

FREEDOM AN' WHISKY GANG THEGITHER

By Dr Paul Haines



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1. Introduction

Is there, that bears the name o' Scot,
But feels his heart's bluid rising hot,
To see his poor auld mither's pot
Thus dung in staves,
And plunder'd o' her hindmost goat
By gallows knaves?

Robert Burns *The Author's Earnest Cry & Prayer* "To the right honourable and honourable Scotch [sic] representatives in the House of Commons."

'The temptation to smuggle can be diminished only by lowering the tax rate'
Adam Smith *The Wealth of Nations*

This report examines possible reforms of the system of alcohol taxation in the United Kingdom, and in particular the impact such innovations would have upon the Scotch whisky industry and the regional Scottish economy. The argument that the present system of alcohol duties in the United Kingdom is contrary to the national interest has been discussed extensively by Barry Bracewell-Milnes in *A Disorderly House* (ASI 1993), and Keith Boyfield in *Too Much To Swallow* and *Letter to Lisbon* (ASI 1995).¹

Section II looks at the effects of some alternative proposals, all of which take as given the need to first reform the system such that all alcoholic beverages are taxed on an equal basis according to alcohol content. Section III presents preferred options, and using estimates of own-price elasticities in Section IV, Section V discusses the effects of the proposed reforms upon the Scotch whisky industry. The impact upon the regional Scottish economy is considered in Section VI, and finally, in Section VII, the effect of the proposed reforms upon government revenue is explored. Section VIII concludes.

¹ See BRACEWELL-MILNES, BARRY (1993) "A Disorderly House: UK Excise Duties on Alcohol & Tobacco," Adam Smith Institute, London, Second Impression 1993, BOYFIELD, KEITH (1995) "Too Much To Swallow: The Case For Lower Excise Duties on Alcohol," Adam Smith Institute, London, & BOYFIELD, KEITH (1995) "Letter To Lisbon: How High Excise Taxes Damage Europe's Economies: The Case For Lower Excise Duties on Alcohol & Tobacco" Adam Smith Institute London

2. Possible Reforms of the Duty Structure in the United Kingdom

It is sometimes contended that the excise on alcohol should reflect distributional considerations, although it has been argued elsewhere that such matters are more candidly attended to through the tax & benefit system.² Yet the current system of excise duties on alcohol in the United Kingdom is not progressive — an outcome which could only be achieved by discriminating against wine and in favour of beer and spirits. Such a regime would be contrary to the rulings of the European Court of Justice.

Equalising duty per degree of alcohol, the policy which this report advocates, would not make the system more inequitable, because under such a regime no income decile would pay significantly more of its income in alcohol tax.³

Modelling the effects

The Institute for Fiscal Studies has conducted several studies on raising or lowering the level of alcohol duties in the United Kingdom and the attendant consequences upon consumption, government revenues, and distributional effects. All models share the common feature of favouring a system that taxes beverages according to their alcoholic content, but offer alternative proposals on how to achieve this. The results of two of the more recent, *Alcohol Consumption & Taxation* written by Edmund Crooks in 1989, and *The Structure of Alcohol Taxes: A Hangover from the Past?* by Paul Baker & Stephen McKay in 1990, are examined here.

Both models use the IFS Simulation Program for Indirect Taxation (SPIT), which is based upon a demand system model of household expenditures

² See HAINES, PAUL (1998) "The Whisky Industry & The Regional Scottish Economy: An Economic Analysis of Imminent Innovations in Public Policy," PhD Chapter 5 University of St Andrews

³ BAKER, PAUL & MCKAY, STEPHEN (1990) "The Structure of Alcohol Taxes: A Hangover From The Past?" *IFS Commentary* No 21, Institute For Fiscal Studies, London, March 1990 p.26

estimated over 17 years of Family Expenditure Survey (FES) data from 1970-1986. The results obtained from the model are incorporated within a micro-computer program which simulates the effect of tax changes over a sample of some 7045 households from the 1986 FES. Baker & McKay believe their model to be more accurate than Crooks's, as it divides the sample into four groups, according to whether the household owns a car, or whether they smoke.⁴

Crooks determined that 'levelling down' the tax rate on wine and spirits to the rate which applied to beer would result in spirits consumption doubling, but in this model, although beer is no more expensive, beer consumption falls as people move over to spirits. This conclusion is at odds with most other studies which show no significant cross-price elasticity between beer and spirits. In total, alcohol consumption, measured in terms of litres of pure alcohol consumed per annum, increases by 16.5%, while government revenue increases by 1.5%. By contrast, Baker & McKay's model suggests that 'levelling down' would result in an increase in alcohol consumption of 12.2%, but would lower government revenue by 7%.⁵

Conversely, Crooks calculated that in the case of 'levelling up' duties on wine and beer to that which pertains for spirits, beer and wine consumption both fall, and there is some switching to spirits. Overall consumption of alcohol falls by 11%, government revenue increases by 4%. In Baker & McKay's model, 'levelling up' would lower alcohol consumption by 18.7%, and increases government tax revenue by 14%.⁶

One important assumption made in these simulations is that there is no response from producers; the only change in prices is caused by the change in taxation. This implies that the incidence of the taxes is entirely on the consumer, and the whole burden is passed forward by the drinks companies. Arguably this is a fair assumption; in most circumstances companies will maximise profits by passing on any tax increases or cuts, although to the extent that they have monopoly power in the market some of the tax increase or cut will be absorbed in lowering of higher margins. In this instance, the effects on consumption and revenue will be greater or less than the simulations suggest.

A feature of the two simulations in Crooks's model is that both levelling up and levelling down lead to increases in total indirect tax receipts. This

⁴ See CROOKS, EDMUND (1989) "Alcohol Consumption & Taxation," *IFS Report Series* No 34 Institute For Fiscal Studies, London, March 1989 and Op Cit, "The Structure of Alcohol Taxes: A Hangover From The Past?"

⁵ Op Cit, "Alcohol Consumption & Taxation," p.64 and Op Cit, "The Structure of Alcohol Taxes: A Hangover From The Past?" p.27

⁶ Op Cit, "Alcohol Consumption & Taxation," p.64 and Op Cit, "The Structure of Alcohol Taxes: A Hangover From The Past?" p.27

⁷ Op Cit, "Alcohol Consumption & Taxation," p.64

apparently paradoxical result is caused by the fact that spirits are much more price elastic than beer. So if taxes are levelled down, the increase in spirits consumption is large enough to boost revenue even though the tax rate is reduced, whereas if taxes are levelled up, the decrease in beer consumption is not great enough to offset the revenue-increasing effect of the higher tax rate.⁷ Baker & McKay concluded that revenue and consumption 'neutral' reforms could be effected by comparable rates of tax per unit of alcohol. This suggests that it would be possible for the Chancellor to implement a set of alcohol duties, based upon alcohol content, which would leave government revenue and total alcohol consumption largely unchanged, but which would reflect the social costs of alcohol consumption in a more consistent manner. The consumption-neutral reform implies an increase in duties on beer and wine, and a decrease in the duty on spirits which offsets these increases. The result of this would be a slight increase in tax revenue of 1.5%.⁸

Fiscal policy and alcoholic consumption

But Crooks believes that there is a major problem with this plan from a public health point of view: in the long-term there would be a substantial increase in real incomes, and hence in alcohol consumption. The proposed increase in beer and wine duties would moderate that growth, but the fall in the real value of spirits duties would accelerate it. The increase in demand in response to increases in real income will of course depend upon income elasticity; some of the more recent estimates are given in **Table 1**.

