic processes:

- The process of specialisation through trade.
- The process of competition.

We consider each in turn, first at a general level then, in the later sections of this opinion, at a greater level of detail and specificity.

2.2 Trade effects in general

14. International trade allows specialisation based on comparative advantage, and the classic, pioneering analysis of the advantages of trade, set out in David Ricardo's *Principles of Political Economy*, published in 1817, gives the example of trade in cloth and wine between Britain and Portugal.⁹ The point is a simple one, and is directly related to MUP issues: because of geography, in the absence of international trade, the relative price of wine in Portugal will be substantially lower than in Britain. Trade allows both parties to benefit from this: by importing wine from Portugal, Britain enjoys lower prices for the product and can redeploy any relatively unproductive resources devoted to the production of wine to other sectors, where the value of their output is greater. Portugal, by redeploying economic resources from other activities to the production of wine for export, increases export earnings which can be used to purchase a greater quantity of other goods (in Ricardo's simple example, cloth) than could be produced domestically.

15. For those products whose prices are constrained by MUP, specialisation according to comparative advantage is impaired, because suppliers are prevented from reflecting differences in their costs to end consumers. In Ricardo's example, Portuguese wine producers would, as a result of a MUP policy, face restricted demand in the importing country because they would not be able to reflect their lower costs in lower prices.

⁸ In a recent opinion on the meaning of the concept of an anti-competitive object under Article 101 of the TFEU, Advocate General Kokott explained the *economic* rationale for such expectations, noting that *by their very nature* of such arrangements are injurious to competition: "*The prohibition of a practice simply by reason of its anti-competitive object is justified by the fact that certain forms of collusion between undertakings can be regarded, by their very nature, as being injurious to the proper functioning of normal competition.*" Opinion of Advocate General Kokott delivered on 19 February 2009. *T-Mobile Netherlands BV, KPN Mobile NV, Orange Nederland NV and Vodafone Libertel NV v Raad van bestuur van de Nederlandse Mededingingsautoriteit*, para 43.

⁹ Ricardo D (1817) *Principles of Political Economy and Taxation* (John Murray London).

16. The crucial feature of MUP, where it bites as a constraint on pricing, is that, if there exist lower cost suppliers in other countries, those suppliers will be forced to charge a price no lower than that charged by higher cost producers of similar products. The lower cost suppliers will not, therefore, be able to benefit to the normal extent from the expansion of sales that their cost performance merits. The trade flow will be lower, and, since the redeployment of resources to their most effective uses will be impeded, economic efficiency will be reduced.
17. The directional effects here are clear, and what remains to be determined in each individual case (in circumstances where MUP might be contemplated) is the magnitude of the effects, and the detail of the way in which they occur. For example, imports from low cost regions and countries will be reduced – the tendency here is similar to the effects of tariffs or import quotas – but the magnitude of the effects might be expected to vary according to circumstances. To make the most obvious point, a higher MUP will tend to have larger effects than a lower MUP.
18. A less obvious point is that effects will depend upon the degree to which products are differentiated. In the case of a homogeneous commodity, the impacts can be expected to fall exclusively on the volume of imports. Where, however, a variety of products are supplied, to satisfy the different tastes/preferences of different consumers, the effects will typically fall on product variety, as well as total volume. Alcoholic beverages fall into the latter category, since a wide variety of beers, wines and spirits are supplied in response to consumer requirements.
19. The economic mechanism in this case derives from a trade-off between product variety and economies of scale in supply. Generally speaking, it is possible to produce products at lower unit cost when there is greater product standardisation. However, not all consumers want to purchase the same products, and they are willing to pay more to be able to obtain their preferred variety of the product. The relevant market will, if it functions competitively, strike a balance between these two considerations.
20. When demand for imports contracts as a result of MUP, the falling volumes tend, in differentiated product markets, to lead to higher unit costs of supply, which may occur for one of a number of reasons. Examples include a loss of scale economies in production (as might happen in the brewing of beer) or in the distribution of a product (as might happen in the relation to the supply of wine). Either way, the higher costs of at least some products may render their import uneconomic – the revenues may no

longer cover supply costs – in which case they will become unavailable in the importing country.¹⁰

21. In relation to the alternative policy of implementing across-the-board increases in alcohol duties, we note that the resulting reduction in demand for alcoholic beverages could also be expected to reduce product variety (i.e. the withdrawal of some products from the market). However, there would not be a distorting effect whereby the impacts fall heaviest on lower-cost suppliers, impeding the achievement of the benefits of specialisation in a single market (which would otherwise promote increased production and supply from those able to produce and supply at low cost).

2.3 Competition effects in general

22. The impacts of suppressing cost reflectivity on competition are similar to those on trade and the specialisation made possible by trade. Thus, consider two competing suppliers offering similar products of the same alcoholic strength, one of which has lower costs than the other (i.e. it is a more efficient supplier). In the normal course of events, the lower cost supplier will be able to obtain higher sales volumes as a result of the lower retail prices that will likely be charged for its product.¹¹ With MUP, provided that it affects the relevant products (they are products that would otherwise sell at below the MUP), this course of conduct is precluded: in effect, retail price competition has been suppressed and the relevant part of the retail market is cartelised. The usual defects of cartelisation can, therefore, be expected to eventuate.
23. Indeed, the harm done can be expected to be somewhat greater than that caused by simple cartelisation. In standard cartel cases, some suppliers typically operate outside of the cartel (i.e. co-ordination rarely covers 100% of total supplies) and provide a degree of price competition in the market. Since government mandates MUP, and all suppliers must comply with it, there are no ‘outsiders’ able to compete by offering discounts on the cartel price.
24. More than this, it can be said that price competition is not just restricted, in parts of the retail market it is eliminated. This is because MUP also prevents price competition from potential entrants (which implies that it has the effect of raising barriers to entry). The effect is particularly important because new entrants into a market, particularly a differentiated products market, typically need to offer discounts to

¹⁰ And if the relevant importing country is a major source of demand for a particular variety of product, MUP may threaten the viability of the entire business, not just that part of the business accounted for by exports to the country imposing MUP.

¹¹ We will consider retail pricing in a later section and, for the moment, assume that lower wholesale prices (i.e. the prices at which retailers acquire products for sale in their outlets) are reflected in lower retail prices, although not necessarily in a one-for-one way.

consumers in order to induce consumers to try the new product(s), and which may be necessary to enable the producer to establish itself in a market at scale sufficient for supply to be profitable. Such discounting is, however, impossible when, if implemented, it would imply retail prices below that implied by MUP. An example of the above impact on potential new entry can be seen in relation to the cider market in the UK, where domestic producers have a strong market position. It is our understanding from SWA that in order to enter this market, foreign suppliers – particularly from Ireland and Sweden – have used various pricing strategies such as discounting and multi-pack offers. These pricing strategies, which may be seen as necessary by the importing companies to establish a foothold in the UK cider market, will no longer be possible under a policy of MUP.

25. As well as being economically equivalent to cartelisation at the retail level, MUP is equivalent in some of its aspects to a system of subsidies to retailers. This is most easily seen by considering a set of beverages, each with the same alcohol content and each, because of MUP, retailing at the same price. Government could hypothetically¹² achieve this same position by means of taxation, levying higher rates of specific duty on lower cost products in order to equalise retailers' costs of acquiring the products; which would leave government with higher (than under MUP) revenues and retailers with higher costs, which would then be reflected in retail prices.
26. However, under MUP, the extra margin per unit sold, which results from the higher retail price, stays with the retailer. It is 'as if' government had levied a tax to achieve the desired effects on retail prices, and then distributed the proceeds of the taxes, derived from consumers' expenditure, to the relevant retailers. The overall effect is, at least in the short run (we will address the longer-run effects below), to raise the profitability of retailers selling the relevant products, an effect which appears to be universally recognised among those who have considered the implications of MUP.
27. As will be shown below, the retailer profitability effects are likely to be substantial, and yet they serve no useful public policy purpose. They can, however, be expected to cause distortions in the structure of competition in retailing, arising, as they do, from a mandated form of price discrimination (in the sense of that term as used in general economics and in competition law enforcement) in which retailers are required to achieve a much higher profit margin (or mark-up of prices on costs) on lower cost products than on higher cost products of similar alcoholic strength.

¹² We emphasise that this is a conceptual argument made to illustrate the subsidisation *of retailers* that results from MUP. It is not suggested that EU taxation policies operate in this way, and we would certainly not advocate that they should.

28. By considering the substantial variations in retail profit margins of different alcoholic beverages, it can be seen to be self evident that MUP causes significant discriminatory effects: one of the standard economic definitions of price discrimination, and one particularly tailored for the analysis of differentiated product markets (like alcoholic beverages markets), is that it is the selling of products with similar incremental costs at materially different prices. On the demand side, the discrimination is *against consumers* of lower cost alcoholic beverages (and one of the consequential effects is likely to be a regressive impact on income distribution¹³, since it is to be expected that lower cost products might be particularly favoured by households with more limited budgets). On the supply side, the discrimination is *against lower-cost suppliers*, who, in effect, face much higher retail mark-ups on their products than do their competitors.

2.4 Impacts on volumes consumed and trade flows

29. MUP can be expected to raise the average prices paid for alcoholic beverages, reduce overall consumption, and, since a large number of the relevant products are imported into the UK, reduce imports. The existence of such effects is not necessarily problematic *per se* and it is of course the case that a general increase in the taxation of alcohol would have similar directional effects. The problematic impacts of MUP on product volumes and trade flows arise, therefore, in consequence of the policy's inherently discriminatory effects on retail price structures, which themselves are direct and inevitable consequences of the fact (which we assume is not disputed) that MUP prevents differences in retail prices from reflecting differences in retail costs.
30. Like the magnitudes of the overall impacts of higher prices of alcoholic beverages, the magnitudes of the distortionary/discriminatory effects of MUP on specific product volumes and trade flows will depend upon the price sensitivity of demand for alcoholic beverages, a matter that has been the subject of extensive research in applied economics.
31. Price sensitivity of demand is usually measured by the price elasticity of demand, a concept that is independent of the units in which volumes and prices are measured, and which can therefore be used to compare consumer behaviour across all manner of different types of market. It is defined as the ratio of the proportionate change in quantity demanded to the proportionate change in price that has given rise to that

¹³ Some forms of price discrimination can be progressive in terms of effects on income distribution, as when suppliers accept lower margins on products targeted at low income groups whose ability/willingness to pay is more limited than the average (e.g. some 'value products' in supermarket shelves, special discounts for pensioners, students, etc.). MUP is not.

change in demand, *all other prices being equal*, and three points about its use may be worth making in the current context:

- Elasticities tend to be higher the longer the time period over which responses (to a change in price) are measured, reflecting the fact that consumers tend to adjust their purchasing patterns gradually over time.
- Elasticities tend to be higher the narrower the range of ‘substitutable’ products¹⁴ whose prices are increased. Thus, if the price of only one Burgundy wine (BW1, say) is increased significantly, it can be expected that there will be considerable switching of demand to other Burgundy wines, as well perhaps as some switching to other red wines. Hence it is to be expected that purchases of the more expensive product (BW1) could fall substantially. However, if all Burgundy wine prices increase together, the reduction in purchases for BW1 will tend to be significantly lower, since, in that case, other Burgundy wines will also have become more expensive. There may in this case be some switching to other red wines, but those consumers of BW1 with strong likings for Burgundy may continue to consume BW1, despite the price hike. Similarly, and following the same chain of reasoning, if all red wine prices increase together, switching of demand from Burgundies to other red wines, consequent on higher prices for Burgundies, is unlikely to be a significant phenomenon (since other red wine prices will, by assumption, also have increased). In summary, we can expect that: the price elasticity of demand for a particular Burgundy wine *will be greater than* the price elasticity of demand for all Burgundy wines (considered together), *which will be greater than* the price elasticity of demand for red wines, *which will be greater than* the price elasticity of demand for all wines, *which will be greater than* the price elasticity of demand for alcoholic drinks.
- Where the interest lies in assessing switches of purchasing patterns within a group of products, the demand movements are usually measured by cross-elasticities of demand, where the cross price elasticity of demand for product A with respect to the price of product B is defined as the ratio of the proportionate change in the quantity of A demand to the proportionate change in the price of B that has induced the adjustment in demand.
- Alcoholic beverages can also be complements for one another, meaning that an increase in the price of one product leads to a *fall* in the demand for another. One reason for such an outcome is that drinking is often a social activity. An increase

¹⁴ Products are substitutes when an increase in the price of one leads to an increase in demand for the other, at the prevailing price of the other product. That is, there is some consumer switching between the products, induced by the change in relative prices.

in the price of, say, wine may lead to the occurrence of fewer social occasions on which wine is drunk, and, if part of the relevant social group comprises beer drinkers, this could lead to a fall in the consumption of beer, even though the price of beer has not changed.

32. The economic evidence on price sensitivities has been summarised in a recent, very thorough paper published by HMRC.¹⁵ The HMRC study also made its own estimates of price elasticities in the UK (which fall within the range marked out by earlier work), and we cite some of them here because they are, perhaps, the most authoritative recent estimates for the UK by an organisation not closely connected to any of the parties in the current dispute.
33. The table below is drawn from Table 21 of the HMRC study, and shows only the elasticities estimated for off-trade sales of alcoholic beverages: the on-trade elasticities are not relevant for our purposes since, being much higher cost sources of supply, on-prices will not be materially affected by MUP, at least at levels currently proposed.
34. The elasticities below are to be interpreted as measuring the sensitivity of off-trade demand in circumstances where *on-trade prices are held constant (i.e. are unchanging)*, which is likely to approximate the relevant factual situation.¹⁶ They do not, however, take account of effects to do with the change in relative prices of different products within the various categories (beer, wine, spirits, etc.) that can be expected to result from MUP – with retail price increases concentrated on lower cost products – and should therefore be treated as providing only a first approximation to the likely effects on volumes.
35. By way of illustration of the way in which Table 1 should be interpreted, it can be noted first that the column labelled spirits shows the estimated effects on off-trade sales of spirits of changes in the off-trade prices of beer, wine, cider and RTDs. The first entry in the spirits column shows the number -0.3466, meaning that it is estimated that a 1% increase in off-trade prices of beers, holding all other prices (including the prices of wine, cider, spirits and RTDs) constant, will lead to a 0.3466% *reduction* in the volume of *spirits* purchased (implying, in this case, complementarity between the two categories of alcoholic drinks). The asterisks

¹⁵ Although the focus is principally on UK estimates, the study also presents a discussion of elasticity estimates across a range of other countries. HMRC (2010) “Econometric Analysis of Alcohol Consumption in the UK”, HMRC Working Paper 10, December 2010.

