

Prices and Externalities

1. Trade
 - a. Voluntary trade has the potential to make all partners in the trade better off.
 - i. People would not trade if it made them worse off.
 - b. If trade actually happens, somebody must be better off.
 - c. Trade opens the door to (Pareto) improvements.
 - d. If (Pareto) improvements are available, and trade is possible, then voluntary trade will tend to exploit that opportunity for improvement.
2. Repeated trade opens the door to achieving efficiency
 - a. There is no possibility for voluntary trade if there are no (Pareto) improvements available.
 - i. If there are no pareto improvements, then trade would necessarily make somebody worse off.
 - b. So, trade will continue until there is no possibility for further (pareto) improvements. This characterises efficiency.
3. This is a nice idea, and it can be shown that voluntary trade really does result in efficiency if the 'if conditions' of the first fundamental theorem are true.
4. Prices
 - a. Why can we speak of 'a' price for a good? Couldn't there be many prices for a good?
 - i. The buyers would all want the lowest price, and the sellers would all want the highest price.
 - ii. If buyers and sellers can choose who they trade with, they'll choose the ones that are best for them.
 - iii. The sellers will choose the buyer with the highest price (willingness to pay); the buyers will choose the seller with the lowest price.
 - iv. Only buyers who match the highest-paying buyers' price will be able to trade; only sellers who match the lowest-charging seller's price will be able to trade.
 - b. One of the conditions of the first fundamental theorem is that no player has any power on the price. This condition is actually what allows us to have 'a' price (rather than many prices) for a particular good.
 - c. The price conveys information
 - i. Since trade is voluntary, the transaction price conveys a lower bound on the 'worth' of the good to each and every person who bought it. Also, since each buyer is allowed to choose how much to buy, the transaction price conveys the exact 'worth' to each buyer of the last unit that s/he bought.
 - ii. Likewise, since trade is voluntary, the transaction price conveys an upper bound on the cost (to create or to sacrifice) the good to each and every person who sold it. Also, since each seller is allowed to choose how much to sell the transaction price conveys the exact cost to each seller of the last unit that s/he sold.
 - iii. Given the conditions for the first theorem, the market price thus equates the value to the buyer with the cost to the seller of the last good bought or

sold by each buyer or seller.

- iv. This equality is what generates efficiency.
 - (1) if the equality does not hold, you get inefficiency. imagine that we had done some trade and that there was some buyer out there who felt that one more unit of the good would be 'worth' \$5 to them, and that there was a seller out there who felt that one more unit of the good would cost them only \$4. Then, there would be incentive to trade another unit: both parties would have something to gain, and an improvement is at hand.
 - (2) could you have the opposite, where a buyer feels that the last unit they bought was only worth \$4, and there is a seller for whom it costs \$5? Then, the gains from trade would be moving that good from buyer to the seller—they change identities.
- v. Many inefficiencies can be thought of as situations where the market price is 'wrong' in some way.

5. Externalities

- a. Externalities are effects that one agent has on another that are external to the market.
 - i. Of course, we affect one another when we trade: i get something from you, you give it to me, i give you money for it. However, this stuff is internal to the market.
 - ii. What if i get something from you, you give it to me, i give you money, and in the process, some 3rd party is injured. This latter effect was external to the market that connects you and me, and is thus an externality.
- b. They can be positive or negative.
 - i. Classic negative externality is pollution.
 - ii. I buy gas from the gas station (marketed), and drive to work, poisoning residents of the Fraser Valley (externality).
 - iii. Classic positive externality is literacy.
 - iv. If you are literate, you raise the productivity of everyone around you. But, they don't pay you to be literate.
 - v. Another positive externality is a nice front yard.
- c. We may think of externalities as missing markets.
 - i. If there were a market for the effect under consideration, then there is no externality.
 - ii. Missing market is the lack of a market for pollution reduction that residents of Abbotsford can buy which would curtail my driving.
 - iii. Missing market for neighbours paying each other to have nice gardens.
 - iv. You can use the missing market to imagine the pareto improvement that might be available, and consequently to see exactly why the situation with the externality is inefficient.
 - v. Pareto improvement: Abbotsfordois each pay each Vancouver driver \$10 to drive 10% less.
 - (1) we know that the Vancouverites are driving too much, because they don't pay any attention to the health of the Abbotfordois.

6. Externality taxes
 - a. With a negative externality, the market price is too low.
 - b. One possibility is to introduce the missing market.
 - c. But, perhaps it was missing for a reason, eg too complicated to create.
 - d. The government can 'fake it' for us: tax the Vancouver drivers so that they drive less.
 - e. Who gets the revenue? From the point of view of efficiency, this doesn't matter. Depends on who owns the air: is air supposed to be clean or dirty. If it is supposed to be clean, then effectively, the abbotsfordois own it, and the Vancouverites must pay to dirty it. If it is supposed to be dirty, then effectively the Vancouverites own it, and the Abbotsfordois must pay them to keep it clean.
Either way, the price of driving goes up, and the amount of driving goes down.
7. Government could impose a rule, like, 'don't drive', but imposing a tax is easier.