

29. Roseman, F. *The Canadian brewing industry: The effects of mergers and provincial regulation on economic conduct and performance*. Doctoral dissertation. Chapter III. Evanston, Ill.: Northwestern University, June 1968.
30. Schweitzer, T. T. *Personal Consumer Expenditures in Canada, 1926-75. Part I: Food, beverages and tobacco, clothing, footwear and accessories, gross rent, fuel and light*. Economic Council of Canada. Staff study. No. 26, Part 5. Ottawa: Queen's Printer, 1970.
31. Smith, A. *Wealth of Nations*. Reprinted. N.Y.: Random House, 1937, pp. 777-79.
32. Smith, L. J. (Chairman). *The Ontario Committee on Taxation Report*. Volume I, Chapter I. Toronto: Queen's Printer, 1967.
33. Smith, L. J. (Chairman). *The Ontario Committee on Taxation Report*. Volume III, Chapter 35. Toronto: Queen's Printer, 1967.
34. *Ibid.*, p. 411, para. 86.
35. Statistics Canada. *Annual Report of the Ministry of Industry, Trade and Commerce under the Corporations and Labour Unions Return Act, 1967*. Ottawa: Queen's Printer, 1969.
36. Statistics Canada. *Family Expenditure in Canada. Vol. 1. All Canada: Urban and Rural*. Catalogue No. 62-535. Ottawa: Information Canada, 1969.
37. Statistics Canada. *Imports by Commodities*. Ottawa: Information Canada, December 1972.
38. Warburton, C. *The Economic Results of Prohibition: Studies in History, Economics and Public Law*. N.Y.: Columbia University Press, 1932.
39. Whitehead, P. C. *The role of alcoholic beverages in Canadian society*. Unpublished study, Ottawa, 1972.

## Chapter VIII

### Summary, Conclusions and Recommendations

#### Summary

1. This study was undertaken with the aim of identifying those considerations fundamental to the development of rational alcohol control policies for governments. In developing such policies, there must be an understanding of the use and abuse of each type of alcoholic beverage and the effect which changes in taxation and other forms of control will have on consumption patterns. With better information available, governments can formulate guidelines for liquor legislation which reconciles social needs and revenue requirements.

2. The present drinking patterns in Canada vary among the different provinces, but in general beer has been the largest selling beverage in terms of the amount of contained alcohol consumed, with spirits being second and wine the smallest percentage of consumption. The pattern does show a continuing tendency towards change. Over the past twenty years (1950-1970), the proportion of alcohol consumed in the form of spirits and wine has increased from 35 percent of Canadian consumption to 43 percent while beer has declined from 65 percent to 57 percent of the total.

3. The estimated consumption per drinking adult (over 15 years of age) has increased from about two gallons of pure alcohol per year in 1950 to about 2.6 gallons in 1970. The per drinker consumption change for each beverage in terms of pure alcohol contained in the beverage is estimated as follows:

	Annual Consumption of Absolute Alcohol Per Drinker in Gallons		
	1950	1970	% Increase
Beer	1.328	1.466	10.4%
Spirits	.596	.851	42.8%
Wine	.125	.261	126.2%

4. An international survey has been carried out as part of this study. This involved visiting fourteen European countries, plus the analysis of data from an additional fifteen nations including Canada, United States, Australia, New Zealand, Israel and Japan. The purpose of this survey was to gain as much first hand knowledge as possible on the attitudes and policies of each government towards the taxation and control of alcoholic beverages. A survey such as this is useful in developing a general background to our recommendations.

5. In all countries visited, there was some form of special control legislation over the production and distribution of alcoholic beverages. In addition to special taxes, most governments regulate the minimum age for drinking and some also impose retail licensing, a government monopoly on sales or production, and regulation of the days and hours of sale of alcoholic beverages.

6. In most countries, a distinction is made between the licensing and control of brewed or fermented beverages as opposed to distilled spirits. In almost all instances, the regulations tend to limit spirits distribution and may require a higher drinking age for spirits. In some countries, a low strength beer may be sold with little or no restrictions.

