Notes on Welfare Economics

Here, we highlight the major issues in welfare economics. As you read, understand that the Omniscient Planner (OP) is what I’ve been calling “economic Goddess.” Also, the “compensation criterion” is essentially the notion of missed opportunities for gains from trade that Mankiw mentions on pages 163-164 of the text. Finally, the “rent seekers” mentioned herein are those who stand to gain from some government intervention (domestic producers from a tariff or dairy farmers from a milk price support, for examples). Marrying the intuition and results mentioned in these notes with the diagrams and areas you have produced in notes and on problem sets will enable you to synthesize properly the various policies and activities of governments and markets. Enjoy!
Basics of Welfare Economics:

I thought it would be helpful to review and summarize the basics of this rather involved and important unit. We have learned of the government's role in affecting market outcomes - when it can be justified on positive economic grounds and when it cannot. Remember that it is society's choice (namely, yours and mine) as to whether we're willing to accept some DWL in order to achieve a more equitable distribution of these surplus values. Let us proceed.

We began this unit by introducing the notions of consumer and producer surplus as tools of welfare analysis. These concepts helped us determine the social benefits and social costs associated with any level of market production. These two surpluses combined initially to give us social surplus and a simple definition of efficiency -- any level of output in a competitive market is efficient if it maximizes total social surplus, namely if the MSC=MSB at the equilibrium Q*. Recall, therefore, that these surpluses were defined as follows:

**Consumer Surplus**: difference between what consumers are willing to pay (as noted by the demand curve) and what they actually pay -- the area between the demand curve and the price line.

**Producer Surplus**: difference between what producers receive and the value at which they're willing to sell (as noted by the supply curve) -- the area between the price line and the supply curve.

Once we assume that benefits and costs can be measured by the demand and supply curves, we can see whether the free market equilibrium indeed maximizes total social surplus. Any market in equilibrium will distribute social surplus between consumers and producers, but the distribution depends on the shapes of the curves. We did, however, show that the Omniscient Planner (OP) acting as economic dictator would choose just the level of output that the market produces in equilibrium. This important result we called the Invisible Hand Theorem -- the free market equilibrium will be just that same level of output that an OP would choose when his/her goal is to maximize total SS. Individuals acting in their own best interest can back out the social optimum. Notice we have said nothing about the distribution of the social surplus, nor have we allowed any of the assumptions of perfect competition to be violated. The Invisible Hand holds only in perfectly competitive markets, whose characteristics are:

**Numerous Participants**: no one is large enough to affect market price, i.e. no individual consumer or producer has "market power."

**Homogeneous Products**: we must define our market to be such that all units of the good are perfect substitutes, i.e. not the "car"
market, but the "small car" market.

**Freedom of Entry and Exit:** no barriers to entry; firms can enter a market if they find it desirable and cease production if not.

**Perfect Information:** consumers and producers know the true benefits and costs of different units of output. Insurance markets and health care markets in general may not be truly competitive because imperfect information exists.

**Private Property Rights:** each good has clearly defined and protected property rights. Externalities violate this assumption by failing to assign the rights to an important "good" that is associated with that market.

With these notions, we began the somewhat interesting task of analyzing the welfare effects of certain government policies. I shall not reproduce all of the graphs and charts (you can find them in the text or in your notes), but I shall rather give a short summary of the characteristics of each policy. You should keep the following questions in mind:

1. Who wins and who loses as a result of the policy?
2. Who are the "rent seekers"? (usually the winners from (1))
3. Are there any transfers of surplus?
4. What happens to total social surplus and therefore to DWL?

**Price Ceiling**

Equilibrium quantity reduced, causing DWL and a reduction in total social surplus. Units for which the benefit to society exceeds the cost are NOT produced. Producers lose, consumers both win and lose, and producers transfer surplus to the "lucky" consumers who get the reduced amount of the good. Consumers are the "rent seekers," although some of them will lose because the market output is reduced. Also, with price ceilings, you have the unwanted side effects of black markets, queueing or rationing costs, and increased levels of discrimination because a shortage now exists at the legal price. (Exercise: can you draw a diagram and label CS, PS, etc. for a price ceiling in which a perfect black market develops?)

**Price Floor**

*Case I:* Gov't. buys surplus - producers win, consumers lose, SS falls, and DWL is incurred because units are produced for which the cost to society exceeds the benefit. Consumers transfer surplus to producers as does the government, but government expenditure and potential storage costs cause more DWL than if they didn't buy the surplus.

*Case II:* Gov't. doesn't buy surplus - consumers still lose, some producers win and some lose. Consumers transfer some surplus to the "lucky" producers, but overall SS declines. Also, we could
have a black market with some suppliers willing to sell for less than the legal floor (recall my example of immigrant workers willing to work for less than minimum wage).

