Welfare dynamics based on a new concept of inefficient equilibrium

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Abstract

This article has developed a new model of welfare dynamics under imperfect information or imperfect competition by introducing a new concept of "**inefficient equilibrium**". If a country suffers from poverty, then the population of the country can be divided into two groups. For one group the fundamental welfare theorems are valid and for the other group the welfare is yet to achieve. The first group establishes an inefficient equilibrium with the second group. The institutions of an economy play very important role when these two groups interact with each other. This concept narrowly defines where government should work. This model is enhanced to describe a new '**Market Model of Welfare Dynamics**' that our market is not uniform but distributed in layers of energy states. The probability of achieving Pareto efficiency decreases down along the market energy states. At the end, another new concept '**Market Loop**' is defined to shed light on recent financial crisis and recession.

Introduction

Development is a progressive process however the benefits of development do not touch many people whose contributions for development are no less than the contributions of the others. Welfare economics defined by the too generalized term 'Pareto efficiency' ignores those people. Theoretically 'Pareto efficiency' is sufficient condition to describe welfare performance of an economy although it has little empirical relevance. Currently there have been two streams of thoughts about welfare economics. In one stream, the economists have focused on the theoretical elegance of the standard welfare theorems and in the other, the economists have denied the unrealistic set of assumptions behind the theorems but tried to work around them to develop a complementary model. In this article,

a new welfare model under imperfect information or imperfect competition is defied in section three by introducing a new concept of "inefficient equilibrium" in section two. There is a tendency in every economy that part of its population, namely Pareto Efficient Coalition (PEC) may establish an inefficient equilibrium with the remaining population, namely Pareto Improvement Space (PIS) to ensure getting the benefits of economic growth more than that of efficient allocation of resources. The new concept of inefficient equilibrium tells about how the PEC and the PIS co-exist in an economy.

The concept of inefficient equilibrium is also a meeting point of neoclassical economics and institutional economics since within the PEC, institutions do not matter much but when the PEC and the PIS interacts with each other, institution matters very much. "Neoclassical economics is concerned with the operation of markets and on the other hand, new institutional economics is concerned with how markets develop (North, 1993)". Ideally a dynamic market is the reflection of well functioning institutions. In view of this model, neoclassical economists may argue that the market has the potential to break the inefficiency barrier. On the other hand, institutional economists may argue that the market needs to be energized and guided by institutions to achieve that. The concept of market dynamics is described in section four.

Apart from the Pareto criterion, the issues concerning welfare were worked out earlier using the theories of compensation tests by Kaldor (1939) and Hick (1940) but those encountered overwhelming objections (Ng, 1984). Yew-Kwang Ng (1984) defined the term 'quasi-Pareto improvement', 'in which for all levels of income, the average households were made better off but the average households at any given level of income might be worse off'. This model in fact, assumes 'quasi-Pareto improvement' exists in every economic activity in various extents. It can explain the controversy of the first fundamental welfare theorem that why our resources are centripetally agglomerated while market has become more liberalized and more competitive. Even the lump-sum allocation from the government described in the second fundamental welfare theorem can not counteract this tendency. It is not plausible that the open and free market will make any better off the whole population of this world in terms of human value but will certainly make better off a part of the world population in terms of resources.

In real life economy, the term welfare means subsidy, cash benefits, free education or healthcare for the low income people provided by the government, which is quite opposite to the lump-sum allocation criteria described in the second welfare theorem. This article defines that the market is not uniformly distributed in an economy rather it is distributed in layers of centrifugally descending energy states. The market energy is defined here as the ability of a market to convert economic value into human value and human cost into economic cost. The probability of achieving Pareto efficiency decreases down along the market energy states. This article also shed light on why poor financial decisions of few investors may cause worldwide recession. A more sustainable solution of the financial crisis lies not in market biased Pareto improvement measures but in steady and aggressive unbiased Pareto improvement measures for the people positioned on the lower market energy states.

A New Inefficient Equilibrium

Much of the debates in economic literatures about welfare economics or general equilibrium theories are concerning their rigid assumption of 'perfect information'. What does the term 'perfect information' mean? Let us begin with an example. X and Y are two individuals and they may choose either 'High' or 'Low' strategy to share information with each other. Let f is the payoff profiles of respective strategies. If X takes 'High' strategy to share information with Y and Y takes conservative ('Low') strategy, then the corresponding payoffs of X and Y will be $f(X_H)$ and $f(Y_L)$ respectively. If we assume that they have perfect information about the all possibilities of the game, then each of them will expect that that his opponent will follow the same strategy. The most likely outcome of this game will be two Nash equilibriums (Nash, 1951) where they choose the same combinations of strategies either (high, high) or (low, low) shown in Figure 01 and no unilateral deviation in strategy by X or Y is profitable. In this situation, theoretically the payoffs are the same for X and Y like $f(X_H) = f(Y_H)$ and $f(X_L) = f(Y_L)$. We may apply this outcome to our real world, where X is an employer and Y represents a worker. If the employer and the worker share information equally with each other, the worker will have to be paid equal to his contribution for whatever output he or she produce. If we consider that everyone wants to maximize his or her payoffs, then this game will reach to equilibrium

at (high, high). In this way we cannot explain how the capitalists are created in the world or how they have gathered their capitals from their once zero ownership (technology is not considered). Similarly the "perfect information" concept fails to explain the empirical behaviors of an economy as a whole.