7. All countries visited have special taxes on alcoholic beverages. The rates and manner of application within each country differ depending on the type of beverage and, in many cases, its alcoholic strength.

a) In most cases, the tax on the alcohol contained in distilled spirits is at least three and one-half times as high as the tax on alcohol in beer. Those countries with lower ratios are Austria, Czechoslovakia, Denmark, England, Italy, Norway and Sweden.

b) The tax on alcohol contained in wine is equal to that of beer in some countries, but those countries where large wine-producing regions exist often place little, if any, tax on wine. Austria, Germany, Italy and Switzerland do not tax domestic table wines at all. Czechoslovakia and France, as well as the Netherlands and Norway, tax wine at less per unit of contained alcohol than beer.

c) Many governments also favour the consumption of lower strength beer and wine by charging significantly lower taxes on the lower strengths within each category.

d) Thus, in general, the tax rates favour lower strength alcoholic beverages, except where the economic interests of producers result in wine receiving a tax advantage over lower strength beers.

e) In some cases, the absolute level of taxes is quite low and does not seem to significantly influence the relative prices of the various beverages. Canada's average tax per unit of contained alcohol is higher than most European countries with the exception of the Scandinavian countries and England.

8. Some countries have clearly stated government policies in regard to alcoholic beverage taxation and control which are concerned with minimizing adverse social consequences rather than raising government revenues. Notable among these are the Scandinavian countries, of which Sweden, for one, has applied a policy to shift the consumption pattern away from distilled spirits and towards lower strength alcoholic beverages, i.e. wine and beer. The government in Sweden does this by taxing and pricing alcoholic beverages based on the absolute alcohol they contain at a rate which rises more than proportionately as alcoholic strength increases. It also supports this by advertising, showing the consumption of lower strength beverages with meals, as well as by applying more lenient licensing and control policies to the lower strength beverages.

9. In several countries, dramatic changes have been brought about in the type of beverage consumed and the drinking pattern through direct government action. Notable among these are Belgium, England and Denmark which drastically raised taxes on spirits early in this century, thus cutting heavy spirits consumption down to a minor proportion and making their countries known today as beer drinking countries. Other countries such as Sweden have more recently adopted policies to achieve the same objective. *No country has ever taken direct action to encourage*

*a shift in the opposite direction.* While the choice of beverage can be more quickly affected by government action, the cultural influences on drinking patterns are more difficult to modify and this is usually undertaken over a longer period of time.

10. The alcoholic beverages typically consumed in Canada differ in alcoholic strength, as well as in the composition of other constituents in the beverage (e.g. organic acids, amino acids, vitamins, minerals, salts, etc.).

a) Distilled spirits usually contain 40 percent alcohol by volume as well as congeners, traces of other volatile substances and water. Typically, spirits are consumed either straight (as in the case of whisky) or diluted with water, juice, or soft drinks, usually on a 1:3 basis.

b) Fortified wines usually contain 18-20 percent alcohol plus extracts, congeners, carbohydrates, some other ingredients and water. Typically, these wines (ports and sherries) are served straight in 3 ounce servings.

c) Table wines usually contain 12 percent alcohol, plus components similar to fortified wines, although the extract levels are much lower. Typically, table wines are served straight in 5 ounce servings.

d) Beers in Canada usually contain 5 percent alcohol, although lighter and stronger beers have recently been introduced in some provinces. In addition, beer contains water and extracts which include carbohydrates, some proteins, polypeptides, vitamins and minerals. The typical serving is 12 ounces.

11. We have initiated studies to determine the nature and effect of the alcoholic beverages consumed in Canada.

A Canadian physiological study indicates that there are differences in the rate at which the alcohol from the various beverages (beer, wine and spirits) appears in the blood stream, and hence in the brain. Canadian whisky, fortified wines, table wines and beer containing identical amounts of alcohol were given to subjects under carefully controlled conditions. The resulting blood-alcohol curves in the subjects have shown consistent patterns. With Canadian whisky, blood-alcohol curves rose most rapidly and to the highest level; beer caused the lowest blood-alcohol levels; and wines fell in between. Generally, in the Canadian study, beer has shown a maximum blood-alcohol level of 22 percent to 25 percent lower than straight whisky or whisky and ginger ale.

There is evidence that the reduction in blood-alcohol levels after the intake of beer as opposed to the level found after the intake of wines and spirits is not fully explainable on the basis of dilution; it appears likely that differences in the beverage constituents, other than alcohol, play a role.

12. The specific blood-alcohol effects found after ingestion of those quantities of whisky and beer which contained 0.75 grams of alcohol per kilogram of body weight (that is about 4 bottles of beer or 4 whisky and ginger ale highballs for a 150 pound man) were:

a) the average blood-alcohol level in groups consuming whisky rose well above 0.08g/% (the legal limit defining impaired driving in Canada) and stayed above that limit for two hours;

b) the beer-drinking groups attained average blood-alcohol levels only slightly above 0.08g/% and stayed above that level for one hour (blood-alcohol levels were measured every half hour);

c) ingestion of 0.75 grams of alcohol per kilogram of body weight in the form of whisky resulted in an average maximum blood-alcohol level of 0.105g/% ( $\pm .005\%$ ) while the same subjects drinking beer containing the same amount of alcohol experienced an average maximum blood-alcohol level of 0.079g/% ( $\pm .005\%$ ), a level about 25 percent less than that attained by drinking whisky. This difference was statistically significant.

