PROGRAM OF DEVELOPMENT STUDIES
121 Sewall Hall
WILLIAM MARSH RICE UNIVERSITY
Houston, Texas 77001

Paper No. 47

The Inequity of Taxing Iniquity: A Plea For Reduced Sumptuary Taxes In Developing Countries

by

Charles E. McLure, Jr.

and

Wayne R. Thirsk

Winter 1973

The authors are, respectively, Professor of Economics and Visiting Assistant Professor of Economics at Rice University. The research reported in this paper was done under Agency for International Development contract no. AID/csd-3302 on "Distribution of Gains, Wealth and Income from Development." Program Discussion Papers are preliminary materials circulated to stimulate discussion and critical comment. References in publications to Discussion Papers should be cleared with the authors to protect the tentative character of these papers.

The Inequity of Taxing Iniquity: A Plea for Reduced Sumptuary Taxes in Developing Countries*

In fiscal 1971-72 customs duties, excises, licenses, etc. imposed upon tobacco products and alcoholic beverages in Jamaica amounted to roughly 27.3 percent of all indirect tax revenues and 14.4 percent of total revenues.[1] While these figures can in no way be said to be representative of the problem to which this note is addressed, they are certainly indicative; in virtually all developing countries indirect taxes on tobacco products and alcoholic beverages are very high and constitute an important source of tax revenue.[2] We contend that this state of fiscal affairs is undesirable (experience demonstrates that, literally speaking, it is not "intolerable"), judging from the recent worldwide surge of interest in income distribution, "social justice," equity in taxation, etc. Sumptuary taxes fail to achieve their commonly stated

---

*Though examples are drawn heavily from the first author's experience in Jamaica, the conclusions have considerably wider applicability.

[1] Financial Statement and Revenue Estimates for 1973-74, as passed by the House of Representatives, pp. 37-38, and special tabulations provided by the Collector General and the Department of Statistics.

[2] Rough calculations for Jamaica indicate that in total indirect taxes represent roughly the following percentages of what retail prices would be in the absence of tax: beer - 80 percent; rum - 210 percent; cigarettes - 150 percent. Even these figures probably understate the effective ad valorem rates of tax in that they do not allow for the possibility that markups are applied to the tax component of price as the products pass through the distribution process. John F. Due, in Indirect Taxation in Developing Economies, Johns Hopkins Press, Baltimore, 1970, pp. 75 and 194-95 reports for various countries the percentage of all excise duties represented by these items and the importance of excises in overall tax revenues. While these figures shed some light on the issue at hand, they suffer from the defect that customs duties and other indirect taxes on these items are not included in the analysis; see op. cit., pp. 75-76.

ends - discouragement of consumption of potentially harmful products - and render attainment of the equity goal of society more difficult. The policy conclusion we reach is that developing countries should place less reliance upon these taxes--in relative terms over time, if not immediately and in absolute terms. In general, this conclusion is also applicable in developed counties.

Our argument is presented in two parts. Part 1 makes the theoretical case against the heavy use of sumptuary taxes and describes and evaluates several counterarguments. The validity of the argument, and of the counterarguments, depends entirely upon the size of some important parameters in demand theory. Empirical values of these parameters are discussed in Part 2.

1. The Theoretical Argument

The theoretical basis for objecting to heavy taxes on alcoholic beverages and tobacco products is simply stated: the taxed items have low price and income elasticities of demand. The rest of this section is devoted to an elaboration of the implications of low values of the price and income elasticities and the next section to the presentation of evidence that the elasticities are in fact low.

a) Income response

If the cross-section income elasticity of demand for a good is less than unity, an ad valorem excise tax levied on that good is likely to be regressive. This is essentially a definitional matter. If consumption of the taxed good rises less rapidly than income (in percentage terms), a decreasing fraction of income is spent on the good as income rises. This implies, in turn, that an ad valorem tax on the good takes a smaller share of income at the top of the

income scale than at the bottom, i.e., that the tax is regressive. If the tax is a specific excise, rather than an ad valorem levy, as is commonly the case, the regressivity is likely to be even greater.[1] More to the point, the tax is collected from those least able to pay it--a state of affairs that is more starkly objectionable on equity grounds than the rather abstract finding that the tax is regressive. In any event, a crucial empirical question is whether the income elasticity of demand for alcoholic beverages and tobacco products is greater or less than unity.

b) Price response

If the income-compensated price elasticity of demand (or elasticity of substitution in consumption) for the taxed good is "low," an excise tax induces little reduction in demand for the taxed good. Rather, so far as reactions to changes in relative prices are concerned, consumers continue to consume what they would have in the absence of the tax, but pay more for it.[2] If demand is income-inelastic, as suggested above, the tax in question is regressive.