¹⁶ Although, as a general matter, it can be expected that the higher, average off-trade prices induced by MUP will increase demand for on-trade purchases of alcoholic drinks, the overall on-trade volume changes implied by the results of the HMRC study are relatively modest in magnitude, and, in our view, are not such as to be likely to give rise to significant re-pricing of products in the on-trade.

indicate that the estimated coefficient (-0.3466) can be regarded as being different from zero (i.e. that it can be concluded that the products are indeed complements) with a high degree of confidence. The bracketed figures are estimates of the extent of sampling error in the estimates, and, as with all such statistical studies, it is important to recognise that the tabulated estimates are far from precise, and hence that the estimated size of each, individual elasticity should be approached with some caution. In our experience, greater reliance can be placed on statistical material when more general patterns of results are discovered. Thus, in evaluating the results shown in Table 1 below, we would be more inclined to emphasise the general pattern of substantial reductions in demand, rather than the relatively low estimate for wine.

36. Turning to the second entry in the spirits column, this indicates that a 1% increase in the off-trade price of wine, holding all other prices constant, is estimated to reduce off-trade demand for spirits by 0.086%. Again, this suggests complementarity between wines and spirits, but the estimated effects are very small, and the absence of asterisks indicates that it is not possible to have great confidence that the effect differs from zero.
37. The fourth entry in the spirits column of Table 1 shows that the estimated effect of a 1% increase in off-trade prices of spirits, holding all other prices constant, is a 0.899% reduction in off-trade purchases of spirits. That is, the estimated price elasticity of demand for spirits is -0.899. It can be noted that the implied effect of a 10% increase in spirits prices – a reduction in demand for spirits of 8.99% – is lower than that shown in Table 2 below. The difference arises because Table 2 shows the estimated impact of a 10% increase in the off-trade price of all alcoholic drinks, not just in off-trade spirit prices, and the fact that the Table 2 number is the greater indicates complementarity between spirits and other categories of drinks considered together. That is, on these numbers, increases in the average off-trade prices of beer, wine, cider and RTDs would, in combination, also hit off-trade sales of spirits.

Table 1: Price Elasticities for the off-licensed trade in the UK

| Regressors | Beer | Wine | Cider | Spirits | RTD |
|---------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| LnP (Beer) | -1.105*** <i>0.059</i> | 0.029 <i>0.046</i> | -0.427*** <i>0.124</i> | -0.346*** <i>0.074</i> | -0.298* <i>0.148</i> |
| Ln P (Wine) | -0.384*** <i>0.044</i> | -0.538*** <i>0.041</i> | -0.905*** <i>0.096</i> | -0.086 <i>0.061</i> | -0.768*** <i>0.118</i> |
| Ln P (Cider) | 0.029 <i>0.056</i> | 0.187*** <i>0.046</i> | -1.341*** <i>0.147</i> | 0.048 <i>0.077</i> | 0.041 <i>0.15</i> |
| Ln P (Spirit) | -0.221*** <i>0.064</i> | 0.043 <i>0.054</i> | -0.367** <i>0.128</i> | -0.899*** <i>0.086</i> | -0.506** <i>0.161</i> |
| Ln P (RTD) | 0.042 <i>0.057</i> | -0.045 <i>0.045</i> | -0.064 <i>0.118</i> | -0.018 <i>0.073</i> | -0.932*** <i>0.162</i> |

* Indicates statistical significance at the 5% level; ** Indicates statistical significance

at the 1% level; ***Indicates statistical significance at the 0.1% level.

Source: HMRC (2010) “*Econometric Analysis of Alcohol Consumption in the UK*”, HMRC Working Paper 10, December 2010, Table 21.

38. The effects of a 1% increase in the off-trade prices of all categories of drinks can be obtained by adding up the coefficients in the individual columns, although we note that this is not quite the factual situation, since the evidence indicates that the prices of different categories of drink will not be equally affected by MUP (see below). That is, MUP cannot be expected to lead to an equi-proportionate increase in all off-trade prices. Nevertheless, we consider that the results shown in Table 2, based on the assumption of an equi-proportionate increase in off-trade prices of 10%, provide a useful first approximation of the magnitudes of the possible effects of price increases on sales volumes.
39. It is also relevant to note that the figures are based on household decisions across the UK, and therefore do not reflect such differences as may exist in relation to price sensitivities in demand between Scotland and other parts of the UK.
40. Having regard to these points, the HMRC estimates of the elasticities of demand for beer, wine, spirits, cider and RTDs when all alcoholic beverage prices in the off trade increase by the same proportionate amount (assumed here to be 10%) are as follows:

Table 2: Elasticities of demand

| | HMRC estimate | Implied fall in demand for 10% increase in all prices |
|---------|----------------------|--|
| Beer | -1.639 | 16.39% |
| Wine | -0.324 | 3.24% |
| Cider | -3.104 | 31.04% |
| Spirits | -1.349 | 13.49% |
| RTD | -2.545 | 25.45% |

Source: HMRC (2010) “*Econometric Analysis of Alcohol Consumption in the UK*”, HMRC Working Paper 10, December 2010, Table 21

41. The numbers here indicate substantial price sensitivities, and, given the magnitudes, it is unlikely that any differences in consumer behaviour in Scotland would affect the overall conclusion that consumption volumes appear to be sensitive to prices. Since very many of the relevant products are imported into the UK, trade volumes can be expected also to be sensitive to higher prices. We note, however, that the drinks category in which imports are of the greatest significance, wine, is the one with the

lowest, estimated elasticity. Even so, a 3.24% reduction in demand in response to a 10% increase in prices is a material effect, particularly given that some imported wines will be subject to significantly higher price increases than 10%, and that elasticities defined over narrower groups of product (e.g. those wines affected by MUP) can be expected to be higher than the numbers shown above.

42. It is also highly relevant to note that the HMRC estimates suggest that there is only very limited substitutability among the broad categories of alcoholic beverages. Thirteen of the twenty cross-price elasticity estimates in Table 1 above have negative signs, indicating a complementary relationship in demand. All of the cross-elasticity estimates that are statistically significant indicate complementarity, with the one exception that an increase in the price of cider is estimated to have a positive effect on the demand for wine, implying that the products are substitutes in demand. However, that conclusion is contradicted by the finding, in the equation for the quantity of cider consumed, that higher wine prices are estimated to depress the demand for wines, and by considerable amounts (suggesting wine and cider are complements).
43. Whilst the authors of the HMRC study are cautious about over-interpretation of these results, and properly draw attention to the difficulties and complexities of getting to reliable estimates of cross-elasticities, we note that there are no very strong *a priori* reasons for doubting the general nature of the findings. As indicated, there is nothing surprising in finding complementarities in demand for products for which social aspects of consumption are important, and where the relevant social groups may very well contain members whose preferred category of drink (beer, wine, spirits, cider, RTDs) differ.
44. Having made these points, it is important to recognise that the elasticity estimates presented by the HMRC are focussed on the relatively short-term impact of price and income changes on demand. Over the longer term, it might be expected that price changes in particular alcohol product categories, such as wine or beer, might contribute to overall shifts in demand between different product categories. For example, it is well documented that there has been a general increase in the consumption of wine at home in the UK in recent decades. While this increase in consumption is reported to reflect a range of wider social influences/factors – such as increasing affluence and the use of home as an entertainment centre; the spread of wine drinking with meals; and the increased availability of wine at supermarkets – we conjecture that it may also, in part, be attributable to longer-term reductions in the average price of wine as compared to other alcoholic beverages.

2.5 The wider distortionary effects of MUP

45. We have noted that MUP necessarily causes a disconnect between prices and costs, which is inherently discriminatory¹⁷ and which can be expected to cause distortions of trade and competition. There is, however, another aspect of the disconnection that is worth pointing out, since it has implications for the effectiveness of MUP as an instrument of health policy. The point we want to emphasise is that the disconnection between prices and costs that is inherent in MUP, leads also to a disconnection between demand-side and supply-side incentives.
46. The whole aim of MUP is to discourage demand for alcoholic beverages by raising their prices; but, unlike other available methods of reducing consumption, *MUP has the (presumably) unwanted side-effect of increasing incentives to supply the products whose prices have been raised.* This is because MUP has the unique property of raising prices by raising retailers' margins on the supply of the relevant products, and the retailer's margin is the retailer's reward for selling more of the product: the higher the margin, the higher the reward.
47. It is also relevant to note the quantitative scale of the effect. Consider, for example, a 75cl bottle of low cost wine that would sell for £3.90 in the absence of MUP, but that is required to be sold for a minimum price of £4.80. Of the £3.90 total price, 65p will be accounted for by VAT and £1.90 by duty, leaving £1.35 for producers, distributors and retailers. Suppose that a third of this, 45p of this is the retailer's margin, amounting to around 11.5% of the selling price, and that the other 90p is the (delivered to store) cost of the product to the retailer.
48. When the retail price increases to £4.80, VAT will increase to 80p and duty will remain unchanged at £1.90, giving a total tax take of £2.70. There will now be £2.10 to be shared among producers and distributors. At the same cost-to-the-retailer as before, the retailer's margin will increase to £1.20, which represents an increase in the amount the retailer is paid to sell an extra bottle of wine of 167%. That is, there would be a very substantial increase in the incentives for retailers to sell more.
49. We are instructed to assume that retailers would comply with MUP, and have no reason to think that they would seek to undermine the policy by price discounting, even though such discounting would likely be very profitable, by attracting more sales of what would continue to be a high-margin product, even after discounts. However, there are many, many ways in which retailers can influence the level of sales of

¹⁷ The term discrimination is used here in its technical economic sense. Although a range of slightly differing definitions of price discrimination are employed in different parts of the economic literature, they all tend to be based around the common idea or notion that price discrimination refers to a situation where two "similar" products which cost the same to supply are sold at different prices. Put slightly differently, discrimination could be said to occur whenever a seller sells a similar product to different buyers at different prices in ways that are not fully related to cost.

particular products that they stock by means other than the price that they charge, and we will take a brief look at examples of these in section 4 below.¹⁸

¹⁸ We are aware that a number of restrictions have been placed upon Scottish retailers in recent years, which make some methods of promoting sales of alcohol illegal. However, these restrictions are far from comprehensive, and the specific examples that we discuss are, so far as we know, lawful business conduct. The restrictions may, therefore, affect the magnitudes of some of the relevant economic effects, but they do not invalidate the more fundamental of the points that we will make.

3. ANALYSIS OF THE FIRST DRINKS BRANDS SURVEY OF RETAIL PRICES

50. In order to assess the more significant aspects of detail of the likely economic effects of the introduction of MUP in Scotland we have been directed to the data produced by a survey of retail prices of alcoholic beverages in Scotland, undertaken by First Drinks Brands Ltd. The analysis presented in this section is not intended to be a fully specified model that takes account of all the relevant effects, but it is, in our judgment, informative and sufficient for the purposes at hand.
51. For the reasons outlined in the preceding section, it is our view that MUP can generally be expected to cause distortionary effects on inter-country trade and on competition. The economic results to this effect are almost self-evident: MUP causes a disconnect between prices and costs that, almost definitionally, leads to discriminatory effects, and there is abundant historical evidence on what happens to economic performance when prices cease to reflect costs, and when demand side incentives (to reduce consumption) are in conflict with supply side incentives (to increase sales).
52. What remains on the empirical side then, is to check whether there is anything in the evidence that suggests that the expectations derived from general principles are unlikely to be reliable in this specific case. In particular, we consider it to be good practice to always examine the available evidence to test whether there is anything observable that might be regarded as a ‘contra-indicator’ in relation to the maintained view or position, since there can be scope for peculiarities of circumstance and situation to give rise to unusual outcomes. With this point in mind in the sections that follow we discuss the results of the empirical analysis of the likely effects on trade and on competition of the MUP using the data provided by First Drinks Brands Ltd.

3.1 Effects on trade

53. On the points already made in section 2, the MUP can, in economic terms, be expected to discriminate against consumers of low-cost products, via the mandating of supernormally large retail margins on such products, and against suppliers of low-cost products by prohibiting them from achieving higher sales volumes, via lower prices, than is merited on the basis of their performance relative to competing suppliers. Where the latter effect is linked to low cost imports, it is to be expected that trade with countries that are major sources of low cost supplies will be adversely

affected in a discriminatory way (i.e. trade volumes with higher cost sources of imports will not be affected to the same degree).

54. Against this general expectation of the likely effect on trade, we have therefore looked for contra-indicators to these propositions in the First Drinks Brands Ltd dataset. Specifically, we have looked for evidence of an absence of the discriminatory effects identified, such as would be shown, for example, by evidence that the prices of different alcoholic beverages from different geographic sources would be affected in similar ways.
55. More precisely, we have conducted regression analyses on the size of price increases implied by MUP pricing and the geographic origin of the relevant products. The latter is captured by dummy variables that, in the first instance, distinguish between the UK, the EU other than the UK, and the Rest of the World (RoW). Thus, even with this very basic approach, it would in principle be possible to find evidence that could cast doubt on the general arguments adduced above. The most obvious contra-indicator in relation to trade effects would be a finding that price increases attributable to MUP were broadly similar for alcoholic beverages from different countries of origin.
56. Given these points, our initial investigations focused on two regressions:¹⁹

$$\text{Price increase} = \alpha + \beta \text{RoW} + \gamma \text{UK}$$

$$\text{Price increase} = \alpha + \beta \text{RoW} + \gamma \text{UK} + \delta \text{France and Germany}$$

57. In the first of these regression equations, the estimate of the intercept α is the average price increase from products sourced from elsewhere in the EU other than in the UK, and the equation has been applied to all five drinks categories.²⁰ The other coefficients (β , γ and δ) show the differences in average prices, measured relative to the intercept value, of products sourced from the rest of the world, the UK, and France & Germany respectively.

The second regression equation has been used only when analysing the impact of MUP on wine prices, and is intended to allow for different climatic conditions in the major wine growing areas of Europe (which in turn have implications for both the characteristics of the products themselves and for production costs), based on an initial distinction between more northerly and more southerly regions.