**Taxes**

Consumers and producers both lose and both transfer surplus to the government. SS is reduced, however, as units of the good for which benefits exceed costs are NOT produced. Although the government does take in revenue, it is not enough to make up for the losses to consumers and producers (recall my use of the term "excess burden" here). The more inelastic is one of the curves, however, the less DWL associated with taxes. Remember, DWL is incurred by moving Q away from its efficient level. Also, taxes avoid black markets and the other unwanted side effects of price controls. Below, as promised, is a graphical portrayal of how DWL is minimized if taxes occur in a market with an inelastic demand or supply curve:

**Subsidies**

Consumers and producers both win and the government transfers resources to both. DWL is incurred, however, because units of the good for which costs exceed benefits ARE produced. The cost to the government exceeds the gains to both consumers and producers, causing an overall reduction in SS. Below, just as another example, is a subsidy to producers:
Externalities

Strictly speaking, an externality is a cost or benefit to someone for which no compensation is given by the market. Negative externalities mean someone is being harmed and not being compensated for the harm, and positive externalities mean someone is benefitting and not compensating the source of the benefit. Graphically, we know the D and S curves represent MPB and MPC, but the kicker in externalities is that they no longer represent MSB and MSC. Here, a few rules will help:

General Rule #1: Markets with negative externalities will overproduce the good. Markets with positive externalities will underproduce the good.

General Rule #2: If the externality is associated with the production of the good (pollution is the best example), MSC differs from MPC (Supply curve). If the externality is associated with the consumption of the good (alcohol, education), MSB differs from MPB (Demand curve).

In analyzing externalities and their effects, I suggested that you ask yourself (and hopefully answer) four questions about the problem:

1. What is the source of the externality?
2. Which value differs from its private counterpart - MSB or MSC?
3. Identify Q(mkt), Q(eff), and DWL.
4. How and why do the market and the OP conflict?

Internalizing the externality involves a government action that forces market participants to take into account the external costs or benefits of their actions. If you internalize the source of the inefficiency, it can be eliminated. If the externality has a constant per unit cost or benefit (unlikely, but a simple assumption), taxes or subsidies equal to this per unit externality
cost or benefit will force the market to the SS maximizing level of output.

Externalities create a positive role for government intervention. In the cases of price controls, taxes, and subsidies, government policy reduced total SS. Here, the government can actually increase total SS by taxing or subsidizing. The market outcome is inefficient because the property rights to a valuable resource (clean air, safe roads with no drunk drivers) are NOT clearly defined. The government can basically assume the rights to that resource by creating a market for it through the tax or subsidy. Notice that the Invisible Hand breaks down here because the OP would not choose the free market level of output. Make sure you can identify graphically the DWL and the areas of externality cost or benefit at any quantity.

Trade

We began with the standard model of two goods, two countries, and one factor of production, labor. We showed that absolute advantage (higher productivity in any market) was irrelevant to trade. It is comparative advantage (lower Marginal Opportunity Cost) that will set up the case for mutually advantageous, mutually voluntary trade. The gains from trade here result from countries' being able to "buy" one of the goods for less than it can if it had to produce them both at home. The terms of trade will rest somewhere between the two M.O.C.'s of the countries, because otherwise it would not benefit both countries. Not surprisingly, countries by this theory export goods in which they have comparative advantage and import goods in which they don't. We then began to look at the welfare effects of international trade and protection.

Imports

Whether we take the small country assumption or not, the presence of imports will lower the price in equilibrium, increase CS, decrease PS, and increase total SS. Trade will make the country better off, although it will hurt domestic producers. They in essence transfer some of their surplus to consumers. The small country assumption means that the country is too small to affect the world price and so must take it as given. In the case of imports, it faces a horizontal supply curve of imports at a world price below what it would be in equilibrium without trade.

Exports

The effects on SS are basically similar but with different results for the domestic consumers and producers. The new price will be higher than the equilibrium price without trade as now domestic consumers must compete with foreign consumers for the good. CS falls, PS increases, and total SS increases. Consumers transfer some surplus to producers, but there are still gains from trade. The small country assumption will mean that the country faces a horizontal
demand curve for exports at the world price, which in this case exceeds the domestic equilibrium price.

Tariffs

Tariffs are taxes on imports and are supported, not surprisingly, by domestic producers. They raise the equilibrium price, decrease CS, increase PS, increase GR, but reduce total SS much in the same way as taxes did before. The basic intuition for the DWL here is that some units of the good are produced domestically using more resources than would be given up if we just buy it from foreigners. Also, consumers are forced to pay the new price when they could have gotten more at a lower price if the old trade price were still relevant. Thus, the DWL has both a production and a consumption aspect.

Market Intervention and Income Distribution

Here, we talked a little bit about what economists consider when looking at distributional issues and efficiency. We saw that only in the case of externalities did government intervention increase total SS. Still, efficiency may not be the only goal of government policy. One concept used in the analysis was the compensation criterion:

Compensation Criterion: the dollar value of the gains to the "winners" exceeds the dollar loss to the "losers" so that theoretically, the winners could compensate the losers and everybody would be better off.

Moving to a more efficient equilibrium is an action that will always satisfy the compensation criterion, but we must not forget equity. Recall the fact that consumers and producers could get together and bribe the government to repeal a tax and everyone would be better off. Also, domestic consumers could pay producers and the government to repeal a tariff and make everyone better off. Similarly, removing a price ceiling would benefit the winners more than it would hurt the losers.

However, as a practical point you should be aware that just distributions rarely take place. The main point is to ask yourself how efficient it is to use goods markets as a tool to redistribute income. Economists generally prefer looking at overall income inequalities and acting accordingly rather than intervening in each and every goods market where substantial distributional problems exist. Also, you should be aware that special interest groups have a knack for protecting themselves. Are protectionist measures in the car industry really increasing equity? Probably not, as auto workers tend to be paid above average wages. Also, does rent control really enable the needy to get housing? If we have nice black markets, probably not. Moral: EQUITY matters tremendously, and you should always keep a keen eye on the proposed intent and consequences of government intervention. Bye for now!