Table 1: Income Elasticities of Demand

	Beer	Wine	Spirits
Walsh & Walsh 1970 (Republic of Ireland)	0.50 - 0.79	-	1.48-2.06
HM Treasury (1980)	0.7	2.2	2.5
Duffy (1983)	0.80 - 1.10	2.5	1.6
Salvanathan (1988)	0.41	1.74	2.18
Crooks (IFS 1989)	0.92	2.56	2.09

⁸ Op Cit, "The Structure of Alcohol Taxes: A Hangover From The Past?" p.19

Comparison of the income elasticities of wine and spirits in particular with their smaller own-price elasticities (see Section IV) suggests that even larger price increases may therefore be necessary to restrain consumption if real incomes are increasing. Studies across countries have discovered that the income elasticities tend to be lower the more important the drink is in terms of its share of total consumption. Thus in beer drinking countries, beer has a low income elasticity, in wine drinking countries (except for Italy), wine has a low value. In Finland, Sweden and probably Russia, vodka has a low income elasticity.⁹

The reported income elasticities of demand can largely account for both the rapid growth in consumption of spirits and wine in the relatively prosperous 1960s and early 1970s, and the marked fall in the expansion of *per capita* consumption levels during the recession and stagnation after the 1973/4 oil price crisis, and during the 1979-81 recession.

Duffy's (1983)¹⁰ estimates suggest that the *per capita* demand for wines and spirits is likely to grow at rates approximately 50-150% faster than the consumer's real disposable incomes, *ceteris paribus*. Beer demand may increase at a rate 20% below the rate of growth of income. Duffy concludes:

Even if these estimates seem rather high, they do at least signal that the future rate of increase in consumption of alcoholic drinks may be very large indeed; the implication would seem to be that in the long-run any alcohol control policies are likely to be confronted with an uphill struggle against the affluent society's increasing propensity to consume drink.¹¹

On the basis of his estimates of income elasticity, Crooks predicts that an increase in national income of 2 per cent in real terms would increase the consumption of beer by just under 2 per cent, the consumption of spirits by 4 per cent, and the consumption of wine by as much as 5 per cent, arguing:

The volume of consumption could well double every 20 years. It has already been accepted that the Treasury should uprate the nominal value of duties each year in order to maintain their real value. Should we also adopt a different convention for uprating alcohol taxes, in order to curb the growth caused by rising incomes?¹²

Evidence accrued by Brendan Walsh on the Republic of Ireland¹³ casts doubt on the wisdom of Crooks's suggestion. The excise tax on all alcoholic

⁹ GRANT, MARCUS, PLANT, MARTIN, & WILLIAMS, ALAN, EDS (1983) *Economics & Alcohol: Consumption & Control* Croom Helm p.37

¹⁰ See DUFFY, M (1983) "The Demand For Alcoholic Drinks in The United Kingdom 1963-78," *Applied Economics* Volume 15 pp 125-40

¹¹ *Ibid*, p.136

¹² *Op Cit*, "Alcohol Consumption & Taxation," p.71

¹³ See WALSH, BRENDAN M (1980) "Drinking in Ireland: A Review of Trends in Alcohol Consumption, Alcohol Related Problems & Policies Towards Alcohol," The Economic & Social Research Institute (Irish Republic) Broadsheet No 20 Dublin September 1980

beverages, but on beer in particular, is extremely high, exceeded only in the Scandinavian countries, which suggests that alcohol is more expensive in relation to income in the Irish Republic than anywhere else in the Western world (Sulkunen, 1978).

But these rigorous fiscal policies notwithstanding, there has been a steady increase in *per capita* alcohol consumption during the 1960s and 70s, with an attendant rise in at least some of the indexes of alcohol-related problems. Perhaps if alcohol tax policy had been more lenient, there would have been a greater increase in problems, but the econometric evidence suggests that the effect would not have been dramatic. One consequence of this policy of high alcohol taxes has been a marked rise in the proportion of income devoted to purchasing alcoholic beverages, to the point where the Republic of Ireland is ahead of all other countries on this statistic.

Taxation, consumption and health

There is an understandable temptation for those concerned with public health to seek a solution to the problems for alcohol abuse in a tougher fiscal policy. Undoubtedly many countries have neglected this possibility, but the evidence from the Republic of Ireland suggests that only limited inroads on the problems associated with excessive drinking can be expected from a policy of high alcohol taxes.¹⁴

Moreover, recent evidence suggests that alcohol consumption in the United Kingdom has plateaued, and that the fears rising that real incomes will occasion ever higher levels of alcohol consumption may be exaggerated. **Figure 1** (overleaf) illustrates that after rising through most of the 1980s, *per capita* alcohol consumption in the United Kingdom was actually less in 1992 than in 1979.

