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ALCOHOLIC BEVERAGE TAXATION:

ALTERNATIVES AND IMPACTS*

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ABSTRACT: In this report different scenarios of alcohol price reductions and their macroeconomic (multiplier) effects are presented for Finland. Scenarios of the consumption of alcoholic beverages in the transitional phase to the year 2004 (when the EU regulation on imports of alcohol products has to be adopted also in Finland) are also reported. The macroeconomic scenarios are formulated using ETLA's econometric model. The conclusions about the scenario exercises are that lowering the price of alcohol by decreasing our top-level excise duties has positive multiplier effects on production and employment and some dampening effect on inflation in the overall economy. The government's tax revenues from alcohol are reduced to a lower level but this will be compensated by the increase of the other tax revenues due to the injection to consumption, production and employment.

KEY WODRS: Alcohol beverage, price and income elasticity, tax revenue

Background

A central EU goal is the harmonization of taxation in the member countries. So far, the taxation of alcoholic beverages in the Nordic countries differs considerably from that in the other EU countries. In addition to this, restrictions exist in the Nordic countries on imports of alcoholic beverages by travelers arriving from EU and so-called third countries. Transitional restrictions are in force in Finland up until the end of 2003, according to which imports of alcoholic beverages by travelers arriving in Finland are subject to restrictions. Furthermore, in order to dampen cross-border trade in alcoholic beverages, Finland adopted the so-called 20-hour law, which will continue to hinder imports especially from Russia and Estonia.

From the year 2004 onwards, import restrictions on alcoholic beverages will be eased to the normal levels observed in the EU countries. Insofar as alcohol prices remain at their current levels then, a significant share of alcoholic beverages consumed in Finland would be purchased from countries with lower alcohol prices. Since the government tax accounts for a major share of domestic prices, central government tax revenues will decline at quite a rapid pace. This situation calls for new solutions to change Finland's extremely heavy taxation of alcoholic beverages. It is possible to estimate the size of central government tax revenues if the current structure of taxation remains in place. It is clear that the domestic alcoholic beverage industry would not be competitive in the EU's internal market given the current system of taxation. In any case, there are noticeable pressures for removing artificial import restrictions. A clear practical example of this is the considerable growth in alcohol-driven, cross-border trade with neighboring countries.

The share of unrecorded alcoholic beverage consumption in total consumption of alcoholic beverages has grown significantly in recent years (unrecorded consumption is that part of alcoholic beverage consumption that doesn’t get taxed). In 1996, the share of unrecorded consumption in total alcoholic beverage consumption stood at about 23 percent (compared to 11 percent in 1990). Insofar as, in Finland’s case, import restrictions are eased in the future according to the EU model, shopping trips to neighboring countries will expand noticeably from current levels unless taxes in Finland are reduced considerably. Denmark’s experiences with easing import restrictions point to this scenario.

From Finland’s point of view, this setting is further complicated by otherwise growing cross-border trade with Russia and the Baltic countries. The coming into effect of visa-free travel between Finland and Estonia, Latvia and Lithuania will increase shopping trips taken abroad. Possible EU membership for Estonia in the next few years will “spice up” the situation further. Tax losses accrued to the government currently are already in the neighborhood of FIM 1 billion per annum. Future developments may be quite unpredictable in many respects unless the true price of alcoholic beverages is gradually allowed to increasingly direct demand in the market. Pressures to reassess domestic alcohol policy have grown markedly.

One must remember, however, that the level of alcohol taxation also affects total consumption of alcoholic beverages. Reducing the price of alcohol increases alcohol consumption, which has several negative spillover effects. Alcohol-related sicknesses, among others, are estimated to rise in proportion with increases in alcoholic beverage consumption. The social costs of alcohol-related sicknesses have risen considerably. Even though estimating the negative spillover effects is necessary from a decision-making point of view, quantifying these effects is extremely problematic and would require a separate study.