---

[1] Survey results might fail to reveal regressivity for a number of reasons. First, the income-compensated price elasticity of demand for the taxed good may be higher for low-income consumers than for high-income consumers. There is little evidence on this score. Second, consumers may be driven by taxation --especially specific levies--to use non-market substitutes, especially for alcoholic beverages, and forms of alcohol not intended for use as beverages. Many of these quite imperfect substitutes may not be safe. Third, low-income respondents may be unwilling or unable (in the case of a wife being interviewed) to report accurately expenditures on the items in question.

[2] Of course, demand for all goods (or saving) must fall if the tax reduces real purchasing power, but that is a matter of the income effects of the tax, rather than the substitution (relative price) effect. These income effects would be shared by all taxes having the same incidence.

If the income-compensated response to a tax-induced change in relative prices is "high," then the tax would sharply curtail consumption of the taxed item. In that case the tax would impose little direct burden on consumers, and whether or not demand was income-elastic would be more or less irrelevant. Thus, the second crucial empirical question is whether the price elasticity of demand for the taxed items is "high" or "low."[1]

c) Qualifications

The common argument in favor of sumptuary taxes must be addressed at this point. It states that alcoholic beverages and tobacco products are not beneficial for either their users or for society, and may actually be harmful, especially for the family of the consumer. Thus, their consumption should be discouraged by taxation. A somewhat milder version of the same general view is that since consumption of these items benefits no one, they provide

---

[1] There seems to be no magic number that demarcates "high" from "low" price elasticities of demand, as there is in the case of income elasticities. But unity has the appeal that if the elasticity of demand is less than that, a tax-induced increase in relative prices results in an increased share of total outlays being devoted to the taxed good.

It is usual in discussing the effects of consumption taxes to mention the welfare loss or excess burden resulting from the tax induced distortion of consumer choices. It seems reasonable to neglect excess burdens in the present case, since, as many advocates of sumptuary taxation contend, the taxed items may very well entail social costs not included in private costs. But the possibility of "excess benefits" or allocative improvement resulting from these taxes should not be allowed to mask the grossly undesirable equity implications, as noted below.

a better basis for taxation than most other commodities.[1]

One can grant the premise that these products are privately and socially useless, or even harmful, without accepting the conclusion that they should be heavily taxed, or, alternatively, could be heavily taxed with no ill effects. If a heavy tax would markedly reduce consumption of these commodities by raising their relative prices (and not give rise to illegal production, smuggling, etc.), then one might choose to tax them heavily in order to curtail their use. But if (within a wide range of prices) consumption of

---

[1] Representative descriptions of this position are to be found in Due, op. cit., pp. 64-65 and especially in John F. Due and Ann F. Friedlaender, Government Finance, Fifth edition, Irwin, Homewood, Illinois, 1973, pp. 382-83.

A second qualification to the view presented here is one about which woefully little empirical evidence is lacking. It is possible that indirect taxes on alcoholic beverages and tobacco products have the salutary effect of increasing work effort. The point is not simply that they would reduce drunkenness, absenteeism, etc. If demand is price-inelastic, they would not do much on this score. Rather, it is possible that the taxes in question force people to work more than they otherwise would in order to earn enough income to buy the inelastically demanded goods at the tax-augmented price. (This effect may appear as much in the statistics on crime as those on work effort, however. This is especially true to the extent that the unemployment rate is high or that taxation raises the price of the taxed item above the level that a person could reasonably expect to earn from gainful employment. The U.S. experience with Prohibition and more recently with drugs is of special relevance here.) So we are faced with the classic question of the relative strength of the income and substitution effects on work effort--though in a substantially different context than that in which the question is usually raised. (The substitution effect involves the worker reducing his work effort in response to the reduction in the real wage rate represented by the higher prices of the alcoholic beverages and tobacco products he purchases.) But it seems safe to ignore this question in the present context, as in most developing countries unemployment rates are so high that inducing more work effort, especially from low income groups, has little marginal social value. In developed countries this problem is probably of greater potential importance, because unemployment rates are generally lower, but less crucial in actuality, since sumptuaries tend to represent a lower fraction of income.