13. Even if this 25 percent difference in blood-alcohol level may not seem very large, the resulting differences in psychomotor performance were large and significant. Tests of psychomotor performance were made at repeated intervals after ingestion of various amounts of different alcoholic beverages. They indicated that the degree of impairment brought about in man by the intake of alcohol, increases to a greater extent than the increase in blood-alcohol levels.

The functions tested follow closely the change in blood-alcohol and showed a peak effect at the same time as the blood-alcohol had reached its maximum.

14. Statistical studies on the risk of becoming involved in a traffic accident, based on a comparison of the blood-alcohol levels in accident and non-accident drivers, show the same picture as these and other laboratory studies of impairment – namely, an exponential relationship. In brief, the impairment and risk increase more than in proportion to the increase in blood-alcohol level.

15. With these facts in mind, it is easily understood that different types of beverages, when bringing about differential blood-alcohol levels, will cause rather large differences in effects with regard to impairment for equal amounts of alcohol ingested. In practice this means that the same individual, after 3 to 4 bottles of beer, will be less impaired than after 3 to 4 whiskies, although both contain approximately the same amounts of alcohol.

16. Moreover, studies indicate that this difference may have more than one underlying mechanism. Constituents of the beverage, other than the alcohol, as such, may interact with the alcohol in several ways:

a) in modifying the rate at which alcohol passes from the stomach and intestines into the body, by way of the blood;

b) in modifying the effect of alcohol on the brain, i.e. on the central nervous system.

These studies indicate that one factor with regard to beer may be the ratio between the alcohol content and the extract content of the beer. The indication is that

the lower this ratio (that is the higher the extract content for a given alcohol concentration), the lower the blood-alcohol curve after a given amount of alcohol.

In summary, Canadian physiological tests show that the blood-alcohol effects of alcohol contained in Canadian whisky are about 25 percent higher than that for alcohol contained in beer. And, even more significantly, they indicate that the impairment effects of a given amount of alcohol in the form of whisky are much higher than the impairment effects of the same amount of alcohol in beer.

17. The possible differences in long-term effects resulting from the use of the different types of alcoholic beverages are more difficult to ascertain than the short-term physiological effects which are amenable to laboratory study. One approach to the assessment of the long-term effects of alcoholic beverage use on the health of a population is through the use of epidemiological methods.

18. Epidemiological investigations seek to determine the causal factor or factors relating to a disease or health problem by statistically relating the variation in incidence of the problem to the variation in the presence of suspected causal factors. The statistical relationships also can often be supported by direct clinical evidence of the cause-effect relationship – but this is not always the case.

19. A complication in these studies is the fact that the problems of morbidity and mortality associated with alcohol consumption are diverse and may be described under such categories as:

a) SHORT-TERM OR ACUTE

—drunkenness and social disruption

—deaths and disabilities due to auto, industrial and other accidents where alcohol was a factor

—acts of violence, suicide and other anti-social problems

b) LONG-TERM OR CHRONIC

—alcoholism

—cirrhosis of the liver

—delirium tremens and other alcoholic psychoses

20. There is no doubt that the foregoing health problems are generally related to alcoholic beverage consumption, but it is imperative that the causes of excessive drinking be epidemiologically examined to determine the relative risk of these problems occurring under different conditions; i.e. what is the relative risk of becoming an alcoholic or contracting a related disease when different beverages are consumed, in different drinking patterns, under different cultural norms, and by people with different psychological or physiological make-up?

21. The difficulty of epidemiologically relating alcoholic beverage consumption to various health problems is great, not only because of the diversity of possible medical problems and other acute incidents involving health, but also because of the difficulty of defining alcoholism. Alcoholism is probably the most serious problem related to alcoholic beverage consumption and has been defined differently by many investigators and organizations and no consensus has been reached.

22. In Canada, liver cirrhosis deaths numbered 1800 in 1970 and represented about 1.2 percent of total deaths. This is one of the diseases with rising incidence in Canada despite a decline in the over-all death rate. The liver cirrhosis rate in Canada is large relative to England, Ireland, New Zealand and Australia, but much less than that of the U.S.A. and France.