Table 1. Unrecorded consumption in Finland, liters per capita of 100 % alcohol

	1992	1993	1994	1995	1996
Non-registered imports	0.4	0.4	0.4	1	1.2
Consumption abroad	0.3	0.3	0.3	0.3	0.3
Home distilling	0	0	0	0	0
Pure alcohol	0	0	0	0	0
Home winemaking and brewing	0.4	0.5	0.5	0.5	0.4
Smuggling	0	0.1	0.1	0.2	0.1
Unrecorded	1.1	1.3	1.3	2	2
Recorded	7.1	6.7	6.6	6.6	6.7
Total	8.2	8	7.8	8.6	8.7

Different alternatives for reducing the excise tax on alcohol

Due to a starting-point with a high level of taxation, the gradual reduction of alcoholic beverage prices in order to eliminate cross-country price differentials is a difficult and multistage process, one that requires careful preparation prior to any decision-making. These measures are naturally tied to one another as well as to the general developments of society and the economy, as they are also to the characteristics of households. Especially in Finland's case, these measures will also have a noticeable effect on central government tax revenues. The point of departure for gradually reducing the excise tax is that Finland already has had a dual market in the supply of alcoholic beverages for sometime already, for which reason consumption of alcoholic beverages has been divided into the traditional taxed consumption, i.e. recorded consumption, and consumption that doesn't get taxed, i.e. unrecorded consumption.

This study examines the macroeconomic effects of reducing alcohol prices by 30 and 50 percent. Reducing alcohol prices by 30 percent requires an average decrease of just over 50 percent in the excise tax on alcohol. Alcoholic beverage prices would then be slightly higher than the level observed in Denmark. Correspondingly, a 50 percent reduction requires a decrease of about 90 percent in the excise tax. In this case, alcoholic beverage prices would almost correspond to levels prevailing in Germany.

In the following scenarios, the prices of different alcoholic beverages are assumed to decline in the same proportion, implying different changes in the excise tax across different beverage categories. An exception is wines, whose relatively low excise tax allows a reduction in price of only 35 - 40 percent. There appear to be very few reasons for a reduction in the excise tax skewed towards later years of the period, since a rapid expansion in the market for unrecorded alcoholic beverage consumption is "not expected" and containing the total consumption of alcoholic beverages in the future might be difficult in practice. The maintenance of a significant price differential between markets would rapidly direct the composition of consumption and the market structure of alcoholic beverages, and the consequences could get out of control.

The central concepts in econometric models explaining the demand for alcoholic beverages are the price elasticity of demand and income elasticity, which measure the sensitivity of quantity demanded for a given product in relation to changes in product price and in the consumer's purchasing power. To project developments in the demand for alcoholic beverages, the outlook for changes in demographic factors during the period under investigation are needed in addition to forecasts of economic variables. In forecasting the volume of total alcoholic beverage consumption, the "eternal question" becomes where to draw a realistic upper boundary for per capita consumption of the adult population. An important factor of uncertainty in projecting developments in alcoholic beverage consumption over the next few years concerns unrecorded consumption of alcohol. Lowering alcohol prices will reduce both home-brewing of alcoholic beverages and shopping trips made abroad. However, empirical findings on the effects of a considerable decline in alcohol prices on unrecorded consumption are unavailable.

Trends in alcoholic beverage consumption

There have been noticeable differences in the consumption of alcoholic beverages across countries. International comparisons indicate that Finland's consumption of alcohol per capita is much lower than the average level. There has been a trend increase in alcohol consumption in Finland during the last few decades. Those countries whose consumption is higher than average have experienced a corresponding trend decline (for example France and Germany). Figure 1 shows (for a given country) consumption clearly approaching a level of slightly more than 10 liters per capita.

Many different factors affect the demand for alcohol. In addition to the price level, other important factors include the availability of alcohol and drinking culture. For example, the availability of alcohol in France and Germany is much higher than in Finland and Sweden, for example. When considering a reduction in alcoholic beverage prices and growth in demand, we are also forced to estimate the possible point of saturation in alcohol consumption. Are Finnish alcohol consumption habits so different from those of other Europeans so that, given the same price level and availability of alcohol, the total consumption of alcohol in Finland would settle at a considerably higher level than that witnessed in other countries?

In this study, the point of saturation in total alcohol consumption is set close to the level prevailing in Germany (note that the availability of alcohol in Finland is assumed to remain at its current level in the period examined). It is difficult to find any justification for a rise in alcohol consumption to a level above that in Germany.

In the baseline scenario, real household purchasing power is estimated to grow by slightly more than 3 percent per annum during 1998-2004. When alcohol prices decline according to the aforementioned alternatives and purchasing power is assumed to increase by just over 3 percent per annum, we arrive at the point of saturation mentioned in the last paragraph. In 1996, consumption of recorded alcohol amounted to about 6.7 liters of pure alcohol per capita. Correspondingly, total consumption was estimated at about 8.7 liters of pure alcohol per capita. According to the baseline scenario (the tax on alcohol remains unchanged, import restrictions remain unchanged, real purchasing power grows at an annual average rate of 3 percent), total alcohol consumption climbs to just under 10 liters of pure alcohol in per capita terms.