these items is more or less insensitive to changes in relative prices, the effects of high taxes on them is not so much to discourage consumption of them as to reduce the real incomes of those who continue to consume the goods in spite of the higher prices induced by the taxes.[1] If consumption of these goods constitutes a larger fraction of income for low-income groups than for higher income groups, such taxes aggravate the already quite unequal distribution of real income, rather than having no ill effects, or even positive effects. And by reducing the real income of low-income families, such taxes reduce the amount that can be budgeted for expenditures on food, shelter, clothing, health, and education by low-income families. As Gunnar Myrdal has forcefully pointed out in an Asian context, the consumption of food, shelter and clothing by low income people is difficult to distinguish from more obvious investment expenditures such as health and education. Thus taxes which bite especially hard into the consumption ability of the poor may have the effect of insuring their continued poverty in the future.[1a] On balance, if both the price elasticity and the income elasticity of demand are less than one, it seems wise to avoid high taxation of these goods that

---

[1] It may be worthwhile to repeat that it is only the income-compensated response to a change in relative prices that is at issue here. Any tax that reduces income of low income families would reduce consumption of the taxed good to some extent.

[1a] Myrdal, G., Asian Drama, Vol. III, Appendix II, Pantheon Books, New York, 1968, pp. 1912-1919.

figure heavily in the budgets of low-income families.[1] Even though the items in question may seem to be "non-essential," they may not be "luxuries," in the sense of being indicative of extraordinary ability to pay taxes.

d) Synthesis

The analysis of this section can be summarized briefly as follows. If demand is price-inelastic, the tax reduces consumption little and is borne by consumers. If demand is income-elastic, the tax is a progressive element in the tax system; if it is income-inelastic, the tax is regressive. If demand is price-elastic, the tax has a greater restrictive effect on consumption and is shifted less completely to consumers. As before, the income elasticity of demand determines whether the tax is regressive, proportionate, or progressive. Thus, in determining whether or not to utilize heavy sumptuary excises we need to know two things: the income and price elasticities of demand for the taxed items. These are examined in the next section.

---

[1] If the concern of public policy were to reduce consumption of these items, a better place to start would be with the taxation or outright prohibition of advertising of the commodities in question. Such a tax on advertising might, of course, be shifted in part to consumers, but prohibition of advertising presumably would have no such adverse effects, unless economies of scale in production are important. And neither the taxation nor the prohibition of advertising of socially harmful activities seems likely to have the severely adverse effects of taxing or prohibiting use of the commodity itself. See the concluding part of section 2 for further discussion of this point. That advertising of these items is allowed in most countries to go virtually free of control suggests that preventing undesirable affects of use of the products is at best a secondary purpose of this taxation, revenue yield being by far the primary consideration. The low demand elasticities carry with them the fact that revenue is reliable and easy to predict. But this asset is not enough to outweight the severe liabilities on the equity side, especially if alternative revenue sources are available.

2. The Empirical Evidence

A search of the relevant literature uncovers a large number of approaches to the estimation of the demand characteristics of tobacco products and alcoholic beverages. These various attempts at measurement differ most notably in terms of the underlying methodology, country of interest, the definition or, alternatively, the comprehensiveness, of the consumption category "tobacco and liquor," the time period considered, and the use of cross-section rather than time series data. Despite this diversity of approach there is on the whole a basic consistency to, and agreement among, the available estimates of price and income elasticity of demand. With some exceptions, all of them indicate income and price elasticities of demand markedly less than unity. (Only the income elasticity of demand for alcohol appears to diverge from this pattern. It is discussed below.) In what follows no effort is made to assess the merits or deficiencies of individual studies. Instead, the results of these studies are accepted by and large at face value and uncritically presented as corroborative evidence to support our appeal for reduced reliance on sumptuary taxes. We therefore confine our remarks about these studies mainly to a description of the estimation method and the estimates themselves, the country or countries of concern, and any peculiarities of the results.

a) Problems of the estimates

Before turning to specific cases a few general remarks on the interpretation of the overall results would seem desirable. In the first place, the kind of data from which the estimates reported here were derived are frequently subject to severe limitations. Aside from the normal survey problems of bias

in selection, response and interpretation, there are strong reasons for believing additional biases creep in for expenditure on drink and tobacco.[1] Spending on these items may be systematically understated because respondents feel such expenditures are not socially approved or acceptable or because one member of a household desires to conceal his spending on these items from other members. Another source of unreliability is the natural inability to recall accurately the sum of frequent, small expenditures. It is not surprising, therefore, that the various elasticity estimates do not agree exactly. Even if there were no other sources of variation, data shortcomings would inevitably produce a range of empirical results.