23. Liver cirrhosis is the one example of a disease related to chronic high alcohol intake, susceptible to statistical analysis because mortality figures exist for a variety of countries. It has also been widely used as an indicator of the prevalence of alcoholism in different countries, although the relative importance of prolonged and excessive alcohol consumption in the etiology of this disease is yet to be established and may well vary appreciably from one country to another. Whether or not the risk of liver cirrhosis for an individual relates to his choice of a particular alcoholic beverage, it is of interest to examine whether the beverage mix in a population has any bearing on liver cirrhosis rates.

24. We have analyzed the relationship of liver cirrhosis death rates and per capita consumption of alcoholic beverages, by type for twenty-nine countries.

The results of this analysis show:

a) The analysis would indicate that liver cirrhosis increases by 9.42 cases per 100,000 population for every additional gallon of pure alcohol consumed per year per person. Nevertheless, it is notable that all countries with more than 50 percent of alcohol consumption in the form of beer, with the sole exception of West Germany, have an observed rate of liver cirrhosis lower than predicted.

b) For each per gallon increment of alcohol consumed per capita per year in the form of spirits, there are 5.09 more liver cirrhosis deaths (per 100,000 population) than for the same increment of alcohol taken in the form of wines or beer. Thus, on the basis of these data, alcohol in the form of spirits is associated with more cirrhosis than the same amount of alcohol in the form of beer or wine.

c) On the basis of our analysis, a shift in consumption from spirits to beer is predicted to be associated with a fall in liver cirrhosis. For example, an increase of .1 gallons per capita of alcohol in the form of spirits is predicted to result in a 13-22 percent increase in the liver cirrhosis death rate in Canada, while the same increase in the per capita consumption of alcohol in the form of beer results in a 7-9 percent increase in the liver cirrhosis death rate. In other words, the effect on the death rate is less than half for an increase in beer consumption compared with spirits consumption.

d) Finally, our analysis indicates that the rate of rise of liver cirrhosis with consumption of any particular beverage is itself dependent upon how much is consumed by the population of each of the alcoholic beverages. How this may arise is open to speculation. A likely possibility is that the relation between liver cirrhosis and alcohol consumption depends critically upon the drinking habits in a community. The latter are reflected in what, as well as how much, people drink.

25. Studies within countries over a period of time were difficult to analyze because of a simultaneously rising pattern of consumption in all beverages in most

cases. Our examination of data from England, France and Canada suggest that an extremely mixed picture results from any attempt to explain liver cirrhosis death rates over long time periods. In Canada, from 1926 to 1936 consumption first increased dramatically and then fell by a very large amount; during the same period, the rate of liver cirrhosis deaths showed very little variation. It seems clear that factors other than alcohol consumption alone must be examined in order to give a more complete picture.

26. A Danish study was reviewed (Nielsen, 1965) relating the morbidity and mortality from delirium tremens to spirits consumption. He found that a thirty-five fold rise in the tax on spirits in 1917-18 resulted in a large decrease in the number of cases of delirium tremens to one-sixteenth of their former level.

A number of studies examined acute effects of alcohol consumption and found that frequency of arrests for drunkenness were not correlated with total alcohol consumption, but rather with the consumption of distilled spirits.

27. Two major approaches have been suggested for the prevention of harmful drinking practices and the encouragement of moderation in drinking: the socio-cultural model and the distribution of consumption model.

a) The socio-cultural model emphasizes the role of social norms as a control mechanism, and there is little doubt that in certain circumstances such norms can play an important control function. However, the model has not been sufficiently well specified to make it operationally capable of being tested. Consequently, there is no substantive evidence on the extent to which its major hypothesis can be supported. In short, the socio-cultural model is a plausible possible explanation of drinking practices, but the evidence does not exist to evaluate the validity and usefulness of the model.

b) The distribution of consumption model has been sufficiently well developed in order to permit it to be operationally tested. It has been tested by a number of investigators, and some evidence exists to support certain elements of the model. Sufficient work has been done on the model to permit one to make at least three major criticisms. First, the model as extended by some investigators, has been used quite incorrectly to draw conclusions with respect to public policy on pricing. Second, the validity of the model depends on the extent to which empirical results support the relationship between liver cirrhosis deaths and the average per capita consumption of alcohol. There is at least one major Canadian counter-example that suggests the relationship is not supported. Third, there are problems with the data base and the method used to examine "relative price" that raise even more doubts about the applicability of the model.

These serious limitations suggest that the distribution of consumption model, on the basis of information available, cannot be confidently used as a basis for public policy. The complete absence of tested hypotheses for the socio-cultural model suggests that it too cannot as yet be used as a basis for public policy. Consequently, additional research is required in both areas before one can be confident about using such models as a basis for public policy. Within the limitations of the existing knowledge, it is nevertheless useful and necessary to attempt to examine public policy with a view to reducing the incidence of alcohol-related problems. The dis-

cussion in the report has indicated some of the measures, such as licensing, taxation, distribution of information and advertising regulation that could be used.