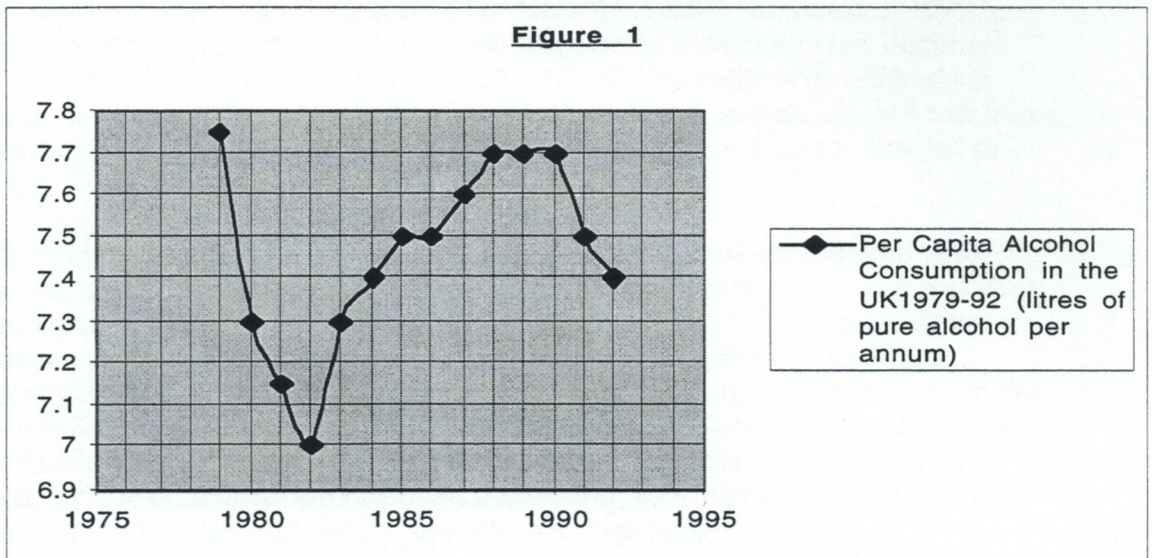
The Scottish Office based their estimates in **Table 2** upon the Family Expenditure Survey (FES), published annually by HMSO. It should be noted that estimates for alcohol purchases reported in the FES are below those which might be expected by comparison with other sources. This caveat notwithstanding, the general thrust of falling alcohol expenditure as a percentage of total income holds good; evidence from *The Drinks Pocket Handbook 1995* also reveals a fall from 7.21% in 1970 to 6.28% in 1993,¹⁵ whilst Sutherlands also report a fall from 7.20% in 1984 to 6.02% in 1994.¹⁶ Real absolute expenditure on alcohol in the United Kingdom has also fallen in recent years; in 1988, at the peak of the Lawson boom, total consumers' expenditure on alcoholic beverages summed to £21,789 million. By 1993, this figure had fallen to £20,513 million (expressed at constant 1990 prices).

¹⁴ Ibid, p.188

¹⁵ Op Cit, "Too Much To Swallow," p.9

¹⁶ GRAY, ALAN S (1997) "The Scotch Whisky Industry Review 1996," p.167

**Figure 1: Per Capita Alcohol Consumption in the United Kingdom 1979-92
(litres of pure alcohol per annum)**



Source: Pieda PLC, Alcoholic Drinks: competition in the European Union

As a proportion of their total income, people are choosing to spend less on alcohol, a fact revealed in **Table 2**.

**Table 2 : Average Weekly Household Expenditure on Alcoholic Drink (%):
Scotland and the UK, 1977-1996**

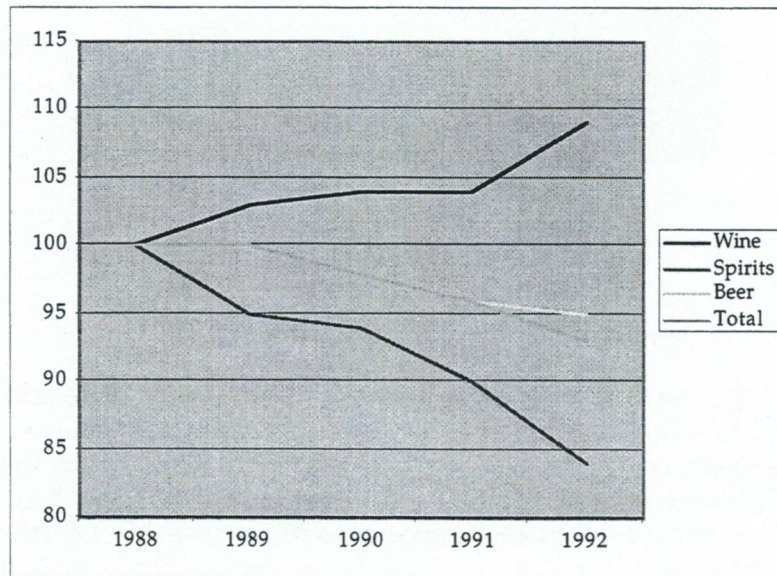
Year	Alcoholic Drink as % of Total Expenditure	
	Scotland	United Kingdom
1977-78	5.7	4.9
1979-80	5.4	4.8
1981-82	5	4.7
1982-83	4.7	4.7
1983-84	5.3	4.8
1984-85	5.6	4.8
1985-86	5.6	4.7
1986-87	5.3	4.6
1987-88	5.2	4.6
1988-89	4.9	4.3
1989-90	4.8	4.1
1990-91	4.5	4.1
1991-92	4.5	4.1
1993	4.6	4.3
1994-95	4.3	4.3
1995-96	4	

Sources: The Scottish Economic Bulletin, 1994-1996
The Scottish Abstract of Statistics, 1997

This fall in expenditure masks significant shifts in the pattern of alcohol consumption. Consumption of both beer and spirits has fallen: beer production in the United Kingdom fell from 41.2 million barrels in 1979 to 34.85 million barrels in 1993, whilst production of Scotch whisky declined from 4, 158, 700 hectolitres in 1980, to 3, 562, 500 hectolitres in 1993. As a result, since 1979, the share of spirits in total expenditure on alcohol has fallen from nearly a quarter to barely a fifth, representing a reduction in sales of 30%.¹⁷

But whereas brewers have been able to maintain profits on reduced sales because of a 45% increase in the real duty paid price since 1979, the real duty paid price of Scotch has fallen by 3%. By contrast, since 1979, sales of wine have soared by 60%, increasing the proportion of alcohol expenditure accounted for by wines from 16% to 25%.¹⁸ The existing duty structure in the United Kingdom therefore levies the highest excise duties on that segment of the drinks market which has been diminishing – spirits – while subjecting wine, whose consumption has been increasing, to much lower excise duties.¹⁹ These changes are illustrated graphically in **Figure 2**.

Consumption of alcohol in the UK (hectolitres of pure alcohol) 1988-1992
(1998 = 100)