¹⁹ Regression analysis is a method of quantifying the relationship between one variable (in this case the price increase) and other variables that are thought to explain it or to be otherwise be related to it (such as the price of the product, the prices of close substitutes and complements, and consumers' incomes). Regression analysis can assist in identifying how close and well determined the relationship is between these variables.

²⁰ The five drinks categories are wine, spirits, beer, cider and RTDs.

58. In the second regression the intercept α is the average price increase for wine exporting EU member states other than France and Germany. In the First Drinks Brands Ltd survey of retail prices in Scotland, Italy and Spain are the major sources involved with a lesser contribution from Portugal, and some limited imports from Bulgaria and Cyprus.

Price increase or decrease to the MUP

59. As a preliminary step, and across all five drinks categories, we analysed the price increase, or decrease, that could be expected to occur if all products were required to be sold, at retail, at a price equal to the number of units of alcohol contained in the bottle or can, multiplied by 50p. This is, of course, counter to the relevant facts in that what is proposed is a minimum price, such that retailers can sell products at levels above MUP. However, the survey results contain information about products that do sell at prices above the proposed MUP²¹, and, in considering impacts on trade flows, it is of interest to consider the sources of products that sell at modest premiums to MUP. For example, if the MUP were to be increased in the future, the prices of a number of these other products might have to rise, because they too would then be directly affected by the policy. The change of an existing price to a MUP, whether the price is or is not below the MUP, is a rough and ready way of getting sight of the wider picture.

60. The results are shown in tables 7 to 12 at Annex B, and we do not discuss them in detail because the later regressions are more closely linked to the actual factual context. They do, however, indicate that the effects of MUP on prices can be expected, on average, to be significantly different in terms of effects on suppliers in different geographic areas in ways that are consistent with the general economic reasoning set out above.

61. It should also be emphasised that the results relate to geographic averages, and that the underlying data indicate that there can be very substantial differences in the impacts on different suppliers in a given geographic area. More specifically, if the average effects on prices were the same on all geographies, it could not be concluded from that outcome (which is not the case in any event) that MUP did not have the discriminatory and distorting effects discussed above. For example, low cost producers in all geographies would still be directly harmed by the policy.

62. The key conclusions of the initial analysis are as follows:

²¹ Provided that the discrepancy is not more than 20%.

- In relation to wine, MUP would have the least constraining impact on UK produced wines, and would imply significant upward adjustments, on average, in the prices of wines from other EU member states and from the Rest of the World.
- MUP in Scotland would be to the advantage of English wine growers.
- The increases in prices for wine imports from other EU member states are, on average, attributable almost entirely to imports from ‘Southern Europe’.
- In spirits, the position is reversed: it is UK producers who, on average, would suffer the most from the constraining effects of MUP.
- For beer, UK and other EU producers would be in a similar average position, but there is an indication that, in this case, it is imports from the Rest of the World that would be the least affected. We note that this fits with the notion that such suppliers are likely to have higher costs because of the costs of transporting beer over long distances.
- Cider producers would be very severely affected by MUP. Cider consumed in Scotland is mostly produced in the UK, with some imports from the rest of the EU, chiefly the Republic of Ireland. Like for spirits, on average, imports would be less heavily affected than domestic production.
- MUP has relatively limited implications for RTDs²², which are chiefly sourced from the UK.

63. To repeat the point made at paragraph 59 above, the purpose of this analysis was principally to capture a more general point that, whilst the MUP will, by definition, lead to a change in prices for those products which are currently priced below the relevant threshold, it is also possible that products currently priced above the MUP may also be affected by such a policy in the longer term, for example because of increases in the MUP.

64. Consider what might happen to products that are priced levels slightly above the MUP. According to the First Drinks Survey, for example, the price of a 750 ml bottle of Tesco own label Sicilian wine was £3.99 and will increase to £4.70 per bottle following the introduction of MUP. Tesco currently stocks three other Italian red wines (Canti, Inycon and Dino) that are priced at £4.99 per bottle. Assuming that the underlying cost paid by Tesco to the wine producers does not change (i.e.: the

²² Ready to Drink products, e.g.s. Bacardi Breezer, Jack Daniels and Cola.

wholesale price remains constant), then it might be expected that in response to MUP, Tesco would put greater effort into promoting sales of its own label Sicilian wine (as it now earns a substantially increased margin per bottle on such sales). One possible short-term response of Tesco might be to devote relatively more shelf space to the own label Sicilian wine as compared to the other private label Italian red wines. Over time, however, it may decide that, given the higher margin on the Sicilian red wine, that it will no longer stock one or all of the other brands of red wine (i.e.: it would de-list the wines).

65. Indeed, although predicting retailer strategies is a somewhat speculative exercise, we think economic logic points to the de-stocking of higher-priced products as a likely outcome. The point here is that, as a result of MUP, the margin on the own-label wine will likely be *substantially* higher than the margins on substitutable products selling a little above MUP. Whilst the prices of such substitutable products could be increased so as to increase their retail margins, quite significant price increases would likely be required to bring their margins up to anywhere close to the margins on the own-brand product. Unless one of the relevant wines has a particularly strong following among a particular group of consumers – in which case we might have expected that its retail price would already have been elevated to reflect brand strength – the reduced volumes of sales caused by an increase in its price would reduce its attractiveness to retailers, and perhaps particularly in larger supermarkets in which lower-volume products face intense competition for shelf space from fast moving (i.e. high volume) products.
66. The issue of the retail response to MUP is discussed again in section 4.1 below, but the relevant points for current purposes are simply that: (1) it is reasonable to expect that MUP may have impacts, albeit to different degrees, for prices and distribution of alcoholic products that are currently priced above the applicable threshold; and (2) that the impacts on these products are likely to reflect a range of factors such as the demand and cost characteristics of the relevant products.

Price increase to the MUP

67. The results reported in tables 1 to 6 of Annex A are of a similar type, but in these cases all products with retail prices above the relevant MUPs are assigned a price change of zero, rather than a negative number. As already explained, this accords more closely with the likely factual situation, at least in the immediate aftermath of the introduction of MUP, as it assumes that after the introduction of the MUP those products priced at levels above the MUP will not change, and will not be reduced to

the level of the MUP.²³ Regressions 1 to 6, therefore, provide the more accurate picture of the retail price implication of MUP. The key results of this analysis for each of the five drinks categories are as set out below.

Wine

68. For wine, the average (per product) retail price increase (for products included in the First Drinks Brands survey²⁴) attributable to MUP is as follows:²⁵

| | |
|------------------------------------|---------|
| Imports from EU member states | + 17.3% |
| Imports from the rest of the world | + 10.2% |
| UK produced wine | + 5.1% |

69. If EU imports are disaggregated, the picture becomes:

| | |
|--|---------|
| Imports from EU excluding France & Germany | + 19.3% |
| Imports from France and Germany | + 11.1% |
| Imports from the rest of the world | + 10.2% |
| UK produced wine | + 5.1% |

70. The key results are simply that:

- The average price increases are substantial; and in interpreting them, it is relevant to remember that, for a large number of the products, it has been assumed that MUP would have no effect, implying that, for those products affected, some of the price increases will have been substantially higher. In fact, the average price

²³ As noted above, over time retailers can be expected to increase the prices of substitutable, higher-priced products, and/or reduce their shelf space allocations, and/or either remove them from some stores or delist them entirely. The first and second of these effects would increase the average price increase attributable to MUP, as calculated from the First Drinks Brands survey (the impact of the third effect depends upon how the prices of withdrawn products compares with the average price), and hence our estimates of the impact on average prices are likely to be on the low side. However, since the adjustments are likely to be most significant for 'mid-range' products, and since we expect that withdrawal-from-the-shelves effects will be significant, we do not think this raises major issues.

²⁴ All empirical results in this section are based on the First Drinks Brands dataset.

²⁵ The figures cited in the following paragraphs are based on the data of wine with UK origin identified in the First Drinks Survey. However, we have been advised by the SWA that these are all in fact "British made wine" based on imported raw materials, and that none are PDO English wines.

increases *for those products which could be expected to be directly and immediately affected by MUP*²⁶, are as follows:

| | |
|--|---------|
| Imports from EU excluding France & Germany | + 25.7% |
| Imports from France and Germany | + 20.8% |
| Imports from the rest of the world | + 17.8% |
| UK produced wine ²⁷ | + 20.5% |

- There are substantial differences in the price implications of MUP for wines sourced from different countries (the increases shown at paragraphs 68 and 69 are the relevant numbers here): the discriminatory effects on trade patterns are manifest.
- These price effects can be expected to give rise to substantial volume effects. Remembering that price elasticities of demand can be expected to be higher the narrower the product set for which the price change is defined – implying, for example, that a 10% increase in the relative prices of, say, Italian and Spanish wines can be expected to have a significantly (and possibly substantially) more depressing effect on Italian and Spanish wine imports than would a 10% increase in the price of all wines – the differential volume effects on imports from different sources can be expected to be significant.

71. Before reaching an overall conclusion on the effects of MUP, it is instructive to compare the effects of the MUP with the alternative policy of increasing the duty rate on wine. Duty on wine is not affected by the price of the product, and hence that the taxation component of the final retail selling price will be higher for lower-price products. This means that, if duty is increased, the retail prices of lower-cost products can be expected to increase by more, in proportionate/percentage terms at least, than the prices of higher-priced products. It is possible therefore, that the patterns of price increases recorded above would be little different if the alternative option had been pursued.

72. The data show, however, that the differential effects could be expected to be significantly smaller under the alternative policy, as might be expected from the

²⁶ These are the products that, according to the First Drinks Brands survey, were being sold at less than MUP. It can be noted that, in this case, there is no issue of possible under-estimation (see footnote 22), since products retailing at or above the MUP are not included in the averaging.

²⁷ See footnote 24.

simple observation that it has the effect of raising all prices, not just those that cost the least. For example, a 40p increase in the duty rate, raising it from £1.90 to £2.30 per bottle, is estimated to increase retail prices for southern European wines by about 10.6%, and wines from France and Germany by about 8.8%.

73. In sum, there are, therefore, no obvious contra-indicators for the established economics on MUP discussed in section 2 above. To the contrary, the evidence indicates exactly the kind of discriminatory effects to be expected.

Spirits

74. For spirits, the average (per product) retail price increase attributable to MUP is as follows:

| | |
|------------------------------------|---------|
| Imports from EU member states | + 10.7% |
| Imports from the rest of the world | + 9.6% |
| UK produced spirits | + 14.0% |

75. The differences here among exporting areas are not so pronounced as for wine, and, within the usual margins of error, the impacts on spirits imports from other EU member states and from the rest of the world are about the same (approximately 10%). The average price impact on UK sourced products is, however, higher than for imports, and although the differential between the two (domestic production and imports) is not particularly large, the volume effect depends also on the price elasticity of demand. As indicated in Tables 1 and 2, demand for spirits is estimated to be more sensitive to price changes than is the demand for wine, and the overall implied reduction in volumes is somewhat greater for UK spirits than for southern European wine.

76. Again, therefore, the survey results point to a discriminatory and distorting impact on EU and wider trade flows in the relevant products.

Beer

77. For beer, the average (per product) retail price increase for observations included in the First Drinks Brands survey attributable to MUP is as follows:

| | |
|------------------------------------|---------|
| Imports from EU member states | + 12.5% |
| Imports from the rest of the world | + 10.0% |
| UK produced beer | + 14.8% |

78. The picture here is much the same as in spirits, with the main differential effect being a higher increase in the average price of UK produced beers. However, as the information on the results of the relevant regression (regression 4 in Annex A) shows, there is greater variability in the underlying data than in the spirits case, and hence there can only be a lesser degree of confidence in the conclusions concerning the rankings.

79. Three points might be made at this stage, lest the implications of this comment be misconstrued:

- It remains the case that, on a *balance of probabilities* basis, the evidence indicates differential effects, with the price impact being greatest for UK beers and least for imports from the Rest of the World. The point is just that the balance is closer than in the cases of wine and spirits.
- Even if there were no differential effect, it would be wrong to conclude that MUP has no discriminatory effects. It would still continue to be the case that it discriminates against low cost producers and consumers of low cost products; and the most likely explanation then would simply be that the distribution of such producers was relatively uniform across countries.
- The potential for discriminatory trade effects would still exist in the presence of a uniform distribution of low-cost producers across nations. Such a uniform distribution would, from an economic perspective, likely be an ‘accidental’ result of a particular conjunction of economic factors, which was not sustained by any underlying economic processes; and which could be expected to change over time. Indeed, as explained above, MUP impedes the development of comparative advantage.

80. Also as in the case of spirits, we note that the HMRC estimates of price elasticities are particularly high for beer; and that, even though the average relative price change is smaller than for wines and spirits, the consequential volume changes could be just as great.

Cider

81. For cider, the average (per product) retail price increase attributable to MUP is as follows:

| | |
|------------------------------------|---------|
| Imports from EU member states | + 0.0% |
| Imports from the rest of the world | N.A. |
| UK produced cider | + 59.6% |

82. The results here reflect the purchase of higher priced, 'premium' products from the Republic of Ireland and Sweden, and a wider range of ciders from UK producers. MUP will, therefore, in this case have a quite massive differential effect on producers in the UK.

RTDs

83. In the Ready-to-Drink (RTD) case there is only one product that would be affected by MUP, which is an EU import, and this accounts for the unusual identity of coefficients in the relevant regression equation. The effects of MUP on this category of alcoholic beverage are, therefore, likely to be minimal, unless it is the case that the single example of a low-price RTD reflects a potentially emerging strategy on the part of suppliers.

84. We think that this latter possibility is unlikely to become a major problem in the absence of MUP. The current system of duties already establishes a relatively high rate per unit of alcohol (compared with wine, beer, spirits and cider), and, to return to the alternative policy option identified at the outset, an across the board increase in alcohol taxation would leave this relativity intact.

An example of the economic/business consequences of the differential price effects

85. The analysis and discussion above has focussed on the average impacts of MUP on alcohol producers at the aggregate level, that is, in terms of the relative distortions that the MUP will create for producers located in different geographic/trading regions. However, it is also instructive to focus on how the MUP might directly impact a low cost producer of a particular product in a specific region which exports into the UK.