In the following scenarios, alcoholic beverage prices are assumed to decline at once (in 1999) by 30 percent or 50 percent. Strong growth in the demand for alcohol requires a considerable change in households' consumption habits, at which time demand reactions to the price decline are assumed to materialize with a lag of a few years (particularly in the scenario with a price decline of 50 percent). We had to lower the price and income elasticities to a certain extent at the end of the period examined because the assumed point of saturation would otherwise be surpassed substantially. In the scenarios, the total consumption of alcohol reaches a level of approximately 10.5-11.5 liters in the year 2004, compared to an estimated slightly less than 10 liters in the baseline case.

Figure 1. Per capita consumption of recorded alcohol by country

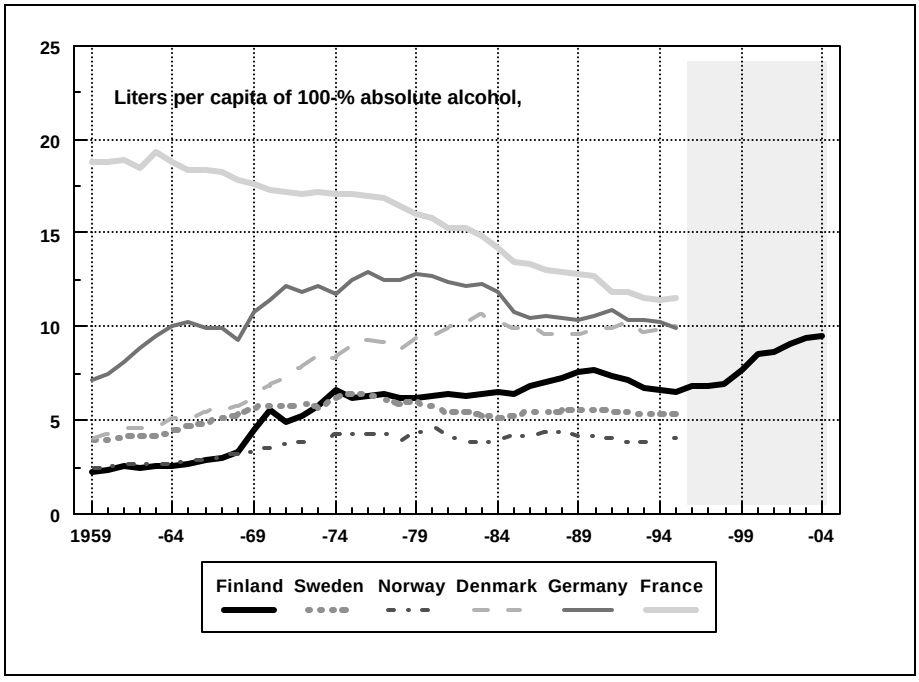

Table 2 presents the levels of alcohol consumption in 2004 according to the different scenarios. In scenario B recorded consumption grows by about 15 percent following the decline in prices, while in scenario C consumption would climb by 30 percent. On the other hand, total consumption of alcohol is estimated to increase by 5 and 15 percent, respectively, because a significant share of unrecorded consumption would come under the realm of recorded alcohol consumption.

Table 2. Demand for recorded and unrecorded alcohol per capita, pure alcohol in 2004

	Baseline	**Scenario B**	**Scenario C**
Consumption of pure alcohol, liters	**Relative prices remain unchanged**	**30 percent decline in prices**	**50 percent decline in prices**
Unrecorded	**2**	**1.4**	**0.8**
Recorded	**7.8**	**9.1**	**10.5**
Total consumption	**9.8**	**10.5**	**11.3**

Let it be emphasized that an extremely important factor in projecting developments in Finnish alcohol consumption are the assumptions regarding points of saturation in alcoholic beverage consumption. Earlier experiences with abrupt changes in alcohol policy suggest that alcohol consumption reacts strongly. For example, liberalization in 1968 allowing sales of lager at the retail level led to a doubling of Finnish alcohol consumption. The existing level of consumption at the time, however, was rather low for European standards, at a level of only 2.5 liters of pure alcohol per capita. The level of alcohol consumption today is relatively high, and according to the assumption a noticeable change in price would not result in sharp growth of alcohol consumption.