Source: PIEDA PLC, *Alcoholic Drinks : Competition in the European Union*

¹⁷ Op Cit, "Too Much To Swallow," p.8 & p.4

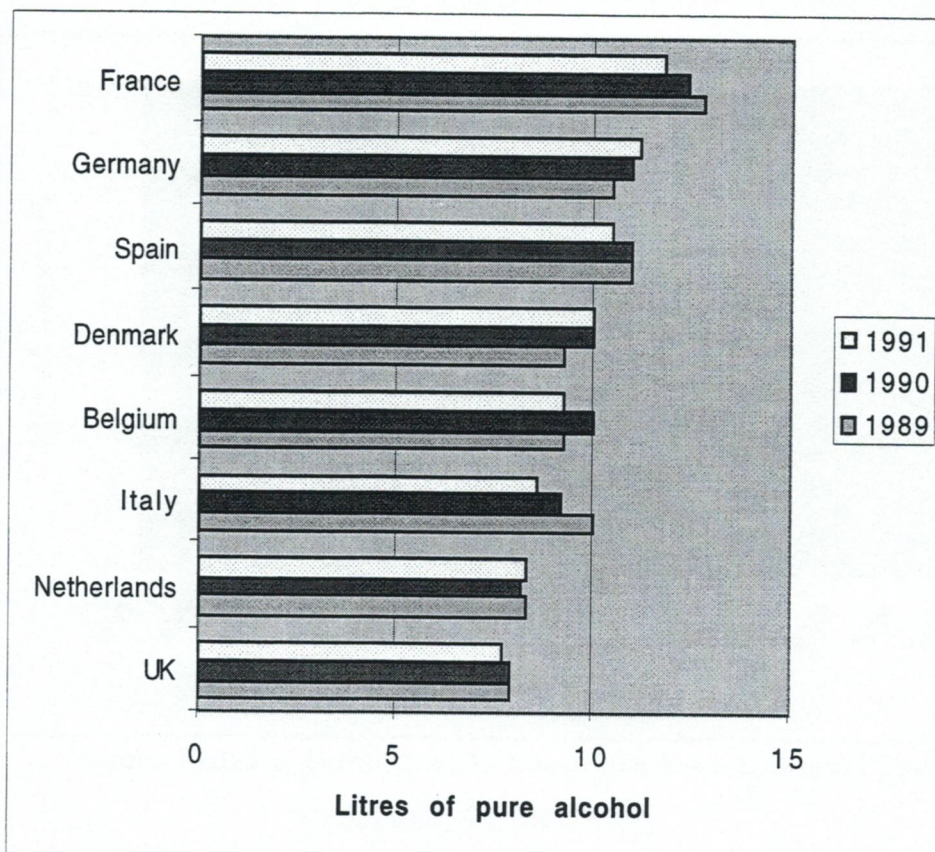
¹⁸ PIEDA plc (1995) 'Scotch Whiskey: The Spirit of Competitiveness' PIEDA plc Edinburgh, Report For The Scotch Whisky Association Para 2.3

¹⁹ PIEDA PLC (1993) "Scotch Whisky: Sinking A National Asset," PIEDA Plc, Edinburgh, Report For The Scotch Whisky Association Para 3.9

²⁰ See *The Drinks Pocket Book 1995* p.159, in Op Cit, "Too Much To Swallow," p.10

Finally, as depicted in **Figure 3**, comparison of *per capita* levels of alcohol consumption reveals that the United Kingdom ranks below most other European countries; 21st to be precise, in a league table of international *per capita* alcohol consumption.²⁰

Figure 3: Per Capita Alcohol Consumption by Country

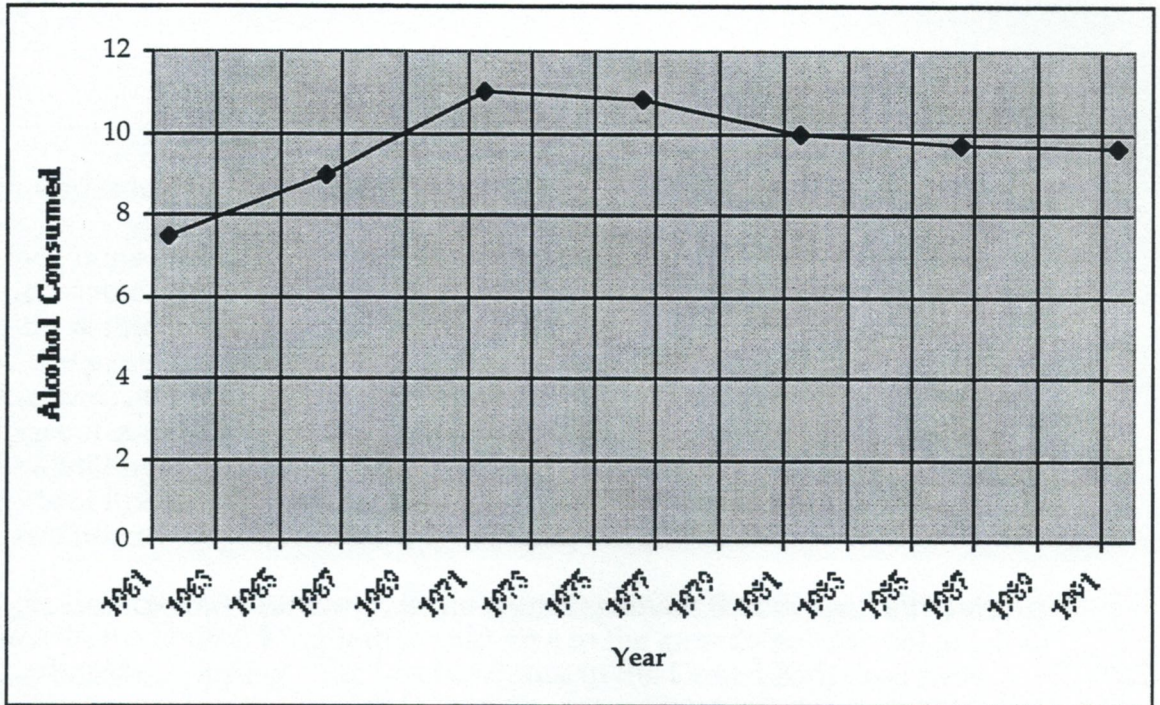


Source: Keith Boyfield, *Too Much to Swallow*

In sum, therefore, empirical evidence indicates a fall in *per capita* alcohol consumption in the United Kingdom since 1979, especially of beer and spirits, a long-term contraction in alcohol expenditure as a percentage of consumers' incomes, and a recent reduction in the absolute level of expenditure on alcoholic drinks. Moreover, in other countries of the European Union, where in general alcohol excises are much less than in the United Kingdom, there has only been a slight increase in *per capita* alcohol consumption since 1961, as depicted in **Figure 4**.

This evidence, together with the findings of Brendan Walsh in respect of the Republic of Ireland referred to earlier, seriously qualifies the Apocalyptic scenarios envisaged by Duffy, Crooks *et al*, and hence markedly diminishes the validity of their arguments for frequent revalorisation of alcohol excises in the United Kingdom to take account of rising real incomes.

Figure 4: Average Per Capita Alcohol Consumption (LPA), EU Member States, 1961-1991



Source: Pidea Plc, Alcoholic Drinks: Competition in the European Union

3. Preferred Options

The wider impact of fiscal policy

In fact, none of the proposed reforms outlined in the previous Section are really viable in the present context. Any substantial increase in alcohol duties would result in higher retail prices, which would be politically unpopular, and the price changes would also feed through to the Retail Price Index. Moreover, none of the proposed reforms took into account the employment impact of significant reductions in alcohol consumption upon UK brewing and distilling industries. Such an omission also prevents an analysis of the effects of linkage reductions upon the wider economy resulting from a contraction in output in the drinks industry.