86. Consider, for example, the position of a low cost producer of wine in Spain such as Vina Albalí (which we understand to be the largest selling Spanish wine in the UK)²⁸, who, according to the First Drinks survey data might conceivably see its products'

²⁸ International Wine & Spirit Research (2012) 'Annual report on consumption of alcoholic drinks' June 2012, page 24.

retail price increase by 47% following the introduction of MUP. Suppose further, for illustrative purposes, that the off-trade prices of all alcoholic drinks in Scotland (and not just those in the First Drinks Brands Survey), increase by around 15% as a result of MUP).²⁹ According to the HMRC elasticity estimates, the effect of a 10% increase in the price of all alcoholic drinks on wine consumption would be a reduction of around 3.24% (see Table 2), and it follows that a 15% increase in prices would result in a reduction of wine consumption of 4.86%. However, the low-cost producer of Vina Albali also faces a further 28% increase in prices, beyond the average 15% rise (this is the differential price effect of MUP), and here the relevant price sensitivity of wine demand can be expected to be substantially higher (see the second bullet point in paragraph 31).

87. The HMRC estimates suggest that a rise in the price of all wines, with beer, spirits, cider and RTD prices held constant, would mean an elasticity of -0.538. A rise in the relative price of low-cost wines could be expected to be associated with a much larger elasticity still, since wine drinkers could, if MUP were implemented, simply switch to another wine, which was, as a result of the differential impact of MUP, now relatively cheaper. Taking a conservative estimate of -1.0 for the elasticity (and the price sensitivity could easily be much more substantial than this),³⁰ the Spanish producer could expect to face a further 28% drop in sales as a result of MUP. That is, on this basis, more than 30% of all sales in the relevant market would be lost, and, to repeat, we consider the elasticity estimates used to be conservative estimates – the impacts could be greater than this. Moreover, most of the lost sales are attributable to the distorting/discriminatory effects of MUP, not simply to the fact that retail prices have been raised.

88. While the discussion above has focussed on the impact of MUP on one specific wine product (Vina Albali), the First Drinks survey data indicates that there are numerous other products in the spirits and beer categories that would likely be affected in a similar way. For example, in the spirits category, certain French Brandy products sold at Morrisons, ASDA, Tesco and Sainsbury might expect to see the retail prices for their products rise by up to 28%. Similarly, the German supplier of Rachmaninof vodka could see a retail price increase of 50%. For beer, the First Drinks Survey data suggests that Belgian producers of Biere de Belgique might see a retail price increase of 26%, the French producer of Biere D'Or might see a retail price increase of 43%, and the Dutch producer of Bavaria beer might see a price increase of 26%.

89. Even applying the price elasticities shown in Table 2, derived from the HMRC study

²⁹ Although this increase in price is an assumption, the data from the First Drinks survey suggest it may not be too far off the mark

³⁰ We have not had time to explore the evidence on the relevant, narrower elasticities of demand.

(which can be expected to under-estimate volume impacts, since these elasticities assume equi-proportionate price increases whereas here we are dealing with products for which the price increases are likely to be larger than average – see the second bullet point in paragraph 31 above), the implied sales volume reductions are substantial. The estimated impacts for the above products are as follows:

| <u>Product</u> | <u>Origin</u> | <u>Price increase</u> | <u>Sales volume reduction</u> |
|-------------------|---------------|-----------------------|-------------------------------|
| Brandy (various) | France | Up to 28% | Up to 38% |
| Rachmaninof vodka | Germany | 50% | 67% |
| Biere de Belgique | Belgium | 26% | 43% |
| Biere D'Or | France | 43% | 70% |
| Bavaria (beer) | Netherlands | 26% | 43% |

3.2 Effects on retail competition

90. The First Drinks Brands Survey contains data on retail prices in different types of outlet, and thereby enables us to examine what the effects would be on average prices in these different types of outlet of MUP at 50p per unit, if the outlets concerned continued to sell the same range of products as at the time the survey was conducted.³¹ Since general evidence on the cost and pricing structures of retail outlets indicates that costs/prices tend to be higher in smaller convenience stores, the expectation is that pricing in smaller stores will be less affected by MUP than larger supermarkets, at least in the short-term. The wider implications of these points relate to the potential distortion in trade that the MUP may create between retail outlets such as supermarkets (or other outlets that stock alcoholic products), and more specialised retail outlets that focus on supplying specific types of alcoholic products (i.e.: specialist wine merchants, or import companies that specialise in the distribution of specific product lines).

91. To test this out, and to test for contra-indicators that would challenge the standard position in economics (that MUP has distorting and discriminatory effects on trade patterns and on competition), we have looked at the following simple regression equation:

³¹ Since, for reasons already discussed, and which will be developed further below, MUP can be expected to have significant, distorting effects on retail competition, it is to be expected that, over time, there will be consequential changes in the product ranges that retail outlets will carry. The survey results, which provide a snapshot of prices and products stocked at a particular time, clearly cannot be used to address this type of longer-term issue.

$$\text{Price increase} = \alpha + \beta I$$

Where I is a dummy variable taking the value 0 for major supermarket outlets, and the value 1 otherwise. The price increase is defined as the percentage increase in the retail price if products were sold at MUP, provided that MUP is greater than the recorded retail price. If MUP is below the recorded retail price, the price increase is assumed to be zero. The recorded retail price is the actual price at which the relevant product is being offered in the outlet, and is therefore the promotional price if a promotion was actually running at the time the data were recorded.

92. The equation was run for each of the product categories wine, beer, spirits and cider,³² and the results are shown below:

| | Average price increase supermarkets (α) | Average price increase in non-supermarkets ($\alpha+\beta$) |
|---------|---|--|
| Wine | 16.4% | 1.1% |
| Spirits | 14.4% | 4.0% |
| Beer | 13.7% | 10.9% |
| Cider | 56.2% | 50.1% |

93. As can be seen, for each of the product categories, the impacts are greater for supermarkets than for non-supermarkets. This is in line with the general point that MUP has discriminatory/distortionary effects according to the costs of the supplier. As before, it is the lower-cost suppliers of retail services whose prices are most increased. However, in this case, all retailers will enjoy increases in margins, and higher price increases signify higher margins. The differences in the average price increase are particularly pronounced for wine and spirits, implying that the effects in terms of greater retail margins will be significantly greater for supermarkets than it will be for non-supermarkets for these products.

94. The comparison between different types of outlet is particularly instructive in relation to the distortionary trade effects of MUP, since there is, so far as we are aware, no very obvious basis for an expectation that an across the board duty increase would

³² We have omitted the RTD as there is only one observation with a price increase.

have such a significant effect on retailing margins, and potentially on the structure of retail competition.

4. THE ECONOMIC IMPACTS OF MUP IN MORE DETAIL

95. In this section, we examine some of the potential distortionary/discriminatory impacts of MUP in greater detail. The analysis is intended to be illustrative, not exhaustive; not least because the unintended consequences of poor economic policy are often numerous and vary according to the innovative efforts of economic agents as they adjust to the distorted incentive structures that such policy creates. It needs hardly be added that the future results of efforts to innovate are hard to predict.
96. The general conclusion to which economic analysis leads in this case is that it is possible to be very confident that distortionary/discriminatory effects will eventuate, but that it is not possible to evaluate those effects in a comprehensive and precise way. The first point follows from the earlier arguments that (a) MUP prevents prices reflecting costs, negating a fundamental mechanism of market processes, and (b) the incentives it creates on the two sides of the divided market it creates are mutually contradictory: consumers are discouraged from consumption of alcoholic beverages by higher prices, retailers are encouraged to sell more alcoholic beverages by the higher margins they make on such products. The second point is why we explore only a few of the more obvious, unintended effects of MUP.

4.1 Effects of MUP on retail competition

Incentives for retailers to sell

97. While the discussion up to this point has emphasised that, other things equal, the increase in prices associated with MUP would be expected to result in a reduction of demand for those products affected by such a policy. There is, however, a potential indirect effect of the MUP on demand, and this also needs to be factored into any assessment of the overall effects of MUP. Specifically, the indirect effect arises because of the changed retailer incentives following the introduction of MUP.
98. Consider first the consequences of substantially higher retailing margins on a set of products (lower-cost alcoholic beverages) which cannot, as a matter of law, be eroded by competition from other retailers, since MUP pricing applies to all suppliers. The retailing margin – the difference between the selling and purchase prices of the relevant products – is, in effect, the payment to the retailer for the economic services that the retailer provides. MUP implies that the retailer is paid more for selling those alcoholic beverages whose prices are constrained by the policy than would otherwise be the case (i.e.: under such a policy it would be expected that, other things being

equal, the retailer would receive a higher margin on products to which the MUP applies than it would if no such policy existed).

99. As a result, the retailer has incentives to allocate more resources than before in order to sell the relevant products affected by the MUP. There are a number of ways in which this can be achieved, of which the following are examples:

- More display space can be allocated to the products.
- Closely related to display/shelf space, product availability can be increased. Retail outlets, even the largest, do not, and cannot, carry all possible alcoholic products. In choosing which products to retail, and in which stores (if the retailer has a chain of outlets), the retail margin on the product is a major consideration: other things being equal, higher margins lead to increased availability. This might lead to increased shelf space allocations to alcoholic beverages in general, but it can also be done with a given shelf space allocation by replacing lower retail margin products with higher retail margin products.
- High margin products can be displayed in more favourable locations within a store, for example areas where there might be more passing ‘traffic’ or shelf locations with better line of sight characteristics.
- The prices of substitutable products can be increased, to induce switches of purchases from lower margin products to alcoholic beverages whose margins have been very substantially enhanced by MUP.³³ The most obvious potential way of doing this would be for retailers to increase prices of the most closely substitutable alcoholic beverages (e.g. wines that currently sell at prices close to, but slightly above, the proposed MUP). This would, of course, raise the margins on these other products, and tilt incentives further toward the promotion of alcoholic beverages generally.
- The prices of complementary products can be reduced (the definition of complementary products implies that a price reduction for one will *increase* demand for the other).

100. The above points suggest that the potential indirect effects of MUP, in terms of changed retailer incentives, might be expected to act to potentially lessen the impact on demand from such a policy, and this outcome can again be illustrated by

³³ For a formal analysis of multi-product pricing by retailers, see Bliss, C (1988) “A Theory of Retail Pricing”, *Journal of Industrial Economics*, 36: 375—391. For more policy centred analysis of similar ground, see Competition Commission (2008) “The Supply of Groceries in the UK Market Investigation”, 30 April 2008.

comparison with what happens when alcohol duty is increased across the board. In response to a fall in demand caused by higher prices, supermarkets might be expected to reduce the shelf space allocated to alcoholic drinks, including by ceasing to carry some of the range of products that they previously sold. This reduced ‘availability’ of products to consumers, can in turn be expected to have negative effects on demand which *reinforce* the effects of higher price rises.

101. MUP, on the other hand, tends to mitigate such ‘availability’ effects on demand. As explained, the per-unit, retail profitability of what had previously been low-priced drinks can be expected to increase substantially. In aggregate, such drinks might continue to justify similar shelf-space allocations as before (the introduction of MUP), since, notwithstanding falling demand, each unit sold is worth a good deal more.³⁴ That is, the ‘reinforcement effect’ of lower availability is weakened, as compared with a situation in which alcohol duties are increased across the board. In short, unlike a policy based on an increase in alcohol taxes, MUP potentially changes the incentives of retailers in ways that work against the public policy objectives. This potential unintended consequence of MUP, has been identified by the Office of Fair Trading in its written evidence to the House of Commons Health Committee:

“At its simplest, setting a minimum price would require retailers to charge more than they currently do for low cost alcohol. There is good evidence that this price increase would be likely to lead to some reduction in demand for alcohol, as the Government intends.

However the price increase is also likely to generate windfall gains for retailers, as predicted by recent independent modelling carried out by researchers at the University of Sheffield. Unlike an increase in tax, additional consumer spending on alcohol would go to private firms rather than to the Government.

*The OFT is concerned that the unintended consequence of this increase in profit may be to give retailers an incentive to sell more, rather than less, low cost alcohol. Retailers would gain additional profit for every unit of low cost alcohol that they sold. At worst, such an incentive could dull the effectiveness of the minimum price in reducing alcohol sales.”*³⁵

102. It is perhaps worth emphasising that the effects discussed do not affect the analysis of price effects set out in section 3 above. It remains the case that MUP will

³⁴ Higher priced products in the same drinks category, being less profitable, would not be subject to the same effect, and it is their ‘availability’ to consumers that is likely to be affected most. Indeed, for reasons given earlier, there may be strong incentives for retailers not to stock a number of products that are currently retailed at prices a little higher than the MUP.

³⁵ Office of Fair Trading (2012) “Written evidence from the Office of Fair Trading (GAS 09) - Health Committee - The Government's Alcohol Strategy”, 21 July 2012, paras 10-12.

increase retail prices, and increase them in discriminatory/distorting ways, and that this will have the effects on product sales volumes discussed above. The point here is that, if retail price increases were the result of an increase in duty, it could be expected that reduced sales volumes, caused by the higher prices, would lead retailers to allocate less shelf space to alcoholic drinks, and to take some products off the shelves entirely. The reduced availability of products in stores could then be expected to have a further, negative impact on sales volumes (what we have called a reinforcing effect), over and above the price effects with which we have been chiefly concerned. It is this second effect that is weakened by MUP, on account of the policy's creation of very high retail margins on a range of low-cost alcoholic beverages, which may continue to warrant generous shelf space allocations for the relevant products despite falling sales volumes.

4.2 Complementarity in more detail

103. To explore matters at the next level of detail down, consider the implications of complementarities among the products that retailers sell. In relation to the demand facing a particular retailer – which is what will matter to that business – there is a general tendency to complementarity amongst the products sold. This is because a low price for one particular product affects the number of people who visit the store and, once in the store, there is a greater chance that other products will also be purchased at the same time, rather than from some other retailer later. Supermarkets' strategies in particular are heavily driven by this effect – the aim is to get customers into the store, and then to fill their baskets with all manner of different products once there – but it also operates, albeit with much lesser force, for smaller retailers too.