Secondly, not all of the studies carefully distinguish between the compensated and uncompensated demand curve for either tobacco or liquor. Most of the studies provide estimates of the uncompensated price elasticity of demand, when it is the compensated elasticity that is of interest here. Fortunately, as a practical matter this distinction does not matter much for our purposes. It is unimportant because if the uncompensated demand curve is inelastic it follows from economic theory that a fortiori the compensated demand curve is also inelastic, unless the good is an inferior good. Also, the dual facts that (a) aggregate expenditures on tobacco and liquor are normally a very small fraction of total income and (b) the income elasticity of demand for these items seldom exceeds one (or at most, two) suggest the discrepancy between the compensated and uncompensated demand

---

[1] These difficulties of obtaining accurate data are explained in greater detail in S. J. Prais and H. S. Houthakker, The Analysis of Family Budgets, Cambridge University Press, 1955.

elasticities will ordinarily be quite small.[1] For these reasons no reference is made below to the concept of price elasticity utilized in different studies.

Finally, the estimates of income elasticity that are reported below do not always correspond to the appropriate measurement of this parameter. For one thing, ideally, only the cross-section estimation of this demand characteristic is of any interest. As prices fluctuate little, if at all, in a cross-section sample, estimating income or expenditure elasticities from such a data base will not generate any bias in the estimates if prices are ignored. However, a great deal of the research reported here has been interested primarily in the issue of price elasticity and has therefore relied on time series estimation. Many of the reported estimates of income elasticity were thus derived from time-series, rather than the preferred cross-section data. These time-series estimates need not be biased, but a question arises concerning the relationship between cross-section and time estimates. In general there is no reason to believe that estimates based on these two approaches would necessarily coincide, especially if tastes vary widely by income level, as they well might do, if income distribution changes, or if consumers do not fully adjust to income changes within the interval defined by time series.

---

[1] An example is provided by the study of M.T. Sumner, "The Demand for Tobacco in the United Kingdom," The Manchester School, No. 1, March 1971, p. 31. In Table 3 of this article the uncompensated demand function (using a measure of money income) yields a price elasticity of -.24 while the compensated function (using a measure of real instead of money income) has a price elasticity of -.21. This comparison is properly made in that the regression equations differ only in their definition of the income variable. Although the fraction of income spent on tobacco and alcohol is small in the aggregate, for low income groups this fraction is a much larger and more significant number.

In addition, a number of studies contain estimates of expenditure elasticity rather than income elasticity. Comparability can be maintained only by adjusting the former elasticity by the elasticity of expenditures with respect to income (say 9/10), in order to convert it to an income elasticity. This procedure has not been adopted below because there is no obvious advantage to it for our purposes. It is enough to recognize that if the expenditure elasticity is less than unity, a fortiori the income elasticity is too. We should note, moreover, that if consumption is proportional to permanent income, expenditure elasticities are the same as permanent-income elasticities of demand.

b) The results

Table I summarizes the contributions made by various authors to the estimation of the characteristics of consumer demand for tobacco, liquor, and the combination of both items.[1] It should be read with the caveats of the previous part of this section in mind. Consider first the results for tobacco. The research by Harris, McLure and the Wharton School is based on cross-section data and points unambiguously in the direction of an income-inelastic demand for tobacco.[2] This finding is not contradicted by any

---

[1] In this table we report what each author felt was his best or most preferred result. If the author did not indicate his choice we instead chose what appeared to be the statistically most satisfactory result. In every instance the point estimates of elasticity that are presented are statistically significant. For example, in the study by Koutsayannis the blank spaces indicate she did not always achieve success in estimating a significant price or income elasticity.

[2] In a footnote to his paper Drayton cites some references which indicate that "any increase in cigarette taxes.... is regressive" since "the poor and near-poor begin smoking at an earlier age and smoke more than the more wealthy and better educated." See W. Drayton, Jr., "The Tax and Nicotine Tax," The Yale Law Journal, Vol. 81: 1487, 1972, p. 1508.

of the time series estimates of income elasticity. Thus it suggests strongly that taxes on tobacco products are likely to be regressive.