Of greatest concern, however, is the encouragement that unilaterally raising duties in the United Kingdom would give to the already substantial levels of cross-border shopping. The level of duties in the United Kingdom have already reached such a meridian that the government is being forced to persuade other EU member states to raise their excise duties on alcohol in order to defend the revenue base in the United Kingdom from the effects of cross-border shopping. The previous Paymaster-General, David Heathcoat-Amory, told a recent conference organized by the Wine & Spirit Association:

Ideally, we would like to see other member states, especially the low taxing ones, increase their duties on wine and beer to bring them more in line with ours...that will not be easy to achieve.²¹

Such appeals are unlikely to win much support, but even if they were, one of the first to suffer would be the UK's domestic drinks industry. Prosperous markets in Southern Europe would contract sharply if there was any mandatory increase in minimum excise duty rates.

²¹ Op Cit, "Too Much To Swallow," p.38

Harmonisation and the single market

The harmonisation of alcohol excises, whether by legal fiat or a natural convergence, is a *sine qua non* for successfully completing the internal market. Given that the average level of duties in most EU member states are appreciably lower than in the United Kingdom, any harmonisation will most likely result in rates that are below those pertaining at present in the United Kingdom. In seeking to ensure that any final settlement does not discriminate against spirits, the government will need to recognise that the duty structure first has to be reformed in the United Kingdom.

Reconstituting alcohol excises in the United Kingdom will therefore involve not only altering the relative duty structure such that all alcoholic beverages are taxed at an equal rate according to alcohol content, but inevitably means a reduction in the absolute level of alcohol excises. This can be achieved most simply through not revalorising all alcohol duties in line with inflation, and cutting the tax on spirits in absolute terms.

The logic of these proposals was recognized by the previous Chancellor, who in his last two budgets, froze alcohol duties on wine and beer and actually reduced the spirits excise in two consecutive 4% cuts. But even with annual cuts of 4%, it would take 14 years for spirits to reach parity with other alcoholic drinks, and in any case, in his post-election budget the Chancellor widened the absolute differentials between the taxation of alcoholic beverages by announcing an increase in alcohol duties of 3% from January 1998. The Chancellor did, however, freeze spirits duty in his March 1998 budget.

Table 3 outlines how the proposed reforms could be effected. The excise on spirits is almost halved, and the tax applied to other categories of alcohol adjusted downwards slightly such that all alcoholic beverages are taxed at a flat rate of £10.00 per litre of pure alcohol.

Table 3: Duty Charged (£) Per Litre of Pure Alcohol: Current Levels (1997) and Proposed Change

Product	ABV %	Present Duty	Proposed Duty	% Cut
Fortified Wine	17.5	10.7	10	6.5
Beer	4.93	10.82	10	7.6
Table Wine	11.2	12.54	10	20
Spirits	40	18.99	10	47

Creating such a structure of alcohol duties in the United Kingdom would substantially increase sales of spirits such as Scotch whisky, increasing output and employment across Scotland. This is discussed in more detail in the following sections. Moreover, reforming alcohol excises along the lines

proposed would enable the government to lobby credibly for comparable structures in other nations, and for the principle of equivalency to be applied when setting minimum rates of alcohol duties across the European Union.

Nevertheless, in addition to reforming the domestic structure of alcohol excises, the United Kingdom government may need to adopt a more aggressive stance within the European Union if it is to oblige other member states to recognize its point of view. The government may wish to use its veto in the Council of Ministers to thwart any attempts at harmonising alcohol excises in the EU which does not apply the principle of taxation according to alcohol content. In addition, the government should fight tenaciously for the removal of the several 'concessions' allowed as part of the October 1992 agreement on minimum rates.

Indeed, the UK could abolish duty and VAT on wine imported from the Commonwealth, a policy no different to the 'preference' France has secured for the spirits produced in its own Caribbean colonies, which places Scotch whisky at a competitive disadvantage in its most important market. New World wines currently represent formidable competition to European viniculture, not only in respect of quality, but in terms of value too. Abolishing taxes on Antipodean wines would therefore be highly efficacious in concentrating minds on the present anomalies.

4. Estimates of Own-price Elasticities

A reformed system of alcohol excises in the United Kingdom must involve a reduction in duties in general, but on spirits in particular. The effect of these reductions on sales will clearly depend upon the responsiveness of demand to any fall in price. The precise value for own-price elasticity depends upon the shape of the 'demand function' for the alcoholic beverage concerned – how the demand for it responds to changes in price.

If the measured elasticity is less than minus 1, a good is defined as displaying elastic demand; if the elasticity is equal to minus 1, the good is said to be of unit elasticity (i.e. if the elasticity of demand is precisely minus 1.0, a ten per cent fall in price would cause sales to increase by 10 per cent); and if the elasticity of demand is greater than minus 1 (eg -0.8) the good is deemed to display inelastic demand – a price change will have minimal impact on the quantity sold. Elasticity figures are usually expressed as minus figures, since if the price of a good increases, demand falls. Thus, an inverse relationship normally obtains between the price charged and the quantity demanded.

Estimates of the effect

In a recent report for the Institute for Fiscal Studies (IFS) entitled *Alcohol Taxes & The Single Market* (1995), Ian Crawford & Sarah Tanner²² analysed household expenditure on beer, wines and spirits, arriving at some estimates of own price demand elasticities for the year 1993. These are set out in **Table 4**, together with other estimates of own-price elasticities for alcoholic beverages, which will be referred to later in this Section.

²² See CRAWFORD, IAN & TANNER, SARAH (1995) "Alcohol Taxes & The Single Market," IFS *Commentary* No 47 Institute For Fiscal Studies, London, April 1995

Table 4: Own-Price Elasticities

	Beer	Wine	Spirits
Her Majesty's Treasury (1980)	-0.2	-1.1	-1.6
Salvanathan (1988)	-0.2	-0.49	-0.79
Crooks (IFS 1989)	-1	-0.91	-2.42
Constant Real Expenditure	-1.4	-0.4	-2.41
True Budget Shares	-1.29	-0.83	-1.06
The Henley Centre (1991)	-0.3	-0.3	-0.49
Balasurbramanyan & Salisu (1993)	-0.34	-0.97	-1.06
Her Majesty's Customs and Excise (1995)	-0.5	-1.3	-1.3
Bossard	-1.4	-0.45	-2.1
HM Customs and Excise	-0.96	-1.05	-1.07
Crawford & Tanner (1995)	-0.67	-1.4	-1.18
Blake & Nied (1995) Av of time series	-0.19	-0.54	-0.57
Av of cross section	-1.15	-0.13	-2.94
Range (upper)	-0.19	-0.13	-0.57
(lower)	-1.29	-1.4	-2.94
Mean	-0.74	-0.76	-1.51
Standard Deviation	0.48	0.401	0.766

Significantly, the official economic evidence collected by HM Customs & Excise also indicates that the demand for alcoholic drinks, especially spirits, is sensitive to price. As can be seen from **Table 4**, the demand equations employed by HM Customs & Excise in 1995 differ from those calculated by Crawford & Tanner. For example, Customs & Excise deem the demand for wine to be marginally more inelastic than the demand for spirits, whereas Crawford & Tanner concluded that the demand for wine is significantly more elastic than that which obtains for spirits.