104. The great majority, if not all, retailers of alcoholic beverages will have opportunities to reduce the price of complementary products in order to attract increased sales of high-margin alcoholic beverages. This is most obvious for the supermarkets, whose incentives to reduce the price of other complementary products will be increased (which is why it is reasonable to believe that consumers in aggregate can, over time, be expected to claw back some of the reductions in real incomes caused by the initial price impacts of MUP).³⁶ However, it applies also to convenience stores that carry a range of other (non-alcoholic) products, and even to specialist drinks outlets (see further below).

105. To illustrate the issues, consider the example of a detailed, avoidable market distortion in the spirits segment of the market sector. A white spirit such as vodka or white rum or gin is typically consumed with a mixer drink, colas being the prime

³⁶ Although since full rebalancing of price structures relies upon the longer term tendencies of competitive markets, linked for example to store openings and closures, it can be expected that MUP would result in substantial transfers of income from consumers to retailers for a period of several years at least.

example: in a relatively recent UK competition case it was found, for example, that nearly 90% of the white rum (of which Bacardi is the major brand) bought in off licensed premises is consumed mixed with a cola. This consumer preference creates a direct and obvious complementarity between a range of soft drinks (principally colas) and the relevant white spirit.

106. Consider now the pricing strategy of a supermarket that, thanks to MUP, is enjoying a high margin on low-cost vodkas. An obvious pricing strategy is to increase the frequency and intensity of special offers on complementary soft drinks. Whilst it would be convenient for a vodka-and-cola or rum-and-cola consumer to take advantage of the soft drinks offers whilst buying vodka somewhere else, there is no obvious incentive to do so, since, thanks to MUP, the vodka cannot be found elsewhere at a lower price. The expected tendency is therefore for the vodka to be bought where the cola is bought, and there is nothing to stop price competition between retailers in sales of cola.
107. Since the relevant consumers are, in effect, purchasing a combination of white spirit and cola (or what might alternatively be termed ‘alcoholic cola’), it can be seen that the price hike caused by MUP for white spirits can, partially or in its entirety, be unravelled by discounts on coke, such that the price of the combination white spirit + cola increases by less than intended by the MUP. The same point can clearly be made for any mixer drink.
108. White spirits are amenable to this type of pricing strategy, but dark spirits such as whisky are much less so. Although there are some mixer drinks based on whisky they are the exception rather than the norm. One of the possible effects of MUP, therefore, is to distort competition in the supply of spirits in a way that discriminates in favour of white spirits such as vodka and rum.
109. More generally, it is our understanding that there is nothing in the provisions of the Alcohol (Minimum Pricing) (Scotland) Act 2012 that restricts the ability of retailers to combine or bundle the pricing of alcoholic products with other non-alcoholic products. Rather, such bundling appears to be anticipated by the legislation. Thus, a new paragraph 6A is inserted into each of schedules 3 and 4 of the Licensing (Scotland) Act 2005 which opens as follows: “(1) *Alcohol must not be sold on the premises at a price below its minimum price.* (2) *Where alcohol is supplied together with other products or services for a single price, sub-paragraph (1) applies as if the alcohol were supplied on its own for that price*”. To the extent that retailers engage in such practices, it can be expected that the *effective* price of alcohol will be maintained at a price which is below the MUP.

110. Finally on this particular issue, we emphasise again that other policy instruments aimed at meeting the relevant health objectives can avoid the kinds of effects described above. The most basic amongst them – though not, we emphasise again, necessarily the best – would be an across-the-board increase in alcohol taxation. This is not without some of the difficulties to be discussed in the next section of this paper, but it would avoid the adverse, unintended consequences described above. Because such an approach does not put demand-side incentives at war with supply-side incentives, those difficulties would not arise.

4.3 Other possible unintended consequences of MUP

111. To indicate that the examples of MUP's likely unintended consequences given above far from exhaust the possibilities, in this final section we simply list some of the more obvious possibilities. They are mostly obvious, and we therefore do not provide full discussions of the various chains of consequences.³⁷

Increased personal imports

112. For a range of products, MUP will cause a substantial increase in the price advantage of purchasing alcoholic beverages abroad for consumption in Scotland. Increased purchases of lower-priced products abroad will naturally work against the lower consumption that MUP is intended to bring about. In general terms the effect is likely to be greatest for drinks with greater ABVs, since it is alcohol content that is the major source of the price differential, and it can be imported in less bulky form in stronger drinks.

Increased inter-regional flows of product

113. If MUP is introduced in Scotland, and the rest of the UK does not follow, then the retail prices of a range of alcoholic beverages will be lower in England and Northern Ireland than in Scotland, in some cases by potentially large amounts. This can be expected to lead to some switching of purchases to, say, English retailers for consumption in Scotland.

114. Not only does this work against the intended effects of MUP in terms of reduced consumption, it also raises costs in an inefficient way. The higher costs of transport of products and of establishing new distribution channels serve no useful

³⁷ We note that the alternative policy of a general increase in duty, particularly if not harmonized with increases elsewhere in the EU, might be expected to have similar directional effects. We also note, however, that the price increases for some products arising from MUP is much greater than for a duty increase, and therefore the problems described will likely be much greater, for these products, under MUP, and that the lower cost products most affected might be ones for which non-duty paid alternatives are closer substitutes (also implying a larger quantitative effect).

social purpose – they are simply responses to false signals and incentives on the supply side of markets.

The promotion of illegality

115. As with (legal) personal imports, the effect of MUP can be expected to be, for at least some products, a substantial widening of the duty-paid retail price and the (illegal) non duty paid price that might be available from illegal sources. We note that this is just another variant of the general point that MUP creates supply-side incentives for greater availability of alcoholic beverages, which in the case of illicit imports also happen to be very low priced.

116. As was discovered in relation to tobacco consumption in the late 1990s, a widening gap between duty-paid and non-duty paid product prices can, past some threshold point, actually serve to increase consumption, as illegal supply chains develop, some consumers switch to them, and, in so doing, obtain much lower prices which, by virtue of the price elasticities set out earlier, serve to increase volumes purchased (by the switching customers). For a period, the strong trend toward lower tobacco consumption was actually slowed and then halted, contrary to intentions. Consistent with the extensive literature on the effects of regulation,³⁸ this was an example of a policy actually having an effect opposite to that intended.

Self supply

117. There is an ancient tradition of home brewing and distilling in the UK, including in Scotland. Home distilling is, in the absence of a relevant licence, illegal, but home production of beer, wine and cider is not and, like all economic activities, the scale of these activities is responsive to economic incentives. One possible impact of the MUP, therefore, particularly for heavy-drinkers, might be an increase in the self-supply of alcohol products.

³⁸ See, for example, the early survey of Professors Paul Joskow and Nancy Rose of MIT, “The Economic Effects of Regulation”, in R Schmalensee and R D Willig, in the *Handbook of Industrial Organisation: Volume II*, Elsevier Science Publishers, 1989

5. CONCLUSIONS AND CONSOLIDATED RESPONSES TO TERMS OF REFERENCE

5.1 Overall conclusions on the impact of MUP

118. The principal conclusions of our analysis of the possible economic impacts of the MUP on alcoholic beverages in Scotland can be summarised as follows:

- i. General economic principles suggest that because the MUP detaches price from relevant costs there are likely to be adverse impacts on trade and competition. Specifically, the expectation in terms of trade is that the MUP will distort trade flows insofar as lower cost suppliers in other countries will be forced to charge a price that is no lower than the higher cost producers of similar products. As a consequence, trade flows are likely to be lower, and economic efficiency reduced. The impacts of MUP on competition are similar to those of trade, and arise from the fact that such a policy restricts the ability of prices to reflect underlying costs. Consequently, the level of retail competition will be suppressed for affected products and the relevant part of the market will effectively become cartelised. The usual defects of cartelisation can, therefore, be expected to eventuate, including increased capacity in retail supply.
- ii. This general expectation that MUP will likely have adverse impacts in terms of trade is confirmed by our preliminary analysis of the First Drinks Retail survey data. Specifically, we have used this survey data to test whether there is any evidence of contra-indicators which might cause the expectations derived from general principles to be unlikely to be reliable in this specific context. The most obvious contra-indicator in relation to trade effects would be a finding that price increases attributable to MUP would be broadly similar for alcoholic beverages from different countries of origin. This is not what is shown in the analysis. Although the results vary according to the regression equation, and for type of product, the results of the most relevant regression equation suggests that there are substantial differences in the price implications of MUP for wines sourced from different countries. The average differences in price effects for spirits and beer among exporting areas are not so pronounced as for wine, but the survey results still nevertheless point to a discriminatory and distorting impact on EU and wider trade flows in the relevant products. Moreover, the First Drinks survey data suggests that in

both the spirits and beer categories, individual producers of specific products from different EU member states (such as French brandy producers, German vodka producers, and Belgian, Dutch and French beer producers) can expect to see substantial, discriminatory retail price increases as a result of the MUP. In relation to cider the results of the analysis suggests that MUP will have a quite massive differential effect on producers in the UK.

- iii. The general expectation that MUP will have distortionary effects in terms of retail competition has also been confirmed by our analysis. Specifically, we examined the First Drinks retail survey data to see whether the MUP will have distortionary and discriminatory effects on retail prices for products sold in different types of outlet such as major supermarkets and independents/specialty retailers. Consistent with expectations, for each of the product categories, the analysis suggests that the impacts of MUP will be greater for supermarkets than it is for non-supermarkets. The differences are particularly pronounced for wine and spirits, implying that the effects in terms of greater retail margins will be significantly greater for supermarkets than it will be for non-supermarkets in relation to the sale of these products.
- iv. This result feeds into further economic distortions that might arise as a consequence of the MUP. These potential distortions arise because the MUP will create greater incentives for retailers, and supermarkets in particular, to sell more alcoholic beverages as a result of the fact that they will make higher margins on products affected by the policy. This will give retailers incentives to allocate increased resources to the sale of products affected by the MUP compared with what could be expected to be the case if, for example, similar average retail price increases were caused by an across-the-board increase in duty.
- v. MUP may give rise to other unintended consequences, the possibilities of forecasting which are limited by the potential for innovation by economic agents in response to changed incentive structures. We therefore outline only a few obvious possibilities that have been observed in recent experience. For example, we note the potential for regulations aimed at reducing consumption of a product to inadvertently increase consumption of that product through low-priced personal imports or illegal imports.
- vi. We have, throughout this opinion, sought to compare the effects of MUP against an obvious alternative policy option for reducing consumption, increasing alcohol taxation across the board. The analysis suggests that the MUP can be expected to create greater economic distortions– in terms of

effects on both trade and competition, arising from the policy's impacts on supply-side and demand-side incentives – relative to this alternative.

5.2 Consolidated responses to terms of reference

119. For convenience, we here draw together the principal responses to the specific questions asked in our Instructions, which are italicized in what follows:

Reviewing all available data, including the First Drinks pricing data to which we refer above. Relevant data can also be taken from other sources, including data on price elasticity in the alcoholic beverages market produced by Her Majesty's Revenue and Customs in the December 2010 publication "Econometric Analysis of Alcohol Consumption in the UK" and data published by the International Wine and Spirits Research in its "Annual Report on Consumption of Alcoholic Drinks". If you identify any relevant or potentially relevant data to which you do not have access, you should ask me to seek access to the data.

A range of studies and data has been reviewed in forming this opinion. The details of the materials examined are given in paragraph 3. In addition to specific data and material focussed on the alcohol industry, we have also drawn on a much wider economics literature, within our knowledge, on the effects of regulation.

Drawing on the relevant data, providing your opinion and analysis of the impact the Act would have on alcoholic beverages imported into Scotland from other EU countries (i.e: excluding the UK). Your analysis should include consideration of the effect on imported EU products relative to the effect on UK-origin products at all relevant stages in the market up to and including retail sales of the products.

The core analysis of the expected impact of the MUP is presented in sections 2 and 3 of the report. Section 2 notes that on the basis of general economic principles, a major and immediate effect of MUP is, at least for those products affected, *to prevent prices from reflecting relevant costs*. Thus, if two competing or (in the mind of the consumer) substitutable products have differing costs, MUP prevents that cost difference being reflected in a price difference. This forced separation of prices from underlying costs for the relevant products would, other things equal, normally be expected to have distortionary/discriminatory effects on trade and competition. Section 3 tests this general principle using data provided by First Drinks survey and concludes that, on the basis of that data, MUP will result in distortionary/discriminatory effects on producers supplying the Scottish market from

different EU countries. The relative impacts differ by product category, and the largest effects appear to be in relation to wine.

Your opinion and analysis should include consideration of the reaction of retail outlets to the Act, including supermarket chains, and the likely changes in the purchasing patterns and market activity of retail outlets. Please focus on the impact of such changes on imported products from other EU countries into Scotland. You should also include consideration of the effect on imported products relative to the effect on domestic (i.e.: UK-origin) products.

The potential impact of MUP on retail outlets and behaviour is addressed at various points in the report. Section 3.2 considers the impact of MUP on the incentives of retailers, and notes that such a policy might lead to distortionary effects on different types of retail outlet (i.e.: independents vis-à-vis large supermarkets).

Paragraphs 63 to 66 in section 3.1 consider the possible response of retailers in respect of those products that are not directly impacted by the MUP policy (i.e.: those products currently priced above the relevant threshold). It notes that the pricing response of retailers for these products is likely to reflect a range of factors. However, because MUP will affect the margins earned on different products, it may be the case, that those products priced immediately above the MUP are no longer as prominently promoted or displayed, and that over time, the retailer may choose to de-list such products in favour of the higher-margin MUP-affected products including products from the EU such as certain French brandies, German vodkas and Belgian, French and Dutch beers. This last point, which concerns the retailer's incentives to potentially sell more of the MUP-affected products because of the higher associated margins, is further developed in section 4.1.

Finally, section 4.2 notes that another potential response of retailers to MUP might be to exploit any complementarities between alcohol and other products (particularly mixer drinks) in such a way so as to partially off-set the impacts of the MUP. A central conclusion that we reach in relation to these points is that these changes in retail incentives could be avoided through the alternative policy of increasing alcohol taxes.

Your opinion and analysis should also consider the impact of the Act on new or potential entrants to the Scottish market for alcoholic beverages.

