Economics IA 1 —— Micro

In an article by The Guardian, a recent case of alcohol price floor in Australia is discussed. Alcohol addiction has been a problem for a long time because of its nature as a negative externality of consumption, with "the territory having the highest per-capita rate of alcohol consumption" and resultant hospitalization causing negative side effects such as alcohol being "a factor in 53% of assaults and 65% of reported family violence." The idea of negative externality of consumption, sometimes called "spillover cost", describes externality with negative or harmful side-effects on third parties at the time of consumption.

So it's natural for the Australian government to take action. They enacted a price floor, a legal minimum price for a particular good, for alcoholic products.

Figure 1 illustrates the mechanism of a price floor on a demerit good. When demerit goods are consumed, marginal social benefits are less than marginal private benefits ($MSB < MPB$). The supply curve (S) intersects MPB and MSB at point A and B, giving the current market quantity transacted at Q_1 and the optimal quantity de-

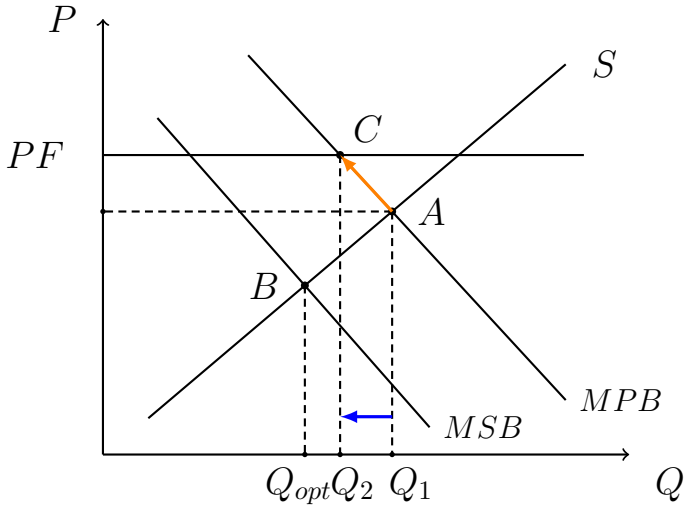

Figure 1: Mechanism (normal)

manded as Q_{opt}. The goal of the price floor is to move from Q_1 to Q_{opt}, so that negative externalities are reduced. The price floor is down as a horizontal line with label PF on the price axis. Since it's only legal to well alcohol for prices higher than the PF value, the market quantity moves to Q_2, with C being the new intersection of PF and MPB. It is clear that Q_2 is much closer to Q_{opt} than Q_1, so the price floor seems to be an viable way to deal with negative externalities of consumption.

However, the actual result of the alcohol price floor in Australia was totally different; "It wasn't handled well". Instead, demand for alcohol is relatively inelastic because alcohol is addictive. So instead of MSB and MPB having relatively gentle slopes, they are very steep. The mechanism diagram for alcohol price floor is presented in Figure 2. The original state is at A, with quantity demanded at Q_1 and price at P_1. When the price floor is added, the market moves to point C, along with the quantity demanded shifting to Q_2 and the price rising to PF. The mechanism between alcohol and normal goods are similar. However, since the MSB and MPB curves are very inelastic, PF is well

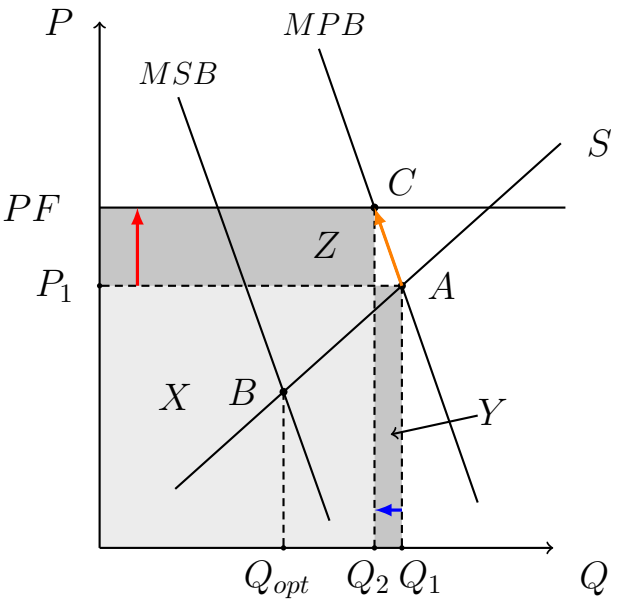

Figure 2: Mechanism (alcohol)

