

Lecture XIII: Measurement of Welfare Losses and Trade

Charles B. Moss

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Readings

Market Distortions

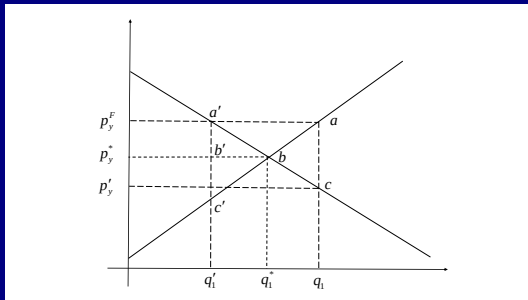
Trade

Readings

- ▶ Becker Lecture 21
- ▶ Friedman & Friedman 2

Market Distortions

- ▶ One of the uses of price theory in general and welfare economics in particular is the analysis of the cost of price distortions.
- ▶ One of the standard price distortions is presented in Figure 1. It involves the establishment of a price floor.



- ▶ This price floor could be established in several ways. One mechanism was the establishment of a price floor using a loan rate for agricultural output.
- ▶ In the late manifestations of this program (the loan deficiency payment – LDP) the government would pay the gap between the loan rate p_y^F and the market price p'_y .
- ▶ The cost of this program to the treasury would be $p_y^F a c p'_y$.
- ▶ Consumers would gain $p_y^* b c p'_y$.

- ▶ Producers would gain $p_y^F abp'_y$.
- ▶ The net social cost (the deadweight loss) would be acb .
- ▶ In total the output increase from q_1^* to q_1 .
- ▶ What are the consequence for the income distribution if this good was a necessity such as food?

Tobacco and Peanut Programs

- ▶ A slightly different way of establishing a price floor was found in the tobacco and peanut programs.
- ▶ In these programs the government issued a quota – the right to sell a given quantity of each product.
- ▶ This shifted the amount offered to the market from q_1^* to q_1' .
- ▶ The quantity of output was allocated to producers by allocation of the quota.
- ▶ The quantity of output was allocated to consumers based on who was willing to pay the price.

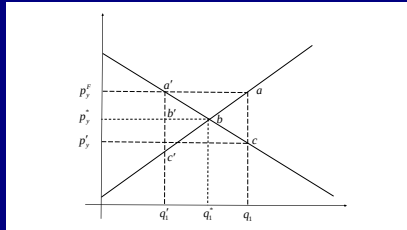
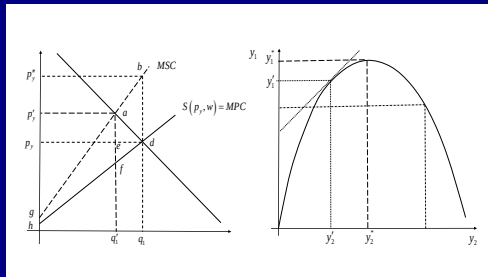


Figure : Economics of a Price Floor

- ▶ Under this model consumer loose $p_y^F a' b p_y^*$.
- ▶ The gain to producers is $p_y^F a' b' p_y^* - b' b c'$.
- ▶ In this case the deadweight loss is $a' b c'$.

- ▶ One of the debates over this program involves the tobacco program.
- ▶ Basically the concept was that tobacco implied an implicit cost (an indirect cost) to the economy through higher medical costs.
- ▶ To the degree that the individual did not pay those costs – say the government paid those costs through Medicare and/or Medicaid – the marginal private cost was not equal to the marginal social cost.
- ▶ Hence, quotas on tobacco that raised the price of smoking corrected an externality.
- ▶ What about peanuts? Does the distortion in peanut consumption have implications for the income distribution?

- ▶ Next, consider the concept of externalities in production introduced in Lecture XI.
- ▶ In our discussion, the firm produced one output that had a market value and another byproduct that had a negative value (smoke).
- ▶ The concept was that the lack of a market cost for smoke led to too much smoke being produced - graphically the disequilibrium as depicted in Figure 3.



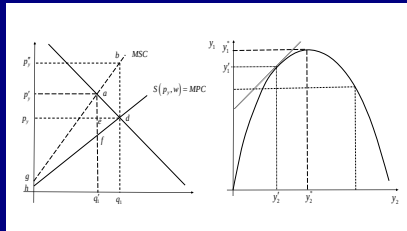


Figure : Development of Externality

- ▶ In this graph there are two cost curves - the marginal social cost curve (MSC) and the marginal private cost curve (MPC or the standard supply curve).
- ▶ Without intervention, the firm produces q_1 at a market price of p_y . However, this cost of production is lower than the social cost (including the cost of the externality).