28. The Study Committee examined the role of alcoholic beverage taxation in Canada. There are basically two major taxes – the uniform federal excise tax and a provincial tax or mark-up on alcoholic beverages in each of the ten provinces and two territories – and a number of minor licensing fees and other differential sales taxes on alcoholic beverages. There is considerable variation in the tax rates by type of beverage and by province: in Fiscal 1971 the estimated tax revenue (provincial and federal) per gallon of alcohol contained in beer ranged from a low of \$13.90 in Quebec to a high of \$34.77 in Newfoundland, for a national average of \$24.51; for wine, the tax revenue ranged from a low of \$20.14 in Manitoba to a high of \$44.94 in the Yukon Territory, for a national average of \$28.42; and for spirits the tax revenue ranged from a low of \$56.20 in British Columbia to a high of \$90.28 in the Northwest Territories, for a national average of \$67.53.

29. The relative importance of alcoholic beverage taxation as a source of revenue to Canadian governments has declined in post-war years, but the amounts so collected are still substantial. In 1969, alcoholic beverage taxation generated \$396 million in federal revenues and \$517 million in provincial revenues for a total of \$913 million.

30. Three major views have emerged as Canadian governments have justified taxation of alcoholic beverages during the past century. First, alcoholic beverages have been viewed as luxuries with taxes on such beverages satisfying the ability-to-pay criteria. Second, they have been a good source of revenue, generating higher returns with few objections from the taxpayers. Finally, taxation of alcoholic beverages has been seen as a legitimate method for controlling consumption of alcoholic beverages in the interests of social welfare. Several of these attitudes are in conflict, and there is often an ambivalence as to whether increased revenue should be sought, or whether consumption should be reduced or consumption patterns modified.

31. Taxation systems are generally analyzed in terms of four major objectives. Social justice encompasses horizontal equity – where those in the same economic circumstances pay the same taxes – and vertical equity – where those in different economic circumstances pay different taxes, usually on an ability-to-pay basis. Consistency with economic objectives – such as an optimal allocation of resources, full employment and price stability – is also important, as are revenue adequacy and the ease of administration and compliance.

32. In terms of the economic taxation goal of social justice, present alcoholic beverage taxation patterns appear to be generally regressive and the ability-to-pay principle gives little support to this type of tax. The differences in tax patterns among beverages are not great, but the levies which correspond least to the ability-to-pay principle are the taxes on beer.

33. With respect to the revenue adequacy objective there is a shortage of good research studies from which to derive demand estimates for the three alcoholic beverages, and from these to calculate estimates of the extent to which tax revenues would increase with a given increase in the tax rates or mark-ups. On the basis of this somewhat limited information it seems that governments in Canada are not

now maximizing their tax revenues from alcoholic beverages and could, if desired increase their revenues by raising the tax rates on wine up to 50 percent, and the tax rates on beer between 100 to 150 percent, since the relative fall in consumption would be less than the relative increase in taxes.

34. Possibly the most important taxation goal is an optimal allocation of resources, especially as it is affected by “externalities”, those benefits or costs received or incurred by third parties to the transaction; for example, the cost to the public of treating alcoholics, the cost of lost industrial time, accidents, etc. The existence of externalities implies some form of government involvement to achieve proper resource allocation: taxes in the case of negative externalities and subsidies in the case of positive externalities. Positive externalities – external benefits – from the use of alcoholic beverages are extremely difficult to quantify, but they include such things as social facilitation and relaxation of tensions.

An analysis of economic effects gives some reason to believe that present government revenues (\$913 million in 1969) from alcoholic beverage taxation exceed the negative externalities associated with alcohol beverage consumption (estimated \$600 million in 1969). This preliminary estimate is based on a small number – and only one in Canada, for New Brunswick – of adequate studies of the cost of alcohol-related problems to society. These studies may well under-estimate the true costs due to externalities. This is one area, among many mentioned throughout this report, that the Study Committee considers is in need of a much more thorough research effort. In addition there are at present no investigations that provide an estimate of costs associated with each type of beverage consumed.