For price elasticity all of the estimates surveyed rely on multiple regression analysis except that by Lyon and Simon, who employ a quasi-experimental method and state that "our main reason for delving into this matter is that the previous estimates differ rather widely."[1] They suggest that the main barrier to obtaining satisfactory estimates is widely varying tastes in cross-section data and a lack of price variability in time series. Their method is to compare the change in consumption when price changes in a state to the change in consumption in neighboring states where no price change occurs. Their point estimate of -.51 for a median value of the price elasticity is bounded by 95 per cent confidence limits of -.35 and -.71. This range tends to encompass most of the other estimates deriving from research on different time series data.[2] There is no study, at least among those reported, which has reached a result indicating that the demand for tobacco is price-elastic.

---

[1] H. Lyon and J. Simon, "Price Elasticity of Demand for Cigarettes in the United States," American Journal of Agricultural Economics, November 1968, p. 888. It should be noted that the extreme elasticity of -1.48 they mention is not included in Table 1 because it is from a generally discredited study.

[2] Perhaps it should be stressed that the proper base for a sumptuary tax on smoking is tobacco products. Taxing only cigarettes for example may induce a switch to pipe smoking or cigars. The British studies have tended to concentrate on the demand characteristics for tobacco as a whole while those referring to the United States have normally focused on the demand for cigarettes. Thus estimates of price elasticity for the United States are bound to be larger than if a more comprehensive definition of tobacco had been employed in these studies.

These conclusions reached in the case of tobacco products cannot be carried over intact to the case of alcoholic beverages. The evidence for alcoholic beverages is much more mixed than in the case of tobacco products. With respect to the size of the income elasticity of demand, there is an unresolvable conflict between the cross-section and time series estimates. All of the latter indicate an elasticity less than one but this result is contradicted by the cross-section studies of Harris and McLure which indicate elasticities larger than one.[1] In Jamaica, for example, Harris calculated an expenditure elasticity of 1.02 using a semi-log specification and a value of 1.82 using a double-log specification.

The discrepancy between time series and cross-section results could be real or it could be a statistical artifact. If poorer people tend to make their own alcoholic beverages and substitute home production for market purchases an expenditure survey could result in the overestimation of the true income elasticity.[2] On the other-hand, it is entirely plausible that as income rises scotch whisky, imported wines, and other kinds of expensive liquor are substituted for less expensive products such as beer.

---

[1] Expenditure survey data for the United States would seem to support the notion of an income elasticity close to one. See for example H. Lamele, "Expenditure Patterns of Low-Consumption Families," American Statistical Association, 1964 Proceedings, pp. 430-434.

[2] Since taxes are levied and paid on the sale of commercial, but not home, production it would still be true in this situation that the higher income groups would pay more taxes, as a percentage of income, than the poor.

Supporting this contention are the British studies of Stone, Stone and Rowe, and Prest, which estimate a smaller time series income elasticity for beer than for spirits. This possibility suggests two further conclusions. First, if liquor taxes are levied on a specific basis, rather than on an ad valorem basis, they may be regressive, even though the income elasticity of demand is slightly greater than unity. Second, the regressivity of the tax system could be reduced by reducing the taxes on those alcoholic beverages bought primarily by low-income groups. These would include the locally produced beverages found in many countries and perhaps beer in most. There is little sense in not taking greater advantage of the natural market segmentation that seems to occur in most countries between popularly consumed and luxury alcoholic beverages.

If the size of the income elasticity is open to some doubt, there is less uncertainty about the price elasticity of demand. Its size appears to be consistently estimated as smaller than one. The single dissident to this consensus of results is the work by Niskanen. He attributes his result of a price elasticity significantly larger than one in the United States to the presence of moonshining activities in some states. However, it is also possible that this particular result is a product of the simultaneous equation technique he employed. Other estimating methods he tried gave a value significantly less than one for the price elasticity.

Finally, there are two studies which offer some insight into the income elasticity of the sum of expenditures on tobacco products and alcoholic beverages. Metawally in New Zealand and Webb in Peru both conclude that the

income elasticity of demand for this aggregate category is less than one.[1] Since the price elasticity for each of tobacco products and alcoholic drink seems to be smaller than one, it would be surprising, and certainly puzzling on theoretical grounds, if the same was not true for the sum of these expenditure items.

c) Summary and conclusions

Let us briefly summarize these empirical findings, and their implications. Sumptuary taxes on tobacco products and (to a lesser degree) alcoholic drink appear to have almost no appreciable influence on decisions to consume these items. Moreover, to the extent that there is any impact, it results largely from income effects - which would be shared with any tax having the same incidence. Thus in many cases these taxes fall heavily upon low-income families and exert their major impact upon the distribution of income rather the distribution of consumption.