above the original price at P_1 while the quantity change caused by the alcohol price floor between Q_1 and Q_2 is negligible. This reflects what is said in the article: "The alcohol floor price completely Fails to address the levels of chronic alcoholism in the Territory, and its effects on responsible drinkers".

Furthermore, the price floor is unnecessary to some extent. We can see from Figure 2 that the total revenue for alcohol sellers at the original state A is the product of price and quantity sold, which is $P_1 \times Q_1$ (the sum of the areas of X and Y). With the price floor put in place, the total revenue at C is $PF \times Q_2$, the sum of the shaded areas X and Z. Sellers will have a greater total revenue if the price of alcohol is high, because the increase in revenue is the area of $Y - Z$, which is apparently positive since the inelasticity of the MPB curve leads to the minimized area of Z. Moreover, the sellers will have a higher benefit. Benefit = Revenue − Cost = Revenue − (cost of alcohol × quantity). By this reasoning, we know that the cost will decrease since the quantity has fallen, and along with the increasing total revenue, alcohol sellers can get a much bigger benefit. That's why "NT Consumer Affairs warned the cost of beer and other drinks may be increasing 'well beyond the floor price legislation' ", and alcohol sellers are likely raise prices even above the price floor due to the desire for more benefits.

So what should the Australian government do if a simple manipulation of price is ineffective? It's known for addictive demerit goods that an effective solution must shift the MPB curve towards the MSB curve. As presented in Figure 3, we can see the market

quantity of alcohol moves towards Q_{opt} as the MPB approaches MSB ($Q_1 \rightarrow Q_2 \rightarrow Q_3 \rightarrow \ldots$). This could be achieved by explaining the harms of consuming alcohol to alcoholics themselves, to the people around them, such as family and friends, and to Australian society as a whole.

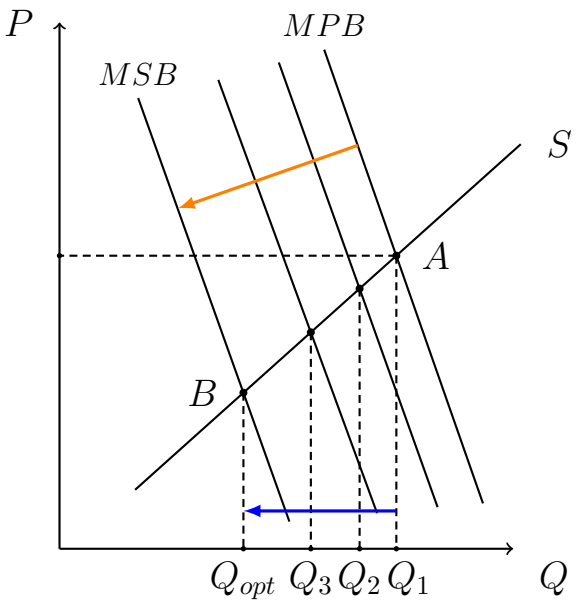

Figure 3: Mechanism (education)

Another possible approach is to set up a national limit on consumption. Every single alcohol purchase would require the buyer's identification information and each person has a purchase limit. For instance, individuals could be restricted to purchasing a total of 200 mL worth of pure alcohol per week. But a potential threat is that an alcohol black market might develop if this purchase limit is too restrictive.

Now, the challenge for the Australian government is to find a balance and combination between education, restriction and other possible solutions to this "obstinate" problem.