The macroeconomic effects of lowering the excise tax

The share of alcohol in household consumption expenditures has stood at 6-7 percent in recent years. A reduction in alcohol prices means that households would have more money to spend on other consumer goods, i.e. that there would be growth in real household purchasing power. The price elasticity of alcohol demand is, according to various studies, approximately –0.5 percent, implying that about half of the growth in purchasing power resulting from a decline in alcohol prices would be directed at other types of consumption. It is estimated, however, that a rather large change in alcohol prices would be associated with slow changes in household consumption of alcoholic beverages.

On the other hand, total alcohol consumption is also estimated to be constrained by some sort of realistic upper boundary, at which point a noticeable share of the growth in purchasing power, induced by lower alcohol prices, would be directed towards other forms of consumption in

response to a significant change in alcohol prices. A reduction in the excise tax on alcohol would therefore boost economic activity, particularly in the service-producing industries. The effects would compound and spread to different sectors and industries, resulting in growth in corporate investment and household employment and consumption. Increased economic activity would boost the tax revenues of public authorities and, hence, would compensate for reduced revenues accruing from the excise tax.

This study employs ETLA's macroeconomic model to examine the economic effects of lowering alcohol taxes. The model calculations are made assuming that financial markets do not react to real economic changes with sharply fluctuating interest rates. Finland is assumed to be a member in EMU from 1999 onwards.

In the baseline scenario, real gross domestic product (GDP) grows by approximately 3 percent in the early years and rises to about 4 percent in the latter half of the period examined; real imports grow by 6 percent per annum and export growth climbs to this same pace during the latter half of the period examined in the scenario. Private consumption grows gradually at an average annual rate of 3 percent. The current account registers a surplus of FIM 22-25 billion annually, inflation averages about one percent annually and employment gradually increases. The economy would be on a steady growth path. The current account surplus as a percentage of GDP would average 3.1 percent in the baseline scenario.

If the price level of alcohol consumption declines by 30 percent at once (Table 3) in 1999, the results from ETLA's macroeconomic model show that the growth rates of GDP, household purchasing power and employment pick up slightly; imports grow in 1999, but settle thereafter on a gradual growth path. Inflation subsides to almost zero percent in 1999, rising afterwards to an average of 2 percent; the annual surplus in the current account narrows by several billion FIM compared to the baseline scenario, reaching a level of about FIM 20 billion. The current account as a percentage of GDP stands at an average of 2.8 percent during the period under examination.

A gradual decline in alcohol prices appears to increase economic growth by about the same amount as in the case of a one-time decline in prices. Imports also grow slightly faster, but not fast enough to jeopardize the current account balance. Another divergent feature compared to the one-time price decline scenario is the somewhat faster growth in household consumption and real purchasing power in the years following the turn of the century. The third, and perhaps most significant difference, is the greater decline in inflation in the latter half of the period. Employment effects do not differ markedly from each other in the 30 percent scenario.

If alcohol prices are reduced at once by 50 percent in 1999 (Table 4), the positive multiplier effects on the economy are a degree stronger compared to the scenario of a 30 percent decline in prices. Growth in imports and investment accelerates during 1999-2000, but levels off in the second half of the period. Employment improves slightly and the annual current account surplus averages 2.6 percent of GDP. The cumulative surplus in the current account over the years 1999-

2004 reaches about FIM 120 billion in this scenario compared to FIM 140 billion in the baseline scenario.

Table 3. The effects of a 30 percent decline in alcoholic beverage prices on the balance of resources and expenditure, percentage point difference from base

Volume	1999	2000	2001	2002	2003	2004
GDP	1	0.3	-0.1	0	0.1	0.1
Imports	0.9	0	0	0	0	0
Exports	0	0	0	0	0	0
Investment	0.9	0.9	0.2	0	0.2	0.3
Private consumption	2	0.1	0.1	0.1	0.1	0.2
Public consumption	0	0	0	0	0	0

Table 4. The effects of a 50 percent decline in alcoholic beverage prices on the balance of resources and expenditure, percentage point difference from base

Volume	1999	2000	2001	2002	2003	2004
GDP	1.9	0.3	-0.2	0	0.1	0.2
Imports	1.5	0.1	0	0	0	0
Exports	0	0	0	0	0	0
Investment	1.8	1.3	0.2	-0.1	0.1	0.3
Private consumption	3.7	0.1	0.1	0.1	0.1	0.2
Public consumption	0	0	0	0	0	0

