2.3 Quantitative Restriction

Governments in high income nations often subsidize agricultural producers. A price support is one public policy intended to increase producer surplus. The unintended consequence of the price support is a large surplus that is costly to either producers, the government, or both. Another policy intended to help producers is a quantitative restriction, also called output control or supply control. The idea of supply control is to decrease output in order to increase the price. The analysis of elasticity in Chapter One demonstrated that this policy would work only if the demand for the good is inelastic.

Figure 2.10 Quantitative Restriction in Wheat Market

A quantitative restriction in the wheat market is shown in Figure 2.10. Wheat output is restricted to Q', resulting in a higher price P'. The welfare analysis of this policy is identical to that of a price support: if wheat output is reduced by an amount that raises
the price to $P'$, the policy is equivalent to Case One of the Price Support analyzed in the previous section. The welfare analysis of the quantitative restriction in Figure 2.10 is:

$$\Delta CS = -B - C,$$
$$\Delta PS = +B - E,$$
$$\Delta SW = -C - E,$$ and
$$DWL = -\Delta SW = C + E.$$

The magnitudes of these welfare changes depend on the elasticities of supply and demand. Note that producers only gain if the demand curve is sufficiently inelastic. If the demand is sufficiently inelastic, then $B > E$, and the change in producer surplus is positive. However, if the demand is sufficiently elastic relative to the elasticity of supply, then $B < E$, and producers lose. This result emphasizes one of the important agricultural policy conclusions of this course: in a global economy, the demand for agricultural goods is elastic due to global competition, and price supports and supply control will hurt producers more than they will help them. The welfare analysis of the quantitative restriction highlights this.

The benefit of the quantitative restriction is the lack of a surplus, which is a costly weakness of price supports. One difficulty with supply control is administration and enforcement. Wheat producers will not be free to choose how much wheat that they produce. Instead, the government will allow only a certain amount of wheat produced by each farmer, called a quota. This can be accomplished through acreage controls also, where wheat producers can only plant a percentage of their total acreage to wheat. This is an imperfect policy, since producers could increase yield per acre on the acres that they are allowed to plant. If the output is restricted, it is difficult to enforce the policy, and if overproduction occurs, it is difficult to remove the surplus.

Although government programs and policies are well intended, they often cause unintended problems. Price supports and quantitative restrictions can help producers, but at the expense of consumers.