In a recent report entitled *Too Much To Swallow* (1995),²³ the Adam Smith Institute asked HM Customs & Excise to explain the different estimates. It transpired that HM Customs & Excise demand elasticities were based upon some econometric studies undertaken by the IFS for them in 1990. The different estimates of elasticity of demand are explained by the fact that the IFS regularly updates its model for alcoholic beverages in the light of changing personal incomes, tax rates and other variables. Crawford & Tanner believe that the differences between the two sets of estimates are not significant, if allowance is made for the standard errors involved in such calculations.

In a recent enquiry, the Treasury Select Committee questioned Henry Neuberger, the Head of the Economics & Statistics Division of HM Customs & Excise, about the official estimates of demand elasticity with regard to alcoholic drinks. Mr Neuberger pointed out that "Alcohol, by contrast with tobacco, has a demand which is very sensitive to price." Mr Neuberger confirmed that "On the whole, professional estimates put the elasticity of demand at about unity, which means that a one per cent increase in price will lead to about a one per cent fall in consumption."²⁴

Effect on different drinks

The estimates of Crooks (1989) on own-price elasticity require some comment. It is possible that the own-price elasticities of -1.0 for beer, -0.91 for wine and -2.42 for spirits, are biased for alcoholic drink in particular, because of the under-reporting of alcohol in the Family Expenditure Survey (FES). Consider the constant real expenditure own-price elasticities as -1.4 for beer, -0.4 for wine and -2.41 for spirits, on mean budget shares of 4.1, 0.75 and 1.1 per cent respectively. If, however, the true budget shares, discovered from the National Accounts, are used instead of the FES shares, the elasticities become -1.29 for beer, -0.83 for wine, and -1.64 for spirits, much closer to the estimates of HM Treasury (1980).²⁵

If spirits have the same (or greater) own-price elasticity as wine and beer, then spirits' share of consumer expenditure must be reduced relative to other drinks categories. This follows from the fact that excise duties form a higher proportion of the final price of spirits products.²⁶

Most other studies have at least concurred on the inelasticity of demand for beer, but disagree as to the position in respect of wine and spirits. Duffy (1980) believed the price elasticity of demand for beer in the United Kingdom

²³ See Op Cit, "Too Much To Swallow"

²⁴ Ibid, p.28-29

²⁵ Op Cit, "Alcohol Consumption & Taxation," p.76

²⁶ PIEDA PLC (1994) "Alcoholic Drinks: Competition in The European Union," PIEDA Plc, Edinburgh, Report For The Scotch Whisky Association and The Gin & Vodka Association, p.9

to be low,²⁷ whilst Walsh & Walsh (1970)²⁸ in their study of alcohol consumption in Ireland, came to the conclusion that a "rising relative price of beer has little or no effect on the quantity of beer consumed, but does lead to a proportional increase in expenditure on beer."

Duffy (1980) found that spirits and wine are significantly responsive to movements in prices, but Walsh & Walsh (1970) considered their best estimate for Ireland was 0.57. Salvanathan used the differential approach to analyse the demand for beer, wine and spirits in the UK, 1955-85, and he too found demand for all alcoholic beverages to be inelastic.²⁹

Balasubramanyan & Salisu's estimates are based upon a model combining the traditional approach and the systems wide method, believing this is likely to yield demand elasticities that are consistent with stylised facts. They express *per capita* real expenditure on each of the three categories of alcoholic drink as a function of total real expenditures on alcoholic drinks, real prices of the three drinks, and the amount of expenditure incurred by vacationers from the United Kingdom abroad (particularly in Europe.³⁰)

In a 1994 paper utilising cointegration and error correction techniques, Balasubramanyan & Salisu also found the own-price elasticity of demand for spirits to be higher than that for wine and beer. But whilst the short run own price elasticity of demand for wine was found to be higher than its long-run price elasticity, the opposite was found to be true in the case of spirits. They found little difference between the estimated short-run and long-run price elasticities of demand for beer.

The error correction term in the error correction mechanism was found to be statistically different from zero, leading Balasubramanyan & Salisu to conclude that: "This suggests that the extant studies on demand for alcoholic drinks in the United Kingdom have relied on equations which are

²⁷ Op Cit, "The Demand For Alcoholic Drinks In The United Kingdom 1963-78," p.132

²⁸ See WALSH, B M & WALSH, D (1970) "Economic Aspects of Alcohol Consumption in The Republic of Ireland," *The Economic & Social Review* (Irish Republic) Vol 2, No 1 pp 115-138

²⁹ SALVANATHAN, E A (1988) "The Demand For Alcoholic Drinks in the United Kingdom: An Economic Study," *Applied Economics*, Volume 20 pp 1071-86 August-December 1988 p.1085

³⁰ BALASUBRAMANYAN, V N & SALISU, M A (1993) "The Demand For Alcoholic Drinks in the United Kingdom," Discussion Paper EC10/94 *Lancaster University Management School Discussion Papers* p.14

³¹ See BALASUBRAMANYAN, V N & SALISU, M A (1994) "The Demand for Alcoholic Drinks in the United Kingdom: Application of Cointegration & Error Correction Mechanism," Discussion Paper EC10/94 *Lancaster University Management School Discussion Papers*

misspecified, as they do not include the error correction term." For these reasons, Balasubramanian & Salisu have argued that the price elasticities of demand for the three categories of drinks estimated on the basis of the cointegration and ECM models may be much more accurate than those grounded in conventional econometric models.³¹

In an in-depth econometric analysis of demand for alcoholic drinks in ten European Union countries, especially prepared for the European Commission, Bossard (1994) found only three examples out of 40 alcoholic drinks sectors across Europe where a price rise did not result in reduced consumption. The three sectors discovered where price was not a significant influence were beer consumption outside of the home in France, consumption of still wine in Germany, and wine consumption in Spain. Bossard concluded:

On the whole, consumption of alcoholic beverages is highly sensitive to price...In most countries, the sensitivity to the specific price is greatest for spirits and least marked for the dominant alcoholic beverage.³²

Little precision possible

In conclusion, the evidence suggests that precise estimates of the own-price elasticity of demand for different alcoholic drinks will remain elusive; **Table 4** shows that there are *quot hominess, tot sententiae* on this subject, and the standard deviations are particularly revealing. For this reason, average values have also been computed, and *faux de mieux*, for the purposes of this study the mean estimates calculated will be utilised. It should also be noted that the lowest level of disaggregated elasticity estimates available refer to 'spirits' in general; there are no officially recorded figures specifically for whisky, much less any distinction made between demand for the cheaper blended whiskies or the higher quality malts.