A gradual reduction in alcoholic beverage prices of 50 percent has approximately the same macroeconomic effects as in the corresponding 30 percent case. As can be expected, the effects on economic growth are more emphasized in the later years of the period examined. Private consumption growth, in particular, picks up after the century date change. The most noticeable difference with respect to the baseline scenario is that inflation is much lower, especially in the latter half of the period examined. Another marked difference from the baseline scenario is the gradual improvement in employment. The current account as a percentage of GDP is 2.9 percent, i.e. the same level as in the corresponding scenario with a price decline of 30 percent. The cumulative surplus in the current account during 1999-2004 amounts to about FIM 133 billion.

Generally speaking, we can ascertain from the simulation results that one-time price shocks in alcoholic beverages generate expected fluctuations in consumption and investment. In this case, other balancing measures are needed to offset the fluctuations. If the goal is a relatively gradual increase in household consumption growth, then prices of alcoholic beverages should also be lowered gradually. Investment fluctuations would then remain small. We did not consider an alternative scenario here where one-time price declines would be carried out at the end of the scenario period, for example in 2002 or 2003. Strong growth in cross-border trade may, by that

time, change the market structure substantially, because a considerable decline in prices would not have the expected allocative and volume effects.

The weight of imported goods in households' consumption basket is just over 30 percent, and therefore growth in consumption demand means increases in imported consumer goods. In the previous scenario, the reduction of the excise tax on alcohol nevertheless decreases shopping trips made abroad and transfers the growth of household purchasing power towards the domestic economy, so that import growth remains slower than in the case of an income tax cut. On the other hand, the strengthening of domestic demand is not expected to positively affect demand-pull inflation in current conditions because Finland has a high level of unemployment as well as an extensive amount of available capacity, both of which remained in the aftermath of the exceptionally deep recession of the early 1990s.

Spillover effects

Expanding cross-border trade and increased shopping trips made abroad have many direct and indirect effects on macroeconomic developments. In addition to Finland, other countries with such experiences include Great Britain and Ireland. Specific features of these experiences are the losses in tax revenues faced by central governments as a result of growth in cross-border trade in alcoholic beverages. Generally, strong growth in cross-border trade creates imbalances at least in the following cases:

The expansion of cross-border trade in alcoholic beverages brings with it many new features to other economic activities of private citizens, firms and the government. In Finland's case, an example is the strong expansion and diversification of cross-border trade with Estonia. Finnish shopping trips made to Estonia have grown swiftly in recent years along with visa-free travel, among other things.

According to an Estonian Ministry of Finance review, revenues accruing from purchases and stays by foreign travelers amounted to a total of KR 5.2 billion, of which KR 3.5 billion (approx. FIM 1.3 billion), or 67 percent, derived from revenues accruing from Finnish travelers. If we assume that half of the markka-denominated amount spent on purchases is spent on alcohol, those persons traveling to Estonia will spend approximately FIM 600 million on alcohol. This amount is further boosted by purchases of alcohol in local restaurants and lodging establishments. A majority of the trips comprise one-day trips, but the share of longer stays is on the rise and depends on the growth of lodging capacity.

Finland imported an estimated 6.3 million liters (pure alcohol) of alcoholic beverages in 1996. If the share of trips made to Estonia accounts for half of this, or 3.1 million liters, and if 4/5 of the quantity imported comprised beer and spirits, then the government roughly lost just under FIM 1 billion in tax revenues. This year, as visa-free travel has further increased shopping as well as

pleasure trips, the loss of alcohol tax revenues will lie in the neighborhood of FIM 1.3 billion (the so-called 20-hour time limit will mostly constrain imports of beer).

In addition, the multiplier effects generated by consumption on business activity and employment remained on the "wrong" side of the border. In practice, these losses are compensated by the activities of Finnish firms (for example Finnish exports of beer) in Estonia either directly or in the form of their subsidiary firms. Tax revenue losses are, in turn, also offset by Finnish shipping companies receiving a share in transportation revenues and in consumption taking place on the ferries (alcohol, other purchases and food expenditures). On the other hand, duty-free souvenirs purchased on ferries depress government tax receipts. Due to the price differentials of alcoholic beverages, the number of Finnish shopping trips made to Russia has increased noticeably and they have reduced the share of taxed alcohol in total consumption. Alcoholic beverages have a significantly dominating position in shopping trips made over the eastern border. Due to cross-border trade with Russia and Estonia, the share of untaxed consumption in total alcoholic beverage consumption has grown rapidly in Finland. Pressures to reduce price differentials on alcoholic beverages are growing constantly. If price differentials are not removed, the share of total untaxed consumption might rise to that of taxed consumption after the year 2000. The dual market will change the amount received in government revenues such that the optimal tax-to-GDP ratio will decline as will the level of tax revenues.