Implications for the impact of MUP on market entry are touched on at various points in the report. Our central conclusion on entry follows directly from the general observation that MUP limits the ability of lower-cost potential entrants from elsewhere in the EU, or the rest of the world, to be able to set prices which reflect those costs. As a consequence, low cost producers from elsewhere in the EU, will no longer be able to set cost-reflective prices in circumstances where there costs are

lower than the MUP. This will make it more difficult for such producers to enter the Scottish market than is currently the case.

More generally, as discussed at paragraph 24, MUP limits the ability of entrants from other EU countries to employ a range of standard pricing strategies – such as discounts or offers – which are commonly used by would-be entrants to a market, in order to get consumers first to notice and then to try-out the new products. More general economic evidence and experience indicates very wide recourse to such strategies in consumer goods markets, suggesting that their effective elimination could substantially raise barriers to entry into the Scottish market.

Your opinion and analysis should cover each of the following questions about the impact of the Act on the relative competitive positions of domestic (i.e: UK-origin) and imported (i.e: non UK-origin) alcoholic beverages in the Scottish market:

1. *Will the Act have the effect of restricting or impeding sales in the Scottish market for any products imported into Scotland from other EU countries?*

On the basis of our analysis of the First Drinks survey data presented in section 3.1, we draw the conclusion that the effect of MUP on prices can be expected to reduce sales of imported EU products in the Scottish market, and, more specifically, can be expected to imply different levels of reduction for wine from different parts of the EU. This conclusion is consistent with the general economic reasoning set out in section 2.

2. *For each category of alcoholic beverage, including spirits, wines, beers and ciders, will the Act have the effect of improving the competitive position of some domestic products relative to imported products?*

Our analysis of the First Drinks survey data presented in section 3.1, suggests that MUP will have different impacts according to product category.

In relation to wine there are substantial differences in the price implications of MUP for wines sourced from different countries, and the discriminatory effects on trade patterns are manifest. Specifically, imports from Southern European countries will face the greatest (adverse) impacts, followed by imports from France and Germany.

For spirits the differences in average price effects among exporting areas are not so pronounced, and the impact on overall imports from other EU member states and from the rest of the world are about the same. However, in this case, the average price impact on UK sourced products is higher than that of the EU. A similar pattern emerges for beer, with the main differential effect being a higher

increase in the average price of UK produced beers relative to imports from EU member states and the rest of the world. Nevertheless, the First Drinks survey data indicate that for certain individual producers located in different EU member states – such as the German producers of Rachmaninof vodka or the Dutch producers of Bavaria beer – the impact on the retail price of MUP will be substantially out of line with overall averages, and hence that these suppliers will suffer disproportionately.

For cider the results of the analysis suggests that MUP will have a significantly differential effect on producers in Britain and Ireland. The RTD data the sample comprises only one product affected by the MUP and so it is not possible to draw conclusions.

3. *Will the Act have the effect of creating incentives for substitution of some domestic products in the place of some imported products (including those from another category of alcoholic beverages?)*

The data do not enable us to address this question directly, on an empirical basis. It does, however, follow from the general economic logic of MUP, and from the consistency of that logic with other aspects of the data, that wherever a domestic product whose price would not directly be affected by MUP competes with a lower-priced imported product whose price would be affected by MUP, a tendency toward substitution of the domestic product can be expected. This follows whether the products are in the same or in different categories, although it is to be expected that such competitive situations will occur much more frequently within categories than between categories.

4. *Will the Act have the effect of creating a barrier to entry in respect of the non-UK products that are not currently participating in the Scottish market for alcoholic beverages, such as would affect the quantities or levels at which those products would in future be able to enter the market, or prevent them from entering the market at all?*

We have already addressed this issue above, but to repeat, it is our expectation that MUP will create a barrier to entry insofar as: (i) it limits the ability of low-cost potential entrants from elsewhere in the EU to set prices which reflect those lower costs (where those costs/prices are below the MUP); and (ii) limits the ability of entrants from other EU countries from employing various pricing strategies (such as discounts or other offers) that are typically used by entrant firms to establish positions, and obtain a sufficient level of scale of activity, in a market they are seeking to penetrate for the first time.

6. RESPONSES TO LORD ADVOCATE’S AND ADVOCATE GENERAL’S STATEMENTS

120. We have been instructed by Brodies LLP to review the Petition and the Answers for the Lord Advocate (both as adjusted to 1 October 2012) and the Advocate General for Scotland as well as the draft notes of argument of each party, and to provide our observations on certain economic issues raised in these documents. We address these issues in this section.

6.1 Competition at the wholesale level

121. At Answer 9 of the Lord Advocate’s Answers it is stated that the formula for the estimation of the MUP policy in the 2012 Act is not based on prime costs; which has the effect of ‘cancelling out’ (i.e. eliminating) any competitive advantage of low-cost producers at the retail level. The Lord Advocate’s paper then states:

“While it cancels out the competitive advantage at the point of sale by a licensed retailer it does not do so at the point of sale by the producer. There remains an incentive for a licensed retailer to buy from an efficient producer.”

122. As we understand it, the Lord Advocate’s argument here is that while retail competition may cease to exist for those products that are affected by the MUP, there will still be a form of competition in place at the wholesale level. For example, retailers such as large supermarkets will still seek out, and bargain with, different alcohol producers in order to obtain the lowest wholesale price for specific products.

123. We agree that the MUP will not have the effect of *eliminating* competition of this type at the wholesale level (i.e.: for many affected products the retailer will still have some incentive to purchase from an efficient retailer). However, because of the impact of the MUP on retail demand, such wholesale competition will be restricted and distorted. The reason for this is as follows.

124. The MUP policy fixes a minimum selling price for certain low cost alcohol products. It is accepted – and indeed it is the policy’s intention – that the increase in price for a particular affected product will likely lead to lower levels of consumption of that product. For a retailer this translates into a reduction in volumes sold for the

product, and this would, by and of itself, lessen the incentive for the retailer to bargain with alcohol producers to achieve a lower wholesale price for this product. At the same time, because of the reduction in volumes sold, the incentive of efficient producers to provide larger, volume based discounts to retailers will also likely be diminished.

125. The general principle of relevance here is that, other things equal, competition tends to be less keen when there is less at stake (and the multiple illustrations of this general principle that spring to mind in competitive sports are not misleading analogies in the current context). By reducing the volumes over which supermarkets and low-cost suppliers bargain and compete, MUP can therefore be expected to dampen competition in wholesale markets, as well as to eliminate price competition at the retail level in the low-cost segments of the relevant markets.

126. For at least some low or moderately selling products affected by the MUP, it can be expected to be the case that the fall in demand associated with the increase in the retail price for their product is so substantial that it will lead the retailer to decide to no longer stock that product on its shelves. The effective exclusion of smaller-volume, low cost suppliers from the *wholesale* market (i.e. supplies *to* retailers, rather than to final consumers), implies a restriction or distortion of competition in that market. In this context, we note that smaller-volume products often tend to command shelf space because they have a following on account of differentiating characteristics such as their flavours, and that these products are likely to be of lesser significance for those whose driving interest lies chiefly in alcohol consumption. The elimination of these products from the market is, therefore, another aspect of the poorly-targeted nature of MUP.

6.2 Effectiveness of taxation in targeting priority groups

127. The Advocate General for Scotland's Note of Argument states at ¶¶20-22 that the aim of the MUP policy is not to eliminate or reduce alcohol consumption by all drinkers, but by particular groups of problem drinkers, including; drinkers who drink on average 78 units per week; 18-24 year old binge drinkers; and underage drinkers who disproportionately drink cheap alcohol. The Advocate General's position is that it cannot be said that taxation would be as effective a measure as MUP in reducing alcohol consumption among these groups of drinkers, and that raising taxation across the board would have a limited impact on these priority groups of problem drinkers. Five reasons are offered in support of this conclusion, which can be summarised as follows:

(a) Raising taxation would have a disproportionate impact on moderate drinkers

- (b) An increase in duty would affect both the on-trade and off-trade and would impact disproportionately and unfairly on the on trade.
- (c) An increase in duty will apply to all drinks within an alcohol category, and would not be targeted at the groups of problem drinkers identified.
- (d) That duty cannot be linked directly to alcohol content, and that different rates of duty apply to wine, spirits, beer and cider.
- (e) Retailers could absorb increases in duty and there is no guarantee therefore that increases in duty would be passed on to the final price of consumers.

128. As a general observation we note that in order to assess each of these claims regarding the comparative effectiveness of MUP vis-à-vis a policy of increasing alcohol taxation, it is necessary to undertake a comparative assessment exercise which is supported and substantiated by evidence. We are not aware of any body that has undertaken such an exercise, although we note that the Institute of Fiscal Studies (IFS) reports we cite below, do touch on at least some of these points.

129. As regards claim (a), that a tax would have a disproportionate impact on moderate drinkers as compared to a policy of MUP, we note first that any apparent, intuitive appeal of the statement might come from an untested assumption or speculation to the effect that moderate drinkers drink higher priced products. On the basis of the evidence with which we are familiar, we doubt that there is any strong correlation of this type. For example, it seems relatively certain that there are large numbers of moderate drinkers who consume low-priced products, for example because their household incomes are modest, and, given the disproportionate price effects of MUP, it would be more accurate to say that this particular sub-group of moderate drinkers would be disproportionately hit by MUP (not by a general increase in duty). Thus, whilst one sub-group of moderate drinkers (those favouring higher-priced products) might be less heavily hit by MUP than by a general duty increase, for another sub-group of moderate drinkers (those favouring lower-priced products), the relative impacts would be reversed.

130. Evidence and analysis presented by the IFS tends to support the notion that consumption of low-price products is not the sole preserve of problem drinkers. The IFS estimated that in 2010, 71% of all UK off-licence units retailed for less than 45p (the proportion would obviously be greater at the proposed 50p minimum price level), and that a minimum price set at such a level would directly affect the vast majority of off-licence alcohol consumers. In particular, the analysis shows that almost nine out

of ten households that buy alcohol purchased units costing less than 45p at some point during 2010.³⁹ This led the IFS to conclude that a MUP policy where the minimum price was set at 45p would “*directly impact the overwhelming majority of drinkers as well as high intake households*” and that such a policy “*would still have a substantial effect on more moderate alcohol consumers*”.⁴⁰

131. In relation to claim (b), we note that it is a complete reversal of normal economic language to say that a tax that falls *equally* on two competing channels of distribution is ‘unfair’ and would have ‘disproportionate’ effects on those two channels.

132. In relation to (c) and (d), regarding targeting, we note first that, in economics, the general concern in relation to targeting is that a measure introduced to address one problem should not have *unwanted* and *harmful* side-effects, not that a measure should have *no* effects at all other than those related directly to the problem to be addressed. Duty increases would certainly have effects on drinkers other than the problem groups of concern – as indeed would MUP – but, unlike MUP, it does not come with effects that are obviously unwanted from a public policy perspective.

133. In any event, it would be wrong to think of duty as a completely untargeted approach. The IFS have examined this issue of alcohol taxes in some depth in a series of reports. While recognising that changes to the tax and duty system may require policy action at the EU level which the UK government should pursue, the IFS’s overall conclusion is that taxes could be used in much the same way as MUP, but without the distorting effects of MUP, noting in particular that “*Taxes that were more closely focussed on the alcohol content of different products could also allow something closer to a minimum price to be introduced through the tax system, perhaps in tandem with a ban on below-tax sales.*”⁴¹ On a similar point, a recent study by RAND Europe for the European Commission, noted that: “[w]hile alcohol taxation can be seen as a blunt instrument (in that all consumers face the same level of taxation), research indicates that because the amount of tax paid is directly related to the amount of alcohol consumed, increases in alcohol excise taxes are disproportionately paid by harmful and hazardous drinkers, who also generate most alcohol-attributable economic costs.”⁴²

³⁹ Institute of Fiscal Studies (2011) “Alcohol pricing and taxation policies”, IFS Briefing Note BN124, page 34.

⁴⁰ Ibid, page 38.

⁴¹ Ibid, page 3.

⁴² Rand Europe (2012) “Further study on the affordability of alcoholic beverages in the EU” Report prepared for the European Commission DG Sanco and the Executive Agency for Health and Consumers, page 6.

134. Although we have not undertaken an extensive review of the literature, there appears to be mixed evidence on the extent to which hazardous drinkers – including those specifically identified by the Advocate General such as heavy drinkers or 18-24 binge drinkers – are likely to respond to policies that increase the price of alcohol products such as the MUP. For example, a 2001 survey of the literature for the Scottish Executive by researchers at the Universities of York and Aberdeen concluded that: *“Evidence suggests that the alcohol consumption of the heaviest 10% of drinkers is not responsive to price increases but problem drinkers below this level do respond”*.⁴³ Similarly, the IFS refers to evidence which suggests that average own price elasticity for heavy drinkers is -0.28 as compared to -0.51 among all drinkers, implying that heavy drinkers are less responsive to price than those who drink moderately.⁴⁴ However, we are also aware of other studies that suggest that heavy drinkers do modify their alcohol consumption in response to price changes, albeit the effect on consumption of an increase in price is not as great as for moderate drinkers.⁴⁵
135. One particular group that it has been claimed will be targeted by MUP are underage drinkers. In a 2007 meta-survey on the extent to which youth drinkers are responsive to price increases, the conclusion is drawn that teenage drinkers tend to be less responsive to price changes in alcohol than other people.⁴⁶ A 2009 study from the University of Sheffield focussing, among other things, on the impact of MUP policies, concluded that while such policies tended to affect harmful drinkers more than drinkers in general, its affect on young hazardous drinkers was less than drinkers in general.⁴⁷
136. While we offer no evidence on these issues, the mixed conclusions of the research cited above suggests that it should not necessarily be taken for granted that because the MUP will increase prices for certain products that this will necessarily lead to the most significant reductions in consumption being associated with the targeted groups identified by the Advocate General, such as very heavy drinkers or underage drinkers.
137. Claim (e) of the Advocate General for Scotland relates to the extent of ‘pass-through’ of increases in alcohol taxation to retail prices; that is, the extent to which

⁴³ A Ludbrook, C Godfrey and others (2001) “Effective and Cost-Effective Measures to Reduce Alcohol Misuse in Scotland: A literature review” Report prepared for the Scottish Executive, page 2.

⁴⁴ Institute of Fiscal Studies (2011), *op cit.*, page 21.

⁴⁵ Rand Europe (2009) “The affordability of alcoholic beverages in the European Union” Report prepared for the European Commission DG Sanco, page 52.