The precise impact of sumptuary taxes on income distribution is not altogether straightforward, and deserves further study. For tobacco products it seems clear that demand is income-inelastic and therefore sumptuary taxes on tobacco will have a regressive effect on income distribution. For alcoholic drink on the other hand, the weight of available evidence points to an income-elastic demand. Thus a proportional tax on all liquor would probably have a progressive distributive effect. In practice, however,

---

[1] To be more specific, Webb found that the percentage of consumption expenditure on beer and tobacco by income class was the same for all groups, implying that the average propensity to consume out of income fell as income increased. Despite an apparent income elasticity below unity Webb concluded that current taxation of these items was progressive since higher tax rates were imposed on the high-quality cigarettes and alcohol purchased mainly by the rich. "Of course from a permanent-income point of view Webb's data implies a unitary income elasticity of demand."

the distributive consequences of sumptuary liquor taxes will depend on the ad valorem equivalent of the tax applied to different products and the type of product taxed. For instance, heavy (in ad valorem terms) excises on beer and relatively light excises on champagne would normally reduce the real incomes of poorer people more than those of the rich.

Our appeal for lighter sumptuary taxes, or no taxes at all, should not be equated with open advocacy for so-called "sinful expenditures." Problems of moral damnation aside, the traditional rationale for sumptuary taxes, a concern for good health, rests on a very rickety foundation. To begin with, the addictive quality of the consumption of these goods, the difficulty of breaking the habit of smoking or drinking, is perhaps the most important reason behind the observed price inelasticity of these goods. Moreover, to the extent that consumption of these items is deterred somewhat by taxation, this may represent an undesirable and unfortunate outcome. Standards of health may actually deteriorate rather than improve if some people are disuaded by higher taxes. In the case of cigarettes tax-induced price increases could easily encourage the widespread practice of smoking butt-ends and raise substantially the risk of injury to health attributable to smoking. In the case of alcoholic beverages, consumers, especially poorer

---

This phenomenon of smoking butt-ends gives rise to an interesting one-time adjustment. If people react to higher prices by smoking each cigarettes more than before, the estimated price elasticity of demand for cigarettes will overstate the short-run impact a tobacco tax will have on cigarette smoking, since cigarette purchases will have declined by more than smoking. Of course, once the transition to smoking butt-ends has occurred, the price-elasticity of purchases may again reflect the price-elasticity of smoking. The strong possibility of a perverse reaction to sumptuary taxes provides another illustration of the dictum that the road to hell is paved with good intentions.

ones, may switch to cheaper, but much more dangerous, sources of alcohol such as wood alcohol, nail polish or sterno.[1] It is because these taxes probably do not significantly deter (possibly sinful or harmful) consumption, but do have unintended and undesirable effects on income distribution and health that we urge the reduction or repeal of these taxes; they do not achieve their stipulated goal and, instead, move society farther away from other goals. We feel there are simply better ways of raising revenue and of controlling or influencing expenditure on sin that are probably more effective in curtailing consumption of these items and do not make poor people relatively worse off than rich ones. Among the alternatives from which society may choose to discourage use of alcoholic beverages and tobacco products are bad publicity, prohibition of advertising, public education campaigns, or some combination of all these.[2] Recent research in developed countries has shown these methods to be effective and there is no obvious barrier to their successful transfer to, and adoption in, developing countries.

---

[1] Anyone who has ever paid a visit to the skid-row district of any large city has seen first hand some of the large number of substitutes that those who are desperate for drink can turn to. It is not uncommon to read newspaper accounts of paralysis, blindness, or death caused by the use of these inferior substitutes for conventional liquor.

[2] In the United Kingdom Sumner found a cumulative, though small (4 per cent), depressing effect of antismoking propaganda on cigarette consumption. On the basis of econometric results Hamilton in the United States arrived at the interesting conclusion that the ban on both pro and con cigarette advertising will increase smoking since the effect of bad publicity - the scare factor - far outweighed the effect of positive advertising. See M. T. Sumner, "The Demand for Tobacco in the United Kingdom," The Manchester School of Economics and Social Studies, No. 1, March 1971; J. L. Hamilton, "The Demand for Cigarettes: Advertising, the Health Scare and the Cigarette Advertising Ban," Review of Economics and Statistics, Vol. 56, No. 4, November 1972.