35. The foregoing economic analysis, which tries, however imperfectly, to account for negative externalities, is developed from the traditional premise that the consumer of alcoholic beverages acts with perfect knowledge and has fully considered the benefits and costs to himself of such consumption. As a result, any health damage that the individual incurs by the consumption of such beverages is not included in the cost calculation and is not a matter for government involvement. The Study Committee considers that this is a limited view, for two reasons. First, if the consumer does not have perfect knowledge with respect to all the health problems associated with the consumption of alcoholic beverages, he may consume quantities which inflict unintentional damage upon himself. This problem would suggest a government information and education policy that would improve the ability of the consumer to expand his knowledge upon which to exercise his free choice. Second, there are some consumers – those who become addicted to alcoholic beverages – who are no longer able to exercise free choice in their consumption of alcoholic beverages, and thus impose damage upon themselves. This problem would suggest a government control policy that through a mix of strategies – taxation, education, regulatory means, health clinics specifically designed to deal with alcohol problems – attempted to alter consumption patterns and treat the persons so affected directly.

A control policy, of which taxation is one element, aimed at altering consumption patterns is primarily an ethical approach to taxation. If the community believes that beyond some specified level of alcoholic beverage consumption, an individual would incur extreme damage to himself, and that the individual must be protected from his own actions, then it follows that the community will expect its government

cussion in the report has indicated some of the measures, such as licensing, taxation, distribution of information and advertising regulation that could be used.

28. The Study Committee examined the role of alcoholic beverage taxation in Canada. There are basically two major taxes – the uniform federal excise tax and a provincial tax or mark-up on alcoholic beverages in each of the ten provinces and two territories – and a number of minor licensing fees and other differential sales taxes on alcoholic beverages. There is considerable variation in the tax rates by type of beverage and by province: in Fiscal 1971 the estimated tax revenue (provincial and federal) per gallon of alcohol contained in beer ranged from a low of \$13.90 in Quebec to a high of \$34.77 in Newfoundland, for a national average of \$24.51; for wine, the tax revenue ranged from a low of \$20.14 in Manitoba to a high of \$44.94 in the Yukon Territory, for a national average of \$28.42; and for spirits the tax revenue ranged from a low of \$56.20 in British Columbia to a high of \$90.28 in the Northwest Territories, for a national average of \$67.53.

29. The relative importance of alcoholic beverage taxation as a source of revenue to Canadian governments has declined in post-war years, but the amounts so collected are still substantial. In 1969, alcoholic beverage taxation generated \$396 million in federal revenues and \$517 million in provincial revenues for a total of \$913 million.

30. Three major views have emerged as Canadian governments have justified taxation of alcoholic beverages during the past century. First, alcoholic beverages have been viewed as luxuries with taxes on such beverages satisfying the ability-to-pay criteria. Second, they have been a good source of revenue, generating higher returns with few objections from the taxpayers. Finally, taxation of alcoholic beverages has been seen as a legitimate method for controlling consumption of alcoholic beverages in the interests of social welfare. Several of these attitudes are in conflict, and there is often an ambivalence as to whether increased revenue should be sought, or whether consumption should be reduced or consumption patterns modified.

31. Taxation systems are generally analyzed in terms of four major objectives. Social justice encompasses horizontal equity – where those in the same economic circumstances pay the same taxes – and vertical equity – where those in different economic circumstances pay different taxes, usually on an ability-to-pay basis. Consistency with economic objectives – such as an optimal allocation of resources, full employment and price stability – is also important, as are revenue adequacy and the ease of administration and compliance.

32. In terms of the economic taxation goal of social justice, present alcoholic beverage taxation patterns appear to be generally regressive and the ability-to-pay principle gives little support to this type of tax. The differences in tax patterns among beverages are not great, but the levies which correspond least to the ability-to-pay principle are the taxes on beer.

33. With respect to the revenue adequacy objective there is a shortage of good research studies from which to derive demand estimates for the three alcoholic beverages, and from these to calculate estimates of the extent to which tax revenues would increase with a given increase in the tax rates or mark-ups. On the basis of this somewhat limited information it seems that governments in Canada are not

now maximizing their tax revenues from alcoholic beverages and could, if desired increase their revenues by raising the tax rates on wine up to 50 percent, and the tax rates on beer between 100 to 150 percent, since the relative fall in consumption would be less than the relative increase in taxes.

34. Possibly the most important taxation goal is an optimal allocation of resources, especially as it is affected by “externalities”, those benefits or costs received or incurred by third parties to the transaction; for example, the cost to the public of treating alcoholics, the cost of lost industrial time, accidents, etc. The existence of externalities implies some form of government involvement to achieve proper resource allocation: taxes in the case of negative externalities and subsidies in the case of positive externalities. Positive externalities – external benefits – from the use of alcoholic beverages are extremely difficult to quantify, but they include such things as social facilitation and relaxation of tensions.