⁴⁶ C A Gallet (2007) “The demand for alcohol: a meta analysis of elasticities” *Australian Journal of Agricultural and Resource Economics*, V.51, pp 121-135.

⁴⁷ PS Meier, R Purshouse & A Brennan (2009) “Policy options for alcohol price regulation: the importance of modelling population heterogeneity” *Addiction*, v. 105, page 391.

retail prices change in response to a change in alcohol duty, and are therefore ‘passed-on’ to the consumer, or borne instead by producers and retailers. On this point the evidence indicates that retail prices may change by *more*, as well as by less, than the change in duty. There is, therefore, no basis for an assumption that duty increases will not be fully passed through to final consumers, and, in any event, if they were not, the only implication for public policy would be beneficial. Since the shareholders of retailers would then, in effect, bear some of the burden of taxation, these ‘willing taxpayers’ would allow greater public revenues to be raised *for any given retail price level* (for example, if the aim were to raise the retail price of wine by 40p, and if only 80% of any duty increase was passed-through to consumers, it would be possible to increase duty by 50p a bottle, bringing in more tax revenue than if there were 100% pass-through and a 40p duty increase translated into a 40p retail price increase).

138. In relation to the evidence on pass-through, a recent study by Rand Europe concluded that in some countries there has been less than full pass-through of alcohol duty changes, while in other countries increases in alcohol taxes are more than fully passed-through (the subsequent price increase is greater than the tax increase).⁴⁸ In its own analysis, the IFS also notes that some studies have shown that increases in alcohol taxes are passed on more than one-for-one into final consumer prices on average, although it (correctly) stresses that issue is an empirical one, and more evidence is required on the UK position.⁴⁹

139. The variability in these cross-country results is perhaps unsurprising because, at a general level, the issue of pass-through depends on a range of factors such as the characteristics of demand, including the elasticity of demand for specific products, as well as factors such as the market structure and degree of competition in the retail activity. Where a retailing environment is highly competitive, it would be expected that prices charged for products are close to the costs associated with supply, and therefore that any increase in alcohol taxes would, in circumstances where other economic factors were unchanging, likely be passed on to consumers. Our more limited, general conclusion on this matter, however, is simply that it is unsafe to automatically assume, without further evidence, that increases in alcohol taxation in the Scottish context would be absorbed by retailers and not passed through to retail prices.

140. Our final observation on the general effectiveness of taxation as compared to MUP is that it is important to remember that a substantial body of research, collected

⁴⁸ Rand Europe (2012) “Further study on the affordability of alcoholic beverages in the EU” Report prepared for the European Commission DG Sanco and the Executive Agency for Health and Consumers, page vi. The study examines pass-through rates in four countries: Ireland, Finland, Latvia and Slovenia.

⁴⁹ Institute of Fiscal Studies (2011), *op cit*, page 22.

over many years, has concluded that alcohol taxation is an effective policy measure to reduce harmful and hazardous consumption of alcohol. A 2010 survey of seventy-two technical papers and reports, for example, concluded that there is “*strong evidence that raising alcohol excise taxes is an effective strategy for reducing excessive alcohol consumption and related harms.*”⁵⁰ A more recent survey of the literature makes the more specific conclusion that increasing prices, by for example raising taxes, leads to reduced alcohol consumption both in the general population, but more importantly in certain high-risk populations such as heavier drinkers or adolescents.⁵¹ MUP cannot, therefore, be justified on the basis that other ways of raising prices are ineffective, and hence that its manifest distortions and uncertainties must necessarily be borne for want of feasible alternatives.

⁵⁰ RW. Elder, B Lawrence, and others (2010) “The Effectiveness of Tax Policy Interventions for Reducing Excessive Alcohol Consumption and Related Harms” *American Journal of Preventative Medicine*, v.38(2), page 217.

⁵¹ X Xu and FJ. Chaloupka (2011) “Examining Prevention Policies: The Effects of Prices on Alcohol Use and Its Consequences” *Alcohol Research & Health*, Volume 34, Issue Number 2.

ANNEX A: REGRESSION RESULTS 1 TO 6

Assumptions: % increase only in price relative to MUP

Regression 1: Wine – Europe (intercept), RoW, UK

Regression 2: Wine - Southern Europe (intercept), RoW, UK, France + Germany

Regression 3: Spirits – Europe (intercept), RoW, UK,

Regression 4: Beer – Europe (intercept), RoW, UK

Regression 5: Cider – Europe (intercept), RoW, UK

Regression 6: RTD – Europe (intercept), RoW, UK

Wine Regression 1 results: Europe; RoW; UK (with percentage increase only from MUP)
Linear Regression

Regression Statistics

| | |
|---|---------|
| <i>R</i> | 0.20183 |
| <i>R Square</i> | 0.04073 |
| <i>Adjusted R Square</i> | 0.03487 |
| <i>Standard Error</i> | 0.17441 |
| <i>Total Number Of Cases</i> | 330 |
| A = 0.1727 - 0.0711 * B - 0.1215 * C | |

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 2. | 0.42237 | 0.21119 | 6.94284 | 0.00111 |
| <i>Residual</i> | 327. | 9.94667 | 0.03042 | | |
| <i>Total</i> | 329. | 10.36904 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|--------------------------------------|---------------------|-----------------------|------------|------------|---------------|----------------|
| Imports from EU member States | 0.17271 | 0.01165 | 0.14546 | 0.19995 | 14.82067 | 0.E+00 |
| Imports from RoW | -0.07109 | 0.02112 | -0.12047 | -0.02171 | -3.36545 | 0.0008 |
| UK produced wine | -0.1215 | 0.06275 | -0.26821 | 0.0252 | -1.93617 | 0.0537 |

Wine Regression 2 results: Southern Europe; RoW; UK; France + Germany (with percentage increase in wine consumption)
Linear Regression

Regression Statistics

| | |
|------------------------------|---------|
| <i>R</i> | 0.26028 |
| <i>R Square</i> | 0.06775 |
| <i>Adjusted R Square</i> | 0.05917 |
| <i>Standard Error</i> | 0.1722 |
| <i>Total Number Of Cases</i> | 330 |

$$A = 0.1931 - 0.0915 * B - 0.1419 * C - 0.0817 * D$$

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 3. | 0.70247 | 0.23416 | 7.89676 | 0.00004 |
| <i>Residual</i> | 326. | 9.66657 | 0.02965 | | |
| <i>Total</i> | 329. | 10.36904 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|---|---------------------|-----------------------|------------|------------|---------------|----------------|
| Imports from EU member States (excl. Germany and France) | 0.19312 | 0.01329 | 0.16206 | 0.22418 | 14.53649 | 0.E+0 |
| Imports fromRoW | -0.0915 | 0.02189 | -0.14267 | -0.04033 | -4.18062 | 0.00004 |
| UK produced wine | -0.14192 | 0.06231 | -0.2876 | 0.00376 | -2.27746 | 0.02341 |
| | -0.08166 | 0.02657 | -0.14378 | -0.01954 | -3.07343 | 0.00229 |

Germany + France

Spirits Regression 3 results: Europe; RoW; UK (with percentage increase from MUP)

Linear Regression

Regression Statistics

| | |
|---|---------|
| <i>R</i> | 0.12047 |
| <i>R Square</i> | 0.01451 |
| <i>Adjusted R Square</i> | 0.0048 |
| <i>Standard Error</i> | 0.14359 |
| <i>Total Number Of Cases</i> | 206 |
| A = 0.1085 - 0.0128 * B + 0.0583 * C | |

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 2. | 0.06163 | 0.03082 | 1.49473 | 0.22677 |
| <i>Residual</i> | 203. | 4.18528 | 0.02062 | | |
| <i>Total</i> | 205. | 4.24691 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|--------------------------------------|---------------------|-----------------------|------------|------------|---------------|----------------|
| Imports from EU Member States | 0.10697 | 0.02242 | 0.05439 | 0.15955 | 4.77018 | 0. |
| Imports from RoW | -0.01123 | 0.03741 | -0.09894 | 0.07649 | -0.30014 | 0.76438 |

| | | | | | | |
|------------------|---------|---------|----------|---------|---------|---------|
| UK produced wine | 0.03278 | 0.02546 | -0.02692 | 0.09247 | 1.28748 | 0.19939 |
|------------------|---------|---------|----------|---------|---------|---------|

Beer Regression 4 results: Europe; RoW; UK (with percentage increase from MUP)

Linear Regression

Regression Statistics

| | |
|------------------------------|---------|
| <i>R</i> | 0.07264 |
| <i>R Square</i> | 0.00528 |
| <i>Adjusted R Square</i> | -0.0109 |
| <i>Standard Error</i> | 0.22507 |
| <i>Total Number Of Cases</i> | 126 |

$$A = 0.1203 - 0.0199 * B + 0.0319 * C$$

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 2. | 0.03305 | 0.01653 | 0.32626 | 0.72224 |
| <i>Residual</i> | 123. | 6.23072 | 0.05066 | | |
| <i>Total</i> | 125. | 6.26377 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|--------------------------------------|---------------------|-----------------------|------------|------------|---------------|----------------|
| Imports from EU member states | 0.12543 | 0.03515 | 0.04258 | 0.20828 | 3.56845 | 0.00051 |
| Imports from RoW | -0.02503 | 0.06967 | -0.18924 | 0.13919 | -0.35922 | 0.72004 |
| | 0.02288 | 0.04415 | -0.08118 | 0.12694 | 0.51828 | 0.60519 |

UK produced beer

Cider Regression 5 results: Europe; UK (with percentage increase from MUP)

Linear Regression

Regression Statistics

| | |
|--------------------------------|---------|
| <i>R</i> | 0.22842 |
| <i>R Square</i> | 0.05217 |
| <i>Adjusted R Square</i> | 0.04386 |
| <i>Standard Error</i> | 0.64977 |
| <i>Total Number Of Cases</i> | 116 |
| A = 0.0000 + 0.5964 * B | |

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 1. | 2.6494 | 2.6494 | 6.27518 | 0.01366 |
| <i>Residual</i> | 114. | 48.13109 | 0.4222 | | |
| <i>Total</i> | 115. | 50.78049 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|--------------------------------------|---------------------|-----------------------|------------|------------|---------------|----------------|
| Imports from EU member states | 3.56703E-16 | 0.22973 | -0.54205 | 0.54205 | 1.55271E-15 | |
| UK produced cider | 0.59641 | 0.23809 | 0.03465 | 1.15817 | 2.50503 | 0 |

RTD Regression 6 results: Europe; RoW; UK (with percentage increase from MUP)
Linear Regression

Regression Statistics

| | |
|------------------------------|---------|
| <i>R</i> | 0.3864 |
| <i>R Square</i> | 0.14931 |
| <i>Adjusted R Square</i> | 0.11232 |
| <i>Standard Error</i> | 0.0673 |
| <i>Total Number Of Cases</i> | 49 |

$$A = 0.0833 - 0.0833 * B - 0.0833 * C$$

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 2. | 0.03656 | 0.01828 | 4.03673 | 0.02425 |
| <i>Residual</i> | 46. | 0.20833 | 0.00453 | | |
| <i>Total</i> | 48. | 0.2449 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|--------------------------------------|---------------------|-----------------------|------------|------------|---------------|----------------|
| Imports from EU member states | 0.08333 | 0.02747 | 0.01712 | 0.14955 | 3.03315 | 0.00425 |
| Imports from RoW | -0.08333 | 0.05495 | -0.21577 | 0.0491 | -1.51658 | 0.14015 |
| UK produced RTD | -0.08333 | 0.02942 | -0.15423 | -0.01244 | -2.83294 | 0.00833 |

ANNEX B: REGRESSION RESULTS 7 TO 12

Assumptions: % increase and decrease in price relative to MUP

Regression 7: Wine – Europe (intercept), RoW, UK

Regression 8: Wine - Southern Europe (intercept), RoW, UK, France + Germany

Regression 9: Spirits – Europe (intercept), RoW, UK,

Regression 10: Beer – Europe (intercept), RoW, UK

Regression 11: Cider – Europe (intercept), RoW, UK

Regression 12: RTD – Europe (intercept), RoW, UK

Wine Regression 7 results: Europe; RoW; UK (with percentage increase and decrease from MUP)**Linear Regression****Regression Statistics**

| | |
|------------------------------|---------|
| <i>R</i> | 0.18378 |
| <i>R Square</i> | 0.03378 |
| <i>Adjusted R Square</i> | 0.02787 |
| <i>Standard Error</i> | 0.23639 |
| <i>Total Number Of Cases</i> | 330 |

$$A = 0.1231 - 0.0524 * B - 0.2565 * C$$

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 2. | 0.63876 | 0.31938 | 5.71544 | 0.00363 |
| <i>Residual</i> | 327. | 18.2727 | 0.05588 | | |
| <i>Total</i> | 329. | 18.91146 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|--------------------------------------|---------------------|-----------------------|------------|------------|---------------|----------------|
| Imports from EU member states | 0.12313 | 0.01579 | 0.08621 | 0.16006 | 7.796 | 8.6153 |
| Imports from RoW | -0.05236 | 0.02863 | -0.11929 | 0.01458 | -1.82871 | 0. |
| UK produced wine | -0.25654 | 0.08506 | -0.45538 | -0.05769 | -3.01609 | 0. |

Wine Regression 8 results: Southern Europe; RoW; UK; France + Germany (with percentage increase)**Linear Regression****Regression Statistics**

| | |
|------------------------------|---------|
| <i>R</i> | 0.29376 |
| <i>R Square</i> | 0.0863 |
| <i>Adjusted R Square</i> | 0.07789 |
| <i>Standard Error</i> | 0.23023 |
| <i>Total Number Of Cases</i> | 330 |

$$A = 0.1616 - 0.0908 * B - 0.2950 * C - 0.1538 * D$$

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 3. | 1.63197 | 0.54399 | 10.26311 | 0. |
| <i>Residual</i> | 326. | 17.27948 | 0.053 | | |
| <i>Total</i> | 329. | 18.91146 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p</i> |
|---|---------------------|-----------------------|------------|------------|---------------|----------|
| Imports from EU member states (excl. Germany & France) | 0.16158 | 0.01776 | 0.12005 | 0.2031 | 9.09663 | |
| Imports from RoW | -0.0908 | 0.02926 | -0.15921 | -0.02239 | -3.10283 | |
| UK produced wine | -0.29498 | 0.08331 | -0.48975 | -0.10021 | -3.54062 | |

| | | | | | |
|------------------|----------|---------|----------|----------|----------|
| Germany + France | -0.15378 | 0.03552 | -0.23683 | -0.07073 | -4.32878 |
|------------------|----------|---------|----------|----------|----------|