As for better ways to raise revenues, the options are limited primarily by administrative ability and political will. All but the poorest countries probably have the capacity to levy a general sales tax that would be less regressive than the worst offenders among the sumptuaries. And if they are really serious about goals for social justice, most countries could rely more heavily upon potentially progressive taxes such as those on income, property, and net wealth, and less on taxes that contribute to regressivity, especially at the lowest income levels.

Table 1

Survey of Demand Estimates for Tobacco and Liquor

1. Tobacco Products

Author	Country	Time Period	Income or Expenditure Elasticity	Price Elasticity
Sumner (15)	United Kingdom	1951-67	Quarterly data: .47 to .7 Annual data: .44 to .74	-.6 to -.83 -.21 to -.57
Prest (10)	United Kingdom	1870-1938	.21 to .41	-.12 to -.23
Stone and Rowe (14)	United Kingdom	1950-56	Quarterly data:.9 Annual data:.86	-.78 -.65
Stone (13)	United Kingdom	1920-38	.2 to .25	-.27 to -.42
Houthakker and Taylor (3)	United States	1929-70		-.54
Wharton School (18)	United States	1960 (cross-section)	.62	---
Hamilton (1)	United States	1925-70	.73	---
Lyon and Simon (5)	United States	Various years, 1951-64	---	.51
Koutsayannis (4)	United States	1950-59	---	-.93
	United Kingdom	√	---	-.04
	France	√	.83	-.54
	Italy	√	.48	-.82
	Belgium	√	---	-.68
	Sweden	√	---	-.41
	Norway	√	.18	---
	Finland	√	.13	-.41
	Austria	√	.12	-.95
	Australia	√	---	-.36
Harris (2)	Jamaica	1958 (cross-section)	.53	---
McLure (7)	Colombia	1970 (cross-section)	less than one	---

Table 1

Survey of Demand Estimates for Tobacco and Liquor

2. Alcoholic Drinks

Author	Country	Time Period	Income or Expenditure Elasticity	Price Elasticity
Simon (11)	United States	Various years 1950 to 1961	---	-.79
Niskanen (9)	United States	1947-60	---	-1.42
Prest (10)	United Kingdom	1870-1938	Beer: .35 Spirits: .69	-.59 -.57
Stone (12)	United Kingdom	1920-38	Spirits: .6	-.57
Stone and Rowe (14)	United Kingdom (Beer)	1950-56	Quarterly data: .68 Annual data: .52	-.53 -.4
Malmquist (6)	Sweden	1923-39	---	.2 to -.4
Harris (2)	Jamaica	1958 (cross-section)	1.02 to 1.86	---
McLure (7)	Colombia	1970 (cross-section)	more than one	---
Van Hoa (16)	Australia	1956-66	.81	-.39

Tobacco Products and Alcoholic Drink

Author	Country	Time Period	Income or Expenditure Elasticity	Price Elasticity
Metawally (8)	New Zealand	1968 (cross-section)	.6 to .78	---
Webb (17)	Peru	1961 (cross-section)	less than one	---

Sources:

1. Hamilton, J. L., "The Demand for Cigarettes: Advertising, the Health Scare and the Cigarette Advertising Ban," Review of Economics and Statistics, Vol. 56, No. 4, November 1972.

2. Harris, D. J., "Econometric Analysis of Household Consumption in Jamaica," Social and Economic Studies, Vol. 13, No. 4, December 1964.

3. Houthakker, H. and L. Taylor, Consumer Demand in the United States, 1929-70, Harvard University Press, Boston, 1966.

4. Koutsayannis, A., "Demand Functions for Tobacco," Manchester School of Economic and Social Studies, Vol. 31, No. 1, January 1963.

5. Lyon, H. L. and J. Simon, "Price Elasticity of Demand for Cigarettes in the United States," American Journal of Agricultural Economics, November 1968.

6. Malmquist, S., Statistical Analysis of the Demand for Liquor in Sweden, University of Uppsala, 1948.

7. McLure, C.E., Jr., "The Incidence of Colombian Taxes, 1970," Discussion Paper No. 41, Program of Development Studies, Rice University, Houston, Texas.

8. Metawally, M., "Household Expenditure Patterns: Hamilton, New Zealand," Economic Record, Vol. 46, No. 113, March 1970.

9. Niskanen, W., The Demand for Alcoholic Beverages, unpublished Ph.D. thesis, University of Chicago, 1962.

10. Prest, A., "Some Experiments in Demand Analysis," Review of Economics and Statistics, Vol. 21, No. 1., February 1949.