An analysis of economic effects gives some reason to believe that present government revenues (\$913 million in 1969) from alcoholic beverage taxation exceed the negative externalities associated with alcohol beverage consumption (estimated \$600 million in 1969). This preliminary estimate is based on a small number – and only one in Canada, for New Brunswick – of adequate studies of the cost of alcohol-related problems to society. These studies may well under-estimate the true costs due to externalities. This is one area, among many mentioned throughout this report, that the Study Committee considers is in need of a much more thorough research effort. In addition there are at present no investigations that provide an estimate of costs associated with each type of beverage consumed.

35. The foregoing economic analysis, which tries, however imperfectly, to account for negative externalities, is developed from the traditional premise that the consumer of alcoholic beverages acts with perfect knowledge and has fully considered the benefits and costs to himself of such consumption. As a result, any health damage that the individual incurs by the consumption of such beverages is not included in the cost calculation and is not a matter for government involvement. The Study Committee considers that this is a limited view, for two reasons. First, if the consumer does not have perfect knowledge with respect to all the health problems associated with the consumption of alcoholic beverages, he may consume quantities which inflict unintentional damage upon himself. This problem would suggest a government information and education policy that would improve the ability of the consumer to expand his knowledge upon which to exercise his free choice. Second, there are some consumers – those who become addicted to alcoholic beverages – who are no longer able to exercise free choice in their consumption of alcoholic beverages, and thus impose damage upon themselves. This problem would suggest a government control policy that through a mix of strategies – taxation, education, regulatory means, health clinics specifically designed to deal with alcohol problems – attempted to alter consumption patterns and treat the persons so affected directly.

A control policy, of which taxation is one element, aimed at altering consumption patterns is primarily an ethical approach to taxation. If the community believes that beyond some specified level of alcoholic beverage consumption, an individual would incur extreme damage to himself, and that the individual must be protected from his own actions, then it follows that the community will expect its government

to introduce an appropriate control policy. The Study Committee considers that Canadians are in favour of some such control policy; within such a policy, taxation is one appropriate strategy that has been examined.

36. In summary, to the extent that there are different effects – different externalities and different health effects for the individual consumer – among the three alcoholic beverages, these differences should be reflected, to the extent that it is possible, in the alcoholic beverage taxation policies of the Canadian governments.

### Conclusions

This report is based on the specialist research studies presented to the Study Committee, a critical review of the available literature in the relevant fields and an evaluation of the conflicting views in those fields. It is our judgement, based on the foregoing examination, that the short-term and some long-term negative effects from the consumption of alcoholic beverages are less for lower strength alcoholic beverages than for those of higher strength. The evidence that we have examined is not conclusive – in some cases the data is imperfect, in some the evidence by beverage type is modest, while in some we have been unable to find any pertinent investigations by beverage type – but it is strong enough to suggest that there are significantly different acute and chronic effects from alcohol consumed in the form of beer, wines and spirits.

We are further persuaded in the conclusion that the lower strength alcoholic beverages result in less deleterious effects than higher strength alcoholic beverages by the fact that no government, to our knowledge, has ever sought to shift consumption patterns from those of lower strength to higher strength. Many have, in fact, taken the opposite course and attempted – via taxation and other control policies – to alter consumption patterns in the direction of alcoholic beverages of lower strength.

It would seem reasonable, therefore, and in keeping with Canadian governments' social responsibility, to have governmental taxation and control policies which reflect these differential effects. The existence of differential effects by beverage type, and the consequent externalities that result in costs being imposed on third parties, provides one basis for taxing lower strength alcoholic beverages at a lower rate per unit of absolute alcohol contained than those of higher strength.

In addition, it is our view that consumers have far from complete and perfect information with respect to the major health problems associated with alcoholic beverage consumption. This is also true for researchers in the field and governments: we have reiterated, throughout this report, the dearth of solid evidence in some areas, the absence of it in others. This lack of information reduces the ability of the consumer to weigh accurately the personal benefits and costs of alcoholic beverage consumption. There is a need for a "research, information and education" policy that would improve the ability of the consumer to expand his knowledge base, thereby enhancing his exercise of free choice with respect to alcoholic beverages.

Finally, there exist some consumers of alcoholic beverages who become addicted to alcohol; these persons are no longer able to exercise free choice with respect to the consumption of alcoholic beverages, a consumption pattern that results in

considerable damage being inflicted upon themselves. The existence of differential personal health effects by beverage type, combined with the absence of knowledgeable free choice in alcoholic beverage consumption, provides a basis for a control and treatment policy that would attempt to alter the consumption pattern of the alcoholic individual. We recognize the ethical implications of a policy aimed at attempting to protect the individual from his own actions and consider that with respect to alcoholic beverage consumption, the possible health damage to the individual is sufficient reason for such a policy. Such an alcoholic beverage control policy would include such diverse instruments as education, regulation of conditions of sale and other control methods, taxation policies and health and treatment programs. Given the differential effects *on the individual* of alcoholic beverage consumption by beverage type, this policy also implies that lower strength alcoholic beverages should be taxed at a lower rate, per unit of absolute alcohol contained, than higher strength alcoholic beverages.