The narrowing of price differentials between Finland and the Baltic countries, especially Estonia, will dampen the growth of cross-border trade over time. Signs of this are already on the horizon. If Estonia becomes an EU member before 2004, the whole setting will change considerably from the current situation, unless markets have become, before then, so harmonized in practice that price differentials no longer direct consumer behavior.

The effects of a reduction in the alcohol tax on government tax revenues

Tax revenues received by the government (excise as well as value-added taxes) from sales of alcoholic beverages amounted to almost FIM 10 billion in 1996. Reducing alcohol prices closer in line with the EU average level requires a considerable easing in taxation. A reduction in alcohol taxes will directly reduce government tax revenues, but a significant share of the losses in tax revenues will be returned via multiplier effects in the form of other tax revenues made to the government (income, commodity, value-added, and other taxes). According to the results of ETLA's macroeconomic model, tax revenues may even grow in some cases as a result of lowering the tax on alcohol. Overall, however, it is important to remember that these calculations do not take into account, for example, the possible costs of increased alcohol-related sicknesses.

Household consumption expenditures on alcoholic beverages in 1996 amounted to FIM 18 billion. A 30-50 percent drop in alcohol prices increases household purchasing power by FIM 4-9 billion. About half of the growth in purchasing power is directed towards increased purchases of alcoholic beverages and the other half towards other forms of consumption. Growth in

consumption demand strengthens economic activity, thereby **increasing employment**. According to our estimates, a one-percent reduction in unemployment increases government revenues by about FIM 2 billion, of which FIM 1.5 billion takes the form of reduced unemployment benefits and FIM 0.5 billion growth in income taxes. **Commodity taxes** received by the government increase in response to growth in consumption demand. On average, just over 20 percent of household consumption expenditures includes consumption taxes made to the government.

At the same time, a reduction in the alcohol tax means **fewer shopping trips for purposes of purchasing alcoholic beverages**. Consumption expenditures in Estonia alone are estimated to amount to FIM 2.5 billion this year. Losses in commodity taxes, excluding alcoholic beverages, to the government will hover around FIM 0.5 billion. Along with the reduction in alcohol prices, a share of unrecorded alcohol consumption will shift to the category of recorded consumption and, at the same time, under the realm of taxed alcohol consumption. Last year, the government is estimated to have lost just over FIM 1 billion in revenues from the alcohol tax as a result of shopping trips made abroad.

Table 5. Alcoholic beverage prices decline by 30 percent

Mill. FIM	1999	2000	2001	2002	2003	2004
Reduction in alcohol tax	-4200	480	450	200	120	80
Other commodity taxes	1160	140	270	490	640	850
Transfer from shopping trips	300	100	0	0	0	0
Savings from lower expenditures on unemployment benefits	600	400	0	0	200	200
Total	-2140	1120	720	690	960	1130

Table 6. Alcoholic beverage prices decline by 50 percent

Mill. FIM	1999	2000	2001	2002	2003	2004
Reduction in alcohol tax	-6970	410	280	200	200	180
Other commodity taxes	2130	-20	130	260	420	620
Transfer from shopping trips	550	100	0	0	0	0
Savings from lower expenditures on unemployment benefits	1000	600	-200	-200	0	200
Total	-3290	1090	210	260	620	1000

The effects of a few alternative tax cuts on government tax receipts are presented below (Tables 5-6). We assume that the tax cuts have no effect on financial markets. Growth in economic activity is also assumed to not foster higher inflation. The figures in the tables depict the change each year with respect to the baseline scenario. According to the calculations, a reduction in the alcohol tax reduces government tax revenues in the short term. Over the longer term, growth in economic activity compensates for either part of or all of the losses in tax revenues caused by the reduction in the excise tax, depending on the scenario. Of particular importance are the multiplier effects generated by growth in economic activity, which are reflected in the improvement in employment. The reduction in shopping trips, in turn, increases domestic demand and boosts growth in economic activity.

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