Spirits Regression 9 results: Europe; RoW; UK (with percentage increase and decrease from MUP)
Linear Regression

Regression Statistics

| | |
|------------------------------|---------|
| <i>R</i> | 0.20516 |
| <i>R Square</i> | 0.04209 |
| <i>Adjusted R Square</i> | 0.03265 |
| <i>Standard Error</i> | 0.22058 |
| <i>Total Number Of Cases</i> | 206 |

A = 0.0272 - 0.0249 * B + 0.1017 * C

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 2. | 0.43398 | 0.21699 | 4.45985 | 0.01272 |
| <i>Residual</i> | 203. | 9.87685 | 0.04865 | | |
| <i>Total</i> | 205. | 10.31083 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|--------------------------------------|---------------------|-----------------------|------------|------------|---------------|----------------|
| Imports from EU member states | -0.01174 | 0.03445 | -0.09252 | 0.06904 | -0.34077 | 0.733 |
| Imports from RoW | 0.01404 | 0.05746 | -0.1207 | 0.14879 | 0.24433 | 0.807 |
| UK produced spirits | 0.1039 | 0.03911 | 0.0122 | 0.1956 | 2.65674 | 0.008 |

Beer Regression 10 results: Europe; RoW; UK (with percentage increase and decrease from MUP)
Linear Regression

Regression Statistics

| | |
|---|---------|
| <i>R</i> | 0.07191 |
| <i>R Square</i> | 0.00517 |
| <i>Adjusted R Square</i> | -0.011 |
| <i>Standard Error</i> | 0.30479 |
| <i>Total Number Of Cases</i> | 126 |
| A = 0.0546 - 0.0659 * B + 0.0044 * C | |

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 2. | 0.0594 | 0.0297 | 0.31971 | 0.72696 |
| <i>Residual</i> | 123. | 11.42665 | 0.0929 | | |
| <i>Total</i> | 125. | 11.48605 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|--------------------------------------|---------------------|-----------------------|------------|------------|---------------|----------------|
| Imports from EU member states | 0.06102 | 0.0476 | -0.05118 | 0.17322 | 1.28194 | 0.20228 |
| Imports from RoW | -0.07232 | 0.09435 | -0.2947 | 0.15007 | -0.76649 | 0.44485 |
| UK produced beer | -0.00593 | 0.05979 | -0.14685 | 0.13498 | -0.09922 | 0.92112 |

Cider Regression 11 results: Europe; UK (with percentage increase and decrease from MUP)
Linear Regression

Regression Statistics

| | |
|------------------------------|---------|
| <i>R</i> | 0.32315 |
| <i>R Square</i> | 0.10443 |
| <i>Adjusted R Square</i> | 0.09657 |
| <i>Standard Error</i> | 0.68385 |
| <i>Total Number Of Cases</i> | 116 |

A =- 0.3501 + 0.9136 * B

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 1. | 6.21654 | 6.21654 | 13.29297 | 0.0004 |
| <i>Residual</i> | 114. | 53.31286 | 0.46766 | | |
| <i>Total</i> | 115. | 59.5294 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|--------------------------------------|---------------------|-----------------------|------------|------------|---------------|----------------|
| Imports from EU member states | -0.35006 | 0.24178 | -0.92054 | 0.22042 | -1.44784 | 0.15041 |
| UK produced cider | 0.91358 | 0.25057 | 0.32235 | 1.50481 | 3.64595 | 0.0004 |

RTD Regression 12 results: Europe; RoW; UK (with percentage increase and decrease from MUP)
Linear Regression

Regression Statistics

| | |
|--|---------|
| <i>R</i> | 0.3322 |
| <i>R Square</i> | 0.11036 |
| <i>Adjusted R Square</i> | 0.07168 |
| <i>Standard Error</i> | 0.18136 |
| <i>Total Number Of Cases</i> | 49 |
| A =- 0.2218 - 0.1510 * B - 0.1892 * C | |

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 2. | 0.18768 | 0.09384 | 2.85312 | 0.06791 |
| <i>Residual</i> | 46. | 1.51294 | 0.03289 | | |
| <i>Total</i> | 48. | 1.70062 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|--------------------------------------|---------------------|-----------------------|------------|------------|---------------|----------------|
| Imports from EU member states | -0.22175 | 0.07404 | -0.4002 | -0.04331 | -2.99512 | 0.0044 |

| | | | | | | |
|-------------------------|----------|---------|----------|---------|----------|--------|
| Imports from RoW | -0.15097 | 0.14808 | -0.50787 | 0.20592 | -1.01956 | 0.3132 |
| UK produced RTD | -0.18917 | 0.07927 | -0.38023 | 0.00189 | -2.38637 | 0.0211 |

ANNEX C: REGRESSION RESULTS 13 TO 16

Assumptions:% increase in price relative to MUP; Outlets divided into supermarkets and non-supermarkets

Regression 13: Wine –Supermarket (intercept), Non-Supermarket

Regression 14: Spirits–Supermarket (intercept), Non-Supermarket

Regression 15: Beer–Supermarket (intercept), Non-Supermarket

Regression 16: Cider–Supermarket (intercept), Non-Supermarket

Wine Regression 13 results: Supermarket and Independent (with percentage increase only from MUP)

Linear Regression

Regression Statistics

| | |
|--------------------------------|---------|
| <i>R</i> | 0.26378 |
| <i>R Square</i> | 0.06958 |
| <i>Adjusted R Square</i> | 0.06674 |
| <i>Standard Error</i> | 0.1715 |
| <i>Total Number Of Cases</i> | 330 |
| A = 0.1645 - 0.1538 * B | |

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 1. | 0.72148 | 0.72148 | 24.52908 | 0. |
| <i>Residual</i> | 328. | 9.64756 | 0.02941 | | |
| <i>Total</i> | 329. | 10.36904 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|------------------------|---------------------|-----------------------|------------|------------|---------------|----------------|
| Supermarket | 0.1645 | 0.00997 | 0.14119 | 0.1878 | 16.50182 | 0.E+0 |
| Non-Supermarket | -0.15381 | 0.03106 | -0.22641 | -0.08121 | -4.95268 | 0. |

Spirit Regression 14 results: Supermarket and Independent (with percentage increase only from MUP)

Linear Regression

Regression Statistics

| | |
|------------------------------|---------|
| <i>R</i> | 0.26418 |
| <i>R Square</i> | 0.06979 |
| <i>Adjusted R Square</i> | 0.06523 |
| <i>Standard Error</i> | 0.13916 |
| <i>Total Number Of Cases</i> | 206 |

$$\mathbf{A} = \mathbf{0.1446} - \mathbf{0.1047 * B}$$

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 1. | 0.29641 | 0.29641 | 15.30605 | 0.00012 |
| <i>Residual</i> | 204. | 3.95051 | 0.01937 | | |
| <i>Total</i> | 205. | 4.24691 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p-level</i> |
|------------------------|---------------------|-----------------------|------------|------------|---------------|----------------|
| Supermarket | 0.14457 | 0.01055 | 0.11984 | 0.16931 | 13.70429 | 0.E+0 |
| Non supermarket | -0.10472 | 0.02677 | -0.16748 | -0.04196 | -3.9123 | 0.00012 |

Beer Regression 15 results: Supermarket and Independent (with percentage increase only from MUP)

Linear Regression

Regression Statistics

| | |
|------------------------------|----------|
| <i>R</i> | 0.03083 |
| <i>R Square</i> | 0.00095 |
| <i>Adjusted R Square</i> | -0.00711 |
| <i>Standard Error</i> | 0.22465 |
| <i>Total Number Of Cases</i> | 126 |

A = 0.1373 - 0.0282 * B

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 1. | 0.00595 | 0.00595 | 0.11798 | 0.73182 |
| <i>Residual</i> | 124. | 6.25782 | 0.05047 | | |
| <i>Total</i> | 125. | 6.26377 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> | <i>p</i> |
|------------------------|---------------------|-----------------------|------------|------------|---------------|----------|
| Supermarket | 0.13733 | 0.02068 | 0.08859 | 0.18607 | 6.64072 | |
| Non supermarket | -0.02819 | 0.08207 | -0.22162 | 0.16524 | -0.34348 | |

Cider Regression 16 results: Supermarket and Independent (with percentage increase only from MUP)

Linear Regression

Regression Statistics

| | |
|------------------------------|----------|
| <i>R</i> | 0.02595 |
| <i>R Square</i> | 0.00067 |
| <i>Adjusted R Square</i> | -0.00817 |
| <i>Standard Error</i> | 0.66994 |
| <i>Total Number Of Cases</i> | 115 |

A = 0.5621 - 0.0612 * B

ANOVA

| | <i>d.f.</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p-level</i> |
|-------------------|-------------|-----------|-----------|----------|----------------|
| <i>Regression</i> | 1. | 0.03418 | 0.03418 | 0.07616 | 0.78 |
| <i>Residual</i> | 113. | 50.71693 | 0.44882 | | |
| <i>Total</i> | 114. | 50.75111 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>LCL</i> | <i>UCL</i> | <i>t Stat</i> |
|------------------------|---------------------|-----------------------|------------|------------|---------------|
| Supermarket | 0.56208 | 0.06538 | 0.4078 | 0.71637 | 8.59 |
| Non-Supermarket | -0.06119 | 0.22171 | -0.58438 | 0.46201 | -0.27 |

ANNEX D: BIOGRAPHIES

Professor George Yarrow

George Yarrow is currently Chairman of the Regulatory Policy Institute, Oxford; Emeritus Fellow of Hertford College, Oxford University; Visiting Professor at the Newcastle Business School; a member of the Ofwat Advisory Panel; and an adviser to the Australian Energy Market Commission. He is also currently Chair of an Expert Panel appointed by the Australian Government to assess the effectiveness of the limited merits review regime that has been developed under the National Electricity Law and National Gas Law. Until April 2009 Professor Yarrow was a Board Member of the Gas and Electricity Markets Authority (GEMA, www.ofgem.gov.uk), the GB energy regulator and a body responsible for the enforcement of UK and European Competition Law in the energy sector. He also recently served on the Republic of Ireland's Aviation Appeals Panel.

After graduating from Cambridge University, he held appointments at the Universities of Warwick and Newcastle before moving to Oxford, where he spent most of his academic career. He has also had visiting affiliations with Harvard University, the University of California at San Diego, the University of Urbino, and Queen Mary and Westfield College, University of London.

His principal work has been on the economics of competition, regulation and privatization, although he has also written on: energy and environmental policies; corporate objectives and the market for corporate control; aspects of industrial organization theory; monetary theory; health economics; and the reform of social security. His best known works are "Privatization in theory and practice", Economic Policy, 1986, variously reprinted and translated, and, with Professor Sir John Vickers, Privatization: An Economic Analysis, published by MIT Press in 1988, and subsequently in Spanish and Chinese editions.

Among other things, during his period as a full time academic Professor Yarrow served as a nominator for the Nobel Prize in Economics, and was a member of the editorial boards of Economic Policy, the Oxford Review of Economic Policy, the Journal of Industrial Economics, and Applied Economics.

Professor Yarrow has a longstanding interest in competition law and policy. Over the years, he has written reports and given evidence in a large number of competition cases considered by the Competition Commission, the Office of Fair Trading, the High Court and the Competition Appeal Tribunal in the UK, and the European Commission, the CFI/ECJ at EU level. Together with Peter Freeman, currently Chairman of the Competition Commission, he founded the Regulatory Policy Institute (in 1991) as a response to weaknesses and failures in the economic assessments of the UK competition agencies of the time. He has consistently argued for the importance of strong appeals mechanisms as the only effective vehicle for

putting pressure on administrative agencies to improve their assessment procedures and performance.

Although he gave up university teaching in 1997, Professor Yarrow has continued to give lectures on competition and regulation. Examples include: The Enterprise Act: Pluses and Minuses for Competition Policy (London, Beesley Lecture), Electricity Market Reform (Sorbonne, Paris), The Changing Dynamics of Europe's Liberalizing Energy Markets (Amsterdam), Economic Assessment and the Modernization of EU Competition Law (London, for the Judicial Studies Board; and Stockholm), Economic Assessment in Competition Law Cases (Berlin, to the Association of European Competition Law Judges), EU Energy Policy (keynote address for the annual conferences of the Australian Competition and Consumer Commission (ACCC)), Energy Policy: A Time to Stop Pretending? (London, Beesley Lecture), Discovering the Value of Water (London, Beesley Lecture), Current Challenges in Regulatory Policy (keynote address, ACCC).

Dr Christopher Decker

Christopher Decker is Research Director at the Regulatory Policy Institute, Oxford and Visiting Fellow in Law and Economics at the Centre for Socio-Legal Studies in the University of Oxford where, among other things, he teaches sessions on Law and Economics and on Economic Regulation as part of the Masters programme. He currently provides economic advisory services to the Australian Competition and Consumer Commission (ACCC), and is a member of the panel of economic experts for the Commission for Energy Regulation (Ireland). Prior to returning to the UK in 2007, Chris was a Principal Economic Advisor at the ACCC, and before that a Senior Research Economist with the Australian Productivity Commission.

Chris has published research studies and reports in relation to a range of regulated activities and industries. These studies have been for, or submitted to: the OECD; the European Commission; the European Central Bank, and regulatory and government agencies in Australia, Argentina, Hong Kong, Japan, South Africa and the United Kingdom. He has submitted independent economic opinions in proceedings before the Office of Fair Trading, the Competition Commission and the Competition Appeal Tribunal in the UK, and the General Court of the European Union.

Chris's academic work is focussed on the application of economics in competition law enforcement and in regulatory processes, including Regulatory Impact Assessments. He is the author of *Economics and the Enforcement of European Competition Law*, (Edward Elgar, 2009) and is currently complementing a manuscript (for Cambridge University Press) on Modern Economic Regulation. Chris holds a first class honours degree in economics from the University of Melbourne (Australia) and a PhD from the University of Oxford.

