

Module 3

Lecture 26

Topic

3.11 Information of critique of FFT

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- This section argues that the First Fundamental Theorem (FFT) asserting the efficiency of competitive market is fundamentally flawed.
- FFT provides the intellectual foundations of our belief in market economics.
- But FFT crucially depends on assumptions which do not necessarily hold true in modern industrial economy.
- In a standard exposition of FFT some assumptions are made explicitly but some are assumed as if they are generally true.
- However, recent work has shown that competitive market- equilibrium may be characterized by demand exceeding supply (credit rationing; Stieglitz Weiss 1981), or supply exceeding demand (unemployment with efficiency wage; Shapiro Stieglitz 1984)
- Also, linear price (i.e. fixed price per unit) is not a valid assumption in presence of information asymmetry.
- FFT assumes that information is fixed and there is a complete set of risk markets. Whenever these conditions are not met government intervenes.
- What is the meaning of fixed information? It means that information set is unaffected by any action taken by any individual, or for that matter unaffected by any variable (e.g. price) that is affected by collective or individual action.
- If these conditions are not satisfied government intervention can be Pareto improving which implies that market is not the best way of allocating resources.
- Arrow and Debreu's contribution was to find the set of assumptions under which the invisible hand mechanism suggested by Adam Smith

Externality effects in the presence of imperfect info and incomplete market

- The essential insight of Greenwald and Stiglitz was that when markets are incomplete and information is imperfect actions taken by individuals can have externality like effects. Hence, FFT does not hold even in the absence of more standard market failure cases such as pollution.

Examples:

1. *Incomplete risk market:*

- Suppose there are many states of nature but only one risky asset - apple tree
- Number of apple tree – stochastically determines the number of apples produced next year.
- This in turn determines the price and profitability of owning an apple tree in each state of the nature.
- Hence if an individual plants more apple trees the number of apple trees change which leads to a change in the probability distribution of price and profitability itself. The effect of each individual's action on probability distribution can be viewed as an externality.

2. *Variable labor quality: (Adverse selection)*

- Two types of labor High (H) and Low (L).
- Firm may know the distribution of quality but not the quality of individual labor. They may also know how the quality changes with wage.
- Demand for labor depends on quality.
- But individual worker doesn't care about the effect of his/her quality on the average quality while making the supply decision. Hence, if low quality laborers supply more labor (at any given wage) it will lower the profitability of the firm.
- Hence their labor supply decision has an externality effect on firm. Government has a role to play here. One possibility is that the government subsidize or tax the commodities that have differential impact on the labor supply of high and low quality labor.

3. *Incentive problem: (Moral Hazard)*

- Insurance is a classic case of Moral Hazard problem.
- If each insured individuals not careful once he/she is insured then general premium will go up.
- Government can devise important laws in this case.
- For example suppose the insured event is fire and one major cause of fire is smoking in the bed. Hence, tax on smoking may reduce the chance of accident. In principle, the efficiency cost of taxes may be more than offset by the benefit from reduced moral hazard problem.

Powers of the government

- Important question to ask: How does government differ from other economic organizations? Why can it do things that other cannot?
- Stiglitz argued that the government's power of compulsion makes it different.
- Government can force economic agents to do things it considers desirable. In a sense the government can change the rules of the game (institutions) which private agents cannot.

Implications of Greenwald –Stieglitz theorem

- Identify cases where government intervention can enhance welfare.
- It shows that it may not be possible to efficiently allocate resources in a decentralized fashion (as it is done by the market).
- This theorem removes the presumptions that markets are necessarily the most efficient way of resource allocation.
- However, it does not generally prescribe that government is the best way to allocate resources. Neither market nor government can be a blanket answer to the problem of resource allocation.

Reasons Why Market Economies with Imperfect Information may not be Pareto Efficient?

- I. Incompleteness of market
- II. Absence of competition
- III. Markets create noise

Incompleteness of market: It is important to have a complete set of markets including a complete set of risk and future markets.

- The reasons why completeness of market may not be achieved:

Transaction cost:

- Incompleteness of market can be explained by transaction costs -- an important component of which is information cost.
- It's impossible to have market for set of all future contingencies – it's too big and information required for this is impossible to process.

a. The assumptions of complete markets and competitive markets are also inconsistent.

- High dimensionality of the states of nature implies that complete set of securities cannot exist. There cannot be securities which will pay you for the realization of all possible states. For example, we do not have securities for all possible states of weather.
- High dimensionality of product space- complete set of market cannot exist. And if they exists perfect competition cannot prevail.
- In Arrow Debrew's formulation a commodity at different states are different commodities.
- Each individual is different and so is the quality of labor that they supply. Hence, for the market system to be really complete there has to be one market for each person's labor.
- Under this system Paul Samuelson's labor will be a different market from Stiglitz's labor market.
- But then in such a market Samuelson or Stiglitz will be monopolists invalidating the assumption of perfect competition. Hence, the complete market is not consistent with competitive market.

b. Asymmetric information and complete markets

- Because of possible cheating market may not exist. Equity is a better way to share risk. But equity markets are notoriously imperfect- only a small fraction of new investment in provided by equity.
- The market cannot tell whether the reason the firm is selling shares is that its shares are overpriced, that its bankers refuse to lend it money, or that the firm's owners recognize that equity is a more effective way of distributing risk.

c. Moral Hazard problem.

Insurance firms cannot observe all the actions of policy buyers after they buy policies. This creates moral hazard problem and this leads to limited insurance.

This is another reason why we may not have complete market.

d. Inconsistency between assumptions of perfect information and complete markets

Prices in different markets convey information.

If there were a complete set of markets, information would be so well disseminated that investors would have no incentives to gather information conveyed through price.

e. Conceptual impossibility of a complete set of markets

- It is difficult to conceive of markets for contingencies that have not yet been conceived of.
- For example, there could not be a market associated with the risk associated with laser before the underlying principles are developed.

Absence of competition

- Price taking competition is difficult to find mostly we find monopolistic competition
- Strong competition may push existing firm out of business in monopolistic competition.

Markets Create Noise

- Firms may create noise to disturb information flow.
- If it's a kinked demand curve it pays for the firm to \uparrow or \downarrow price.
- Hence, firms may do temporary price reductions (sales). This may create dispersion in prices.
- By reducing price low price firms can gather larger customer base while high price firms can also sustain because they serve only the section of consumers who have high search costs.
- Hence, it may happen (because of search cost) that percentage increase in sales from reduction in price is much higher than percentage decrease in sales from increasing price. In this case the demand curve is kinked which allows the firms to make positive profit.
- The message is that because of search costs firms may have incentive to temporarily changing price creating a noise in the market. Such noise is not consistent with the perfectly competitive market.