We conclude then, that on the basis of the evidence available to date there are solid grounds for taxing alcoholic beverages differentially in relation to the alcoholic content of the beverages. Specifically, we consider that it would be appropriate to tax alcoholic beverages in such a manner that the price to the consumer per unit of alcohol contained rises progressively as the alcoholic strength of the beverage rises.

### Recommendations

RECOMMENDATION I: Governments in Canada should adopt a progressive alcoholic beverage pricing policy. This should be carried out by pricing beer at a base rate, wines more than proportionately higher, and spirits more than proportionately higher than wines – all relative to the alcohol contained in each beverage. This progressive pricing policy, achieved via an appropriate set of tax and mark-up rates, would encourage an alteration in consumption patterns towards beverages of lower alcoholic strength.

RECOMMENDATION II: This progressive pricing principle should be applied within beverage categories to the same end. Thus, fortified wines would be priced more than proportionately higher – per unit of absolute alcohol contained – than table wines. Malt liquor would be priced more than proportionately higher per unit of absolute alcohol contained than regular beer; similarly, the lower strength beers, now available in some provinces, would be priced proportionately less, per unit of absolute alcohol contained, than regular beer. Beer or cider, with an extremely low alcoholic content, might be completely exempt from alcoholic beverage taxation.

RECOMMENDATION III: The Committee views with concern the competitive actions in the alcoholic beverage industries that appear to be leading to a proliferation of products which stress higher alcoholic content. To the extent that promotion of products such as malt liquor, strong cider, fortified wines and higher strength spirits might lead consumers to purchase higher strength products within each beverage class, in spite of progressive price differences, control objectives recommended in this report would not be met. It is our view that governments in Canada should examine the extent to which malt liquor and strong cider in particular are being substituted for lower or higher strength alcoholic beverages. If it is found that such substitution is mainly for lower strength beverages, then

governments should alter taxation and control policies so that the consumer who has a distinct beverage preference is discouraged from selecting a higher alcoholic strength of product.

RECOMMENDATION IV: Federal and provincial governments should co-ordinate activities in a review of existing tax variations across the country in order to adjust any unwarranted price disparities. The objective should be that the price to the consumer of each type of alcoholic beverage bear a closer relationship to the differential acute and chronic effects, by province, in order to apply effectively the progressive pricing principle in all provinces.

RECOMMENDATION V: Governments in Canada should develop an integrated regulation and control policy with respect to alcoholic beverage consumption. The progressive pricing instrument is only one of a number of important variables that can, in our view, influence the consumption patterns and as a result, affect the generation of alcohol-related health problems for individuals.

While this Report has examined taxation policy almost exclusively, other policy instruments should be examined more carefully, such as 1) the regulation of advertising of alcoholic beverages, 2) the encouragement of moderation and social integration in drinking practices, 3) the provision of information about and educational programs concerning alcoholic beverage consumption, and 4) the encouragement of those social norms, whatever they may be, that reduce the damage and health-related problems associated with alcohol abuse. It is the opinion of the Study Committee that a thorough evaluation of the potential instruments of an alcoholic-beverage-consumption control policy should be initiated.

RECOMMENDATION VI: An organization should be established that would devote its efforts to the financing and carrying out of research and education in the entire field of the use and abuse of alcoholic beverage consumption.

Our recommendations are based on existing knowledge; we would emphasize that such knowledge is very limited. The recommendations allow for the differential effects of alcoholic beverage consumption, by type of beverage, and are designed to retard the general trend of consumption of alcohol in Canada towards the higher strength beverages. However, there is a need for more adequate research in almost every area studied in this Report. Such research is especially important in the light of already extensive government involvement in the alcoholic beverage taxation and control areas.

We do not wish to anticipate the form or structure of such a research and education vehicle, but we consider that involvement by the governments of Canada, the alcoholic beverage industries, the professions most involved with alcohol-related health problems, and the consumers of the products would be crucial to the success of such an organization.

RECOMMENDATION VII: In spite of the most enlightened approach to the prevention of alcohol-related problems, there will probably always be some individuals who will suffer from these problems. While treatment methods have not been the subject of this study, they are of great importance; it is imperative that funding be provided for a continuing evaluation and improvement of the methods of identification and treatment of these individuals.