Economics IA 1 —— Micro

In the article by The Guardian, a recent case of alcohol price floor in Australia has been discussed. Alcohol addiction has been a problem for a long time. It is quite annoying because its nature as a negative externality. The idea of negative externality, sometimes called "spillover costs", describes a certain type of externality with negative or harmful side-effects on third parties.

As the article has said, "The territory has the highest per-capita rate of alcohol consumption" and "the highest rate of hospitalisation due to alcohol issue", alcohol has been a really serious problem. "Alcohol is a factor in 53% of assaults and 65% of reported family violence." So it's nature for the Australian government to take actions. They posted a price floor for alcohols. This is when the government set a minimum price for a particular good, which means that the sellers have to charge above the minimum price.

We can find the mechanism of a price floor's treatment towards a normal demerit good in Figure 1. When goods are consumed, we have marginal social benefits less than marginal private benefits ($MSB < MPB$). The supply curve (S) intersect MPB andMSB at point A and B, giving the current market quantity demanded as Q_1 and the optimal quantity demanded as Q_{opt}. The goal of the price floor is trying to move Q_1 to Q_{opt}, so that negative externalities is reduced. The price floor is down as a horizontal life

with label PF on the price axis. Since it's only legal to charge alcohols with prices higher than the PF value, the market quantity has moved to Q_2, given by C, the intersection of PF and MPB. It is clear that Q_2 is much closer to Q_{opt} compared to Q_1, so the price floor seems to be an efficient way to deal with negative externality cases.

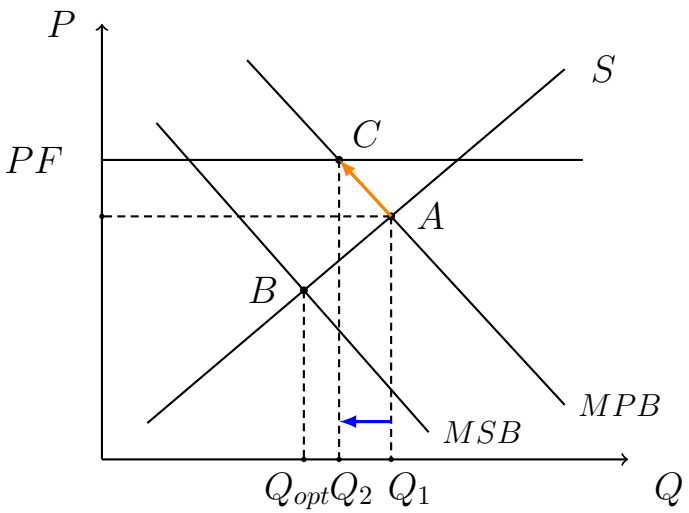

Figure 1: Mechanism (normal)

However, the actual result of the alcohol price floor in Australia seems to be totally different. "It wasn't handled well". The reason for this is that alcohol is not a simple demerit good; instead, it's addictive. So instead of having MSB and MPB with 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

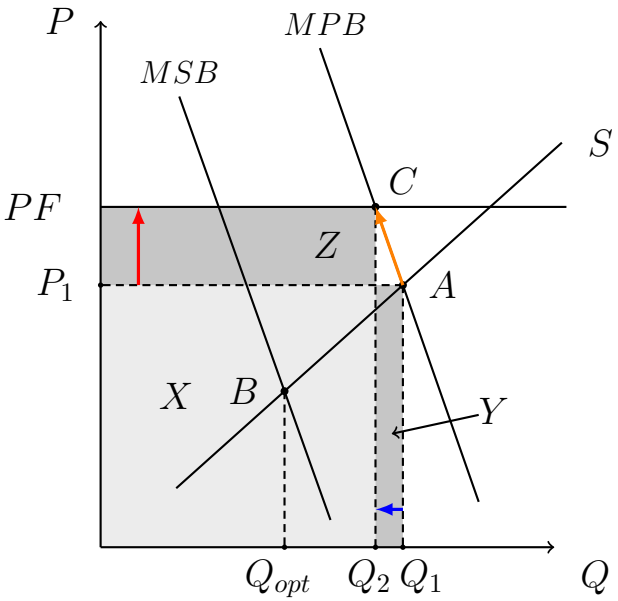

Figure 2: Mechanism (alcohol)

C, along with the quantity demanded shifting to Q_2 and the price rising to PF. The mechanism between alcohol and normal goods are somehow similar; however, since the MSB and MPB curves are very inelastic, we can see that PF is well above the original price at P_1 while the quantity change caused by the alcohol price floor between Q_1 and Q_2 is almost negligible. This matches what is said in the article: "The alcohol floor price completely Gails tot 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). When the price floor added, the total revenue at C is $PF \times Q_2$, which is the sum of the areas of X and Z. The sellers will have a greater total revenue if the price of alcohol is high, because the increase of the revenue is the area of $Y - Z$, which is apparently quite positive since the inelasticity of the MPB curve leads to the minimized area of Z. Moreover, the dealers can have a even higher benefit. Benefit = Revenue − Cost = Revenue − (cost of each alcohol × quantity). Under this reasoning, we know that the cost is decrease since the quantity has fallen, and along with the increasing total revenue, alcohol dealers 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 have the motivation to raise price even without the price

floor act due to the desire for more benefits.

So what should the Australian government do if a simple manipulation of price is useless? It's known for addictive demerit goods, an effective solution is to shift the whole MPB curve towards MSB curve. As presented in Figure 3, we can see the market quantity of alcohol is moving very quickly towards Q_{opt} as the MPB approaches MSB ($Q_1 \rightarrow Q_2 \rightarrow Q_3 \rightarrow \ldots$). The way to shift the MPB curve is to propagate the harm of alcohol to the drinkers themselves, to the people around them (like family and friends), and to the whole society.

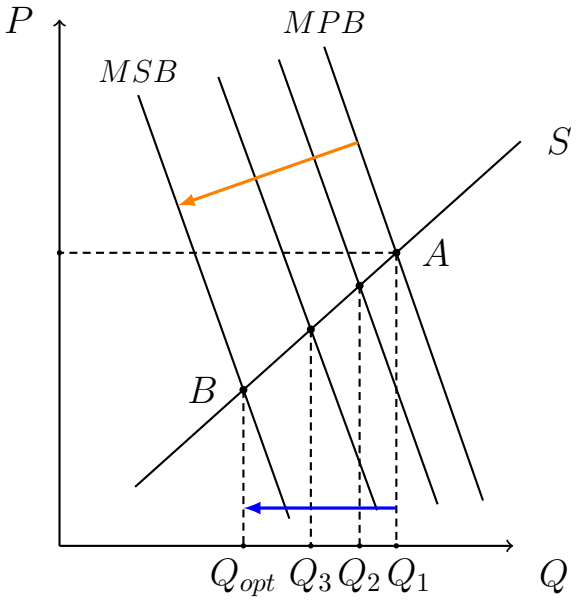

Figure 3: Mechanism (propaganda)

Another possible approach is to set up a national ID system. Every single alcohol purchase needs the buyer's identification information and one person has a purchase limit, for instance, 15 bottles per week. But a potential threat is that the underground alcohol market might develop if this purchase limit is overdone.

In conclusion, the challenge for the Australian government now into find a proper balance and combination between propaganda, purchase limit and other possible solutions to this "obstinate" problem.