But recent empirical evidence suggests that attributing a value of approximately -1.5 to the price elasticity of demand for whisky with respect to own price may be appropriate. An article in *The Scotsman* newspaper on March 6 1997 reported that sales of Scotch whisky had increased by 3% in the aftermath of the 4% cut in duty in November 1996.³³ As duty accounts for approximately 50% of the final price, this represents a 2% fall in the final price; a 3% increase in sales therefore suggests a price elasticity of -1.5.

³² Op Cit, "Too Much To Swallow," p.11

³³ SCOTSMAN, THE (1997) Article 6th March 1997

5. Reform: Its implications for the Whisky Industry

Chapter 3 advocated reforming the structure of alcohol excises in the United Kingdom such that all alcoholic beverages were taxed at a flat rate of £10.00 per litre of pure alcohol. This would necessitate minor reductions in the tax on beer, cider and fortified wines, a 20% reduction in the wine excise, (100% for wines imported from Australia & New Zealand), and almost halving duties on spirits.

At present, an average 70cl bottle of spirits at 40 % abv attracts a specific duty of £5.32. Including Value Added Tax of 17.5 %, this sums to £6.25. Reducing the tax on spirits from £18.99 to £10.00 per litre of pure alcohol implies a cut of just over 47%, which would lower the specific duty on an average strength bottle of spirits to £2.80, £3.29 including VAT. Assuming an average retail price for a typical bottle of blended Scotch whisky of £10.50, this 47% reduction in tax of £2.96 represents a fall in the final price of 28%.

The effect on sales of whisky from this cut will clearly depend upon the responsiveness of demand to this reduction in price. In Section IV, an average value for the own-price elasticity of spirits was determined to be -1.51. So a 28% reduction in the price of whisky would, *ceteris paribus*, result in a 42% increase in demand.

This assumes of course that the cut in duty is passed on fully to the consumer, not added to producer or retailer margins. Current pressure on the selling prices realised by producers suggests that some may attempt to garner some of the duty saving for themselves. A certain distributor in the Far East intimated that he believed the Scotch whisky industry was being "optimistic" in assuming that the savings from lowering Japanese duties on imported spirits will be passed on to the consumer.

Employment impact

But presuming that demand for spirits does increase by the estimated 42%, what will be the effect upon employment in the whisky industry? In 1996, 32.07 million litres of pure alcohol (lpa) of Scotch whisky were consumed in

the United Kingdom. A 42% increase in demand would therefore increase this figure by 13.47 million lpa to 45.54 million lpa. This 13.47 million lpa increase in output destined for the domestic market represents a rise of 4.7% in total Scotch whisky output, based upon 1996 world sales figures of 288.87 million lpa. As discussed previously, at end of 1996, some 13,345 people were directly employed by the whisky industry, so a rise in total Scotch whisky output of 4.7% should increase employment by 627.

This analysis assumes near enough 100% capacity utilisation in malt & grain distilleries, which in reality is seldom the case; in 1995, the figure was of the order of 70%, so it is quite likely that a substantial increase in output could be realised without hiring many more men. In addition, it is assumed that whisky distillers will wish to maintain current stocks in bond, estimated at 7.4 years supply at current sales projection. But since whisky is consumed at an average age of six years, a stocks/consumption ratio of 7.0 is held within the industry to be appropriate.³⁴ Moreover, even if the estimates of direct employment increases may be inflated, the extra whisky production will require additional inputs from suppliers who may well be operating at higher levels of capacity utilisation.

³⁴ GRAY, ALAN S (1996) "The Scotch Whisky Industry Review 1995," Sutherland & Partners (Edinburgh) Ltd p.57

6. Effects on Regional Scottish Economy

Multiplier estimates presented in the Scottish Input-Output Tables vary as between the 1989 and 1994 Tables.³⁵ Two estimates of indirect and induced employment created by the increase in final demand for whisky are therefore given in Table 5.

Table 5: Employment Created Across Scottish Economy Resulting From Increase in Final Demand For Whisky: 1989 & 1994 Employment Multiplier Estimates

Employment created	1989 Multipliers	1994 Multipliers
Direct	627	627
Indirect	1668	922
Induced	608	395
TOTAL	2903	1944

1989 Type 1 Employment Multiplier = 3.66
1989 Type 2 Employment Multiplier = 4.63
1994 Type 1 Employment Multiplier = 2.47
1994 Type 2 Employment Multiplier = 3.10

These calculations assume that the income arising from direct and indirect employment created by the whisky industry is additional; there is no offset from reduced unemployment and supplementary benefit. This assumption is consistent either with the jobs being filled by in migration or by people entering the labour force, rather than leaving the unemployment register.

But conceivably, all those entering employment could come off the unemployment count. In an article for the *Scottish Economic Bulletin* entitled "Income & Employment Multipliers: Some Further Results," D S Henderson

³⁵ See SCOTTISH OFFICE, THE (1994 & 1997) "Scottish Input-Output Tables for 1989 & 1994," Volumes 1, The Scottish Office Industry Department, Economics & Statistics Unit, Edinburgh, Her Majesty's Stationery Office

& G Storie³⁶ calculated that taking this into account diminishes the Type II employment multiplier associated with the whisky industry by a factor of approximately 0.3. In this instance, the Type II employment multiplier, estimated by J M Alexander & T R Whyte on the basis of the 1989 Scottish Input-Output Tables, is therefore reduced from 4.63 to 4.33.³⁷

In Henderson & Storie's calculations, the income of the unemployed was assumed to be 20% of the income received in employment. This estimate had been derived by estimating the average receipts of unemployment and supplementary benefit per head of unemployed in Scotland, and taking this as a percentage of average income per person in employment, including the self-employed. They also assumed that the average tax rate is relevant to the change in income, but in reality this assumption is likely to understate the tax paid on additional income, and therefore to overstate the relevant multiplier, because of the effects of the income tax rate and of factors such as the loss of rent and rate rebate, eligibility for payment of National Insurance contributions etc.

In practice, it is unlikely that net increases in employment will result in either all persons coming off the count or none. Interpolation according to the expected outcome would yield more relevant estimates,³⁸ but for the present purposes the Type II employment multipliers associated with the 1989 and 1994 Input-Output Tables will be utilised.