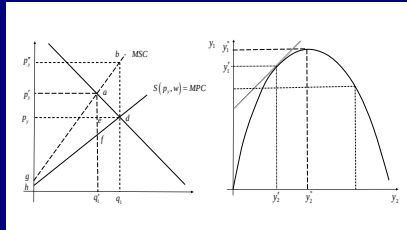


Figure : Development of Externality

- ▶ The optimal social production point is at q'_y at a price of p'_y .
- ▶ The true social cost of producing q_1 is p''_y (point d).
- ▶ The net social cost of producing this level is bda .
- ▶ The consumer gain ade while the producers gain edf .

- ▶ The true social cost of this last increment is $bdea$.
- ▶ There is an equity payment to producers of $abhg$ from individuals damaged by the externality to producers.

- ▶ The basic policy prescription has been to impose a Pigouvian tax on the market output as depicted in Figure 6.
- ▶ In this case the amount of the deadweight loss declines from abc to $ab'c'$.

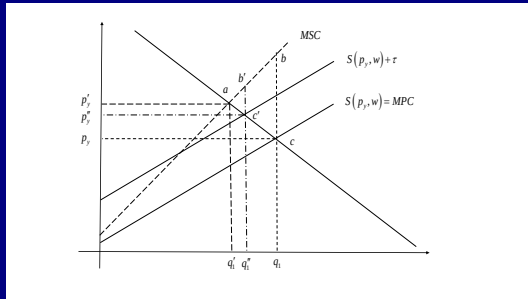


Figure : Pigouvian Tax

Trade

- As a starting point in our discussion of trade, consider the reformulation of our original supply and demand models such that we separate $D_2(p_y, p_A, Y)$ and $S_2(p_y, w)$ into a second market as depicted in Figure 7

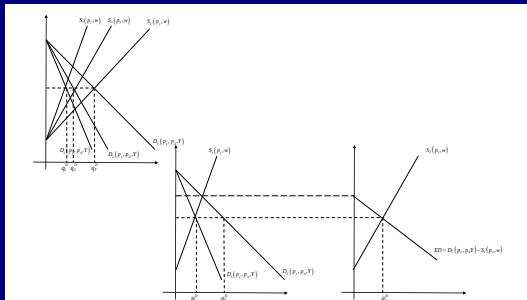


Figure : Separating the Supply and Demand to Separate Markets

- ▶ The real change is the creation of the Excess Demand Curve $ED = D_1(p_y, p_A, Y) - S_1(p_y, w)$.
- ▶ This represents the demand that would exist after the "local" supply at any price.
- ▶ The market in the separated market clears where the quantity supplied in the second market $S_2(p, w)$ equals the excess demand.

- A somewhat more elegant version of this model is the Back-to-Back model presented in Figure 8.

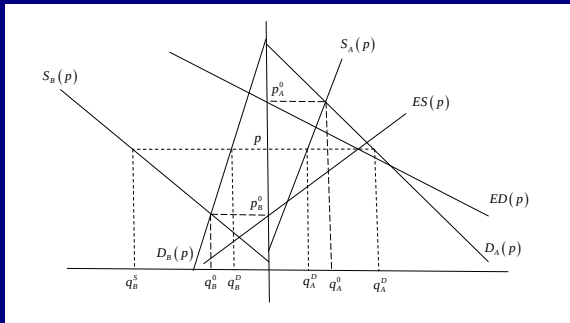


Figure : Back-to-Back Model

- ▶ In this market we have the excess demand from the right market $ED(p) = D_A(p) - S_A(p)$ and an excess supply curve from the left market $ES = S_B(p) - D_B(p)$.
- ▶ The market equilibrium occurs where the excess demand equals the excess supply – p .
- ▶ At this quantity A consumes q_A^D and produces q_A^S . A imports $q_A^D - q_A^S$.
- ▶ B consumes q_B^D and produces q_B^S , exporting $q_B^S - q_B^D$.
- ▶ In equilibrium $q_A^D - q_A^S = q_B^S - q_B^D$.