11. Simon, J., "Price Elasticity of Liquor in the United States and a Simple Method of Determination," Econometrica, Vol. 34, No. 1, January 1966.

12. Stone, R., The Role of Measurement in Economics, Cambridge University Press, Cambridge, 1951.

13. _____, The Measurement of Consumers' Expenditure and Behavior in the United Kingdom, 1920-38, Vol. 1, Cambridge University Press, Cambridge 1954.

14. Stone, R. and D. Rowe, "Dynamic Demand Functions: Some Econometric Results," Economic Journal, Vol 78, No. 270, June 1958.

15. Sumner, M. T., "The Demand for Tobacco in the United Kingdom," The Manchester School of Economic and Social Studies, No. 1, March 1971.

Sources continued:

16. Van Hoa, T., "Consumer Demand and Welfare Indexes: A Comparative Study for the United Kingdom and Australia," Economica, Vol. 36, No. 144, November 1969.

17. Webb, R. C., "Tax Policy and the Incidence of Taxation in Peru," Discussion Paper No. 27, Woodrow Wilson School, Princeton University, Princeton, New Jersey.

18. Wharton School, Study of Consumer Expenditures, Incomes, and Savings, University of Pennsylvania, 1966.

PROGRAM OF DEVELOPMENT STUDIES

Discussion Papers

27. "Indigenisation of Industry and Progress of the Second Nigerian National Development Plan" (1972), 16 pp..... Gaston V. Rimlinger

28. "The Distribution of Incomes and the Short-run Burden of Taxes in Turkey, 1968" (1972), 38 pp.....Marian Krzyzaniak and Süleyman Ozmucur

29. "The Proper Use of Indirect Taxation in Latin America: The Practice of Economic Marksmanship" (1972), 46 pp.....Charles E. McLure, Jr.

30. "Distributional Equity, Inflation, and Efficiency in the Brazilian Fluctuating Exchange Rate System" (1972), 27 pp..... Donald L. Huddle

31. "A Diagrammatic Exposition of General Equilibrium Tax and Expenditure Incidence Analysis with One Immobile Factor"(1972), 36 pp. C.E. McLure

32. "Social and Economic Conditions and Political Villence"(1972), 26 pp.... .....Fred R. von der Mehden with Kim Q. Hill

33. "Income Distribution Efficiency and the Experience of Colombian Farm Mechanization" (1972), 54 pp.....Wayne R. Thirsk

34. "Ease of Factor Substitution in Agriculture"(1972), 24 pp....W.R. Thirsk

35. "The Contribution of Traditional and Small Scale Culture Goods in International Trade and in Employment"(1972), 26 pp., Yhi-Min Ho & Donald Huddle

36. "The Distribution of Income and Tax Incidence in Panama, 1969" (1972), 39 pp.....C.E. McLure

37. "General Equilibrium Incidence Analysis: The Harberger Model after Ten Years"(1972), 34 pp.....C.E. McLure

38. "On the General Equilibrium Analysis of Tax Incidence"(1973), 34 pp.... .....J. Gregory Ballentine and Ibrahim Eris

39. "The Impact of Demand on Labor Absorption and the Distribution of Earnings: The Case of Brazil"(1973), 47 pp....S.A. Morley & J.G. Williamson

40. "A Note on Z Goods, Marketed Surplus and the Labor Intensity of Small Farm Agriculture"(1973), 22 pp.....W.R. Thirsk

41. "The Incidence of Colombian Taxes, 1970"(1973), 66 pp.....C.E. McLure

42. "What to Do About Foreign Direct Investment: A Host Country Perspective" (1973), 28 pp..... S.A. Morley

43. "Income Distribution Consequences of Agricultural Price Supports in Colombia"(1973), 32 pp..... W.R. Thirsk

44. "Factor Intensity of Consumption Patterns, Income Distribution and Employment Growth in Pakistan"(1973), 34 pp.....Ronald Soligo

45. "Industrialization in Malaysia: A Penang Micro-Study"(1973), 42 pp..... .....F.R. von der Mehden

46. "Short-run Effects of Income Distribution on Some Macro-Economic Variables: The Case of Turkey"(1973)..... Tuncay M. Sunman

47. "The Inequity of Taxing Iniquity: A Plea for Reduced Sumptuary Taxes in Developing Countries"(1973)..... C.E. McLure

---

Note: Discussion Papers are available upon request to individual scholars and researchers and libraries of educational institutions.