³⁶ HENDERSON, D S & STORIE, G (1988) "Income & Employment Multipliers: Some Further Results," *Scottish Economic Bulletin* No 38, December 1988, The Scottish Office, Edinburgh, Her Majesty's Stationery Office p.15, p.17

³⁷ See ALEXANDER, J M & WHYTE, T (1994) "Output, Income & Employment Multipliers For Scotland," *Scottish Economic Bulletin* No 50 1994/95 The Scottish Office, Edinburgh, Her Majesty's Stationery Office

³⁸ Op Cit, "Income & Employment Multipliers: Some Further Results," p.15, p.17

7. Impact of Proposed Reforms on Government Revenue

In this Section, the possible impact upon exchequer receipts in the United Kingdom of the proposed amendments to the structure of alcohol duties is considered. Reducing excise duties on spirits in particular would shrink tax receipts on each bottle sold, but the increase in sales would have the effect of enlarging the tax base, mitigating the final loss in tax.³⁹

According to Scotch Whisky Association Databank figures, in 1996 duty paid Scotch whisky retained for home use was 32, 065, 300 litres per annum, duty was £19.78 per litre of pure alcohol,⁴⁰ so tax receipts realised in 1996 were approximately £634 million. This is in line with Sutherlands' 1996 estimate of HM Customs & Excise duties from Scotch whisky of £653 million.⁴¹

It was advanced in the previous Section that a reduction in the spirits excise to £10.00 per litre of pure alcohol would increase total whisky output by 13.47 million to 45.54 million litres per annum. Total excise receipts from whisky would therefore be of the order of £455 million. The increase in employment associated with higher output of whisky would also reduce social security costs and raise income tax and corporation tax payments.

In addition, the reductions in duty rates will act to curtail the incidence of cross-border shopping. Estimates by HM Customs & Excise suggest that the duty and VAT loss on spirits in 1996 from legitimate cross-border shopping and illicit smuggling was at least £100m. The significant cut in duties on spirits proposed would render much of this activity unprofitable, so it is quite possible that HM Customs & Excise would realize most of this revenue. In addition, lower duties on beer and the proposed 20% cut in wine duties (100% on wines from Australia & New Zealand), would also substantially stem the flow of cross-border shopping, and hence help to restore the domestic excise tax base.

³⁹ SCOTCH WHISKY ASSOCIATION, THE (1997) "Statistical Report, 1996"

⁴⁰ Op Cit, "The Scotch Whisky Industry Review 1996," p.160

⁴¹ Ibid, p.141

The calculations above suggest therefore that lost revenues to the exchequer associated with the proposed reductions in alcohol duties are likely to be minimal, a finding supported by empirical evidence of the revenue effects of recent changes in duties. Revenues accruing to HM Customs & Excise from alcohol duties fell in the financial year following a duty increase, but increased when duties were frozen or reduced.

The dependence of the Treasury upon alcohol & commodity taxes reflects past administrative and political convenience rather than a calculated use of the tax system to influence consumption patterns. The growth of revenue from new and buoyant taxes during the 20th century has greatly reduced the pre-eminence of the old excise duties as a source of revenue.⁴²

Nevertheless, the United Kingdom continues to raise a higher proportion of total government revenue from taxes on alcohol than any other European Union member state, excepting the Republic of Ireland and the Scandinavian countries.⁴³ The total revenue from alcohol duties in 1995-96 summed to over £5.6 billion (disaggregated in Table 6), equivalent to 2.5p on the basic rate of income tax, or 2.3% on VAT.

**Table 6: HM Customs & Excise Revenue from Alcoholic Drinks:
Year to 31st March 1996 £m**

Product	Total Revenue	% of Total
Scotch Whisky	652.6	11.6
Other Spirits	1000.8	17.8
Beer	2642.3	47
Wine	1187.3	21.1
Cider and Perry	134.2	2.4
Total Drinks	5617.2	100

Source: The Scotch Whisky Industry Review 1996

It is evident, therefore, that governments in the United Kingdom have been attempting to raise too great a proportion of revenues from alcohol excises, and substitution into other forms of taxation may be timely.

⁴² WALSH, BRENDAN M (1983) "Production of & International Trade in Alcoholic Drinks: Possible Public Health Implications," in Op Cit, *Economics & Alcohol*, p.185

⁴³ Op Cit, "Alcohol Taxes & The Single Market," p.1

8. Conclusions

In Section II above, the various alterations to the United Kingdom's structure of alcohol excises proposed by economists were analyzed. The 'levelling up', 'levelling down', and 'revenue & consumption neutral' reforms advocated by those attached to the IFS were examined, as was the notion that high values of income elasticity of demand for alcohol (wine & spirits in particular) justifies regularly revalorising alcohol duties to take account of rising real incomes.

All these economists' arguments were found to be wanting. None took into account the effects of their proposals upon important industries in the United Kingdom, like the Scotch whisky industry, nor did they consider the bearing of cross-border shopping upon levying indirect taxation in the United Kingdom. The Republic of Ireland was shown to have utilized extensively indirect taxation in an attempt to curb alcohol consumption, but the results have been mixed. Moreover, other evidence presented revealed that total *per capita* alcohol consumption in the United Kingdom (especially of spirits & beer), has actually fallen since 1979, and risen only slightly in the wider European Union, where alcohol control policies have generally been much more relaxed.

In the light of this evidence alcohol duties in the United Kingdom should be frozen, and the rate on spirits roughly halved in real terms, such that all alcoholic drinks would be taxed at the flat rate of £10.00 per litre of pure alcohol. Such a reform would enable the government and drinks industry leaders in the United Kingdom to lobby credibly for 'equivalency' in alcohol taxation in other countries.

Also, abolishing taxes on wines imported from the Commonwealth countries of Australia & New Zealand would not only augment consanguinity with these nations, but would have the effect of forcing those European countries for whom wine is an important industry to take account of the United Kingdom's viewpoint when discussing the harmonisation of alcohol excises across Europe.

The widely varying estimates for values of own-price elasticity of demand for alcoholic beverages is evidence enough of the severe limitations on economics as an 'exact' social science. Nevertheless, for spirits at least, the mean estimate calculated does conform quite closely with empirical evidence of the

effect of recent reductions in the spirits excise upon sales of Scotch whisky. Using this elasticity estimate in Section V & VI allows us to calculate the potential effects of a reduction in duties upon demand for whisky, and hence employment, in the whisky industry and wider Scottish economy.

The enlarging of the tax base associated with increased sales, together with a reduction in cross-border trading, would ensure that any loss to the exchequer would be minimal. Governments in the United Kingdom have been relying too heavily upon alcohol excises as a source of revenue. It is time that alternative forms of taxation should be considered.