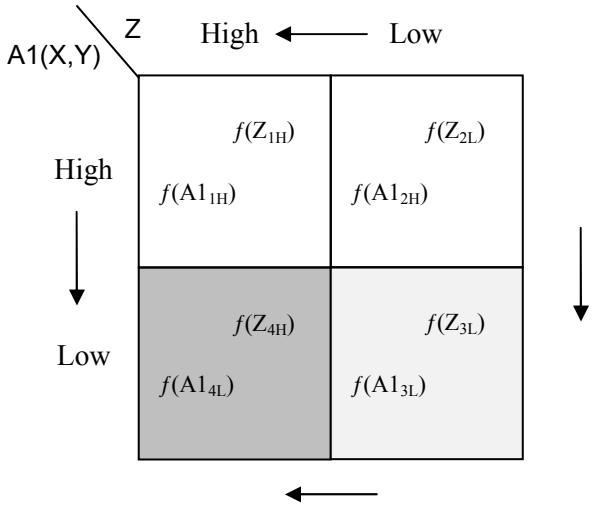

Figure 01: Inefficient Equilibrium

Without much thinking, it can be said that if X and Y both are business partners, then the (high, high) outcome will be realistic. Even if X is employer and Y is employee and their objective is to grow from a reference position, this outcome will also be realistic. In our real world, although individuals share information in any combination between low to high but from an individual perspective, the outcome of information sharing can be either win-win or win-lose. In case of win-win outcome, we may abstract the players of the game as a coalition. The individuals in a coalition are assumed to share the same level of information with each other and hold the same level of rationality.

The term information asymmetry used in micro-economics that explains a situation of a transaction where one party has superior information compared to another. In our previous example, it can be considered that X and Y constitute a coalition **A1** to win higher payoff than any other individual outside their coalition**.** If there is another player Z comes to play the game, he will have two options to choose from. They are, either is to merge with coalition **A1** or is to compete with individuals X and Y. The possibility of merging depends on whether the win-win characteristic of coalition **A1** will be undistorted after the merging or not. A merging requires equal sharing of

information that eventually leads to efficient equilibrium. In case of efficient equilibrium, they will have Pareto efficient sharing of the output they produce together. For simplicity, let us assume that they have started with equal amount of property right or capital and therefore, they will have equal amount of payoff, say 'M'. Otherwise, X and Y will try to dominate over Z in a way that they will be tuned up to share always 'Low' information with Z. As a result whatever strategy Z takes (high or low), X or Y will receive higher payoff than that of Z. That is, $f(X_L)$ or $f(Y_L) > f(Z_H)$ and $f(X_L)$ or $f(Y_L) > f(Z_L)$. If the payoff of Z is locally efficient as $f(Z_H)$ is always greater than $f(Z_L)$, this game will reach equilibrium at **A1**= 'Low' and Z= 'High' position ($f(X_L)$ or $f(Y_L) > f(Z_H)$). This will be an inefficient equilibrium in general since Z will always receive lower payoff than that of X or Y. More importantly, X and Y will receive higher payoff than that would be in case of efficient equilibrium. That is, $f(X_L)$ or $f(Y_L) > M$. On the other hand, Z will receive lower payoff than that would be in case of efficient equilibrium. That is, $f(Z_H) < M$. The difference $M - f(Z_H)$ will go to the coalition A1, which will be distributed between X and Y. In this example, X and Y will not allow many individuals to join in their coalition but will continue to playing the similar game with more and more individuals on the other side. This is how, a capitalist economy works and resources are agglomerated in the hand of few people. If there is another coalition **A2**, then **A1** and **A2** will compete with each other and as a result the individuals outside the coalitions will be benefited by getting higher payoff than before. If there is perfect competition, they will get the highest benefit. That is what said by the first law of fundamental welfare theorem. Unfortunately, before reaching to perfect competition, the game between **A2** and **A1** may end up in an inefficient equilibrium where one of them will dominate over or bias the other and they will form a biasing chain leaving the individuals outside the coalitions at the bottom.

The above example has similarity with the example of sharecropping described as principal-agent problem by Greenwald and Stiglitz (1974b, 1986). They showed sharecropping was locally efficient equilibrium and quite different from general equilibrium model. The characteristics of inefficient equilibrium under asymmetric information also have much similarity with principal-agent problem since both are locally efficient but globally inefficient equilibriums. However, in principal agent problem, the agents and the principals are complements to each others. The agents are given incentives

and they are motivated to comply with the principals' objectives. On the other hand, in this model of inefficient equilibrium, every individual is substitute to each other. Depending on level of information sharing, some of them form a coalition to achieve higher payoff than the others. The above example also shows that the problem of information asymmetry has evolved from the time dimension that economists often forget to consider. We have assumed that X and Y have superior information compared to Z since Z appears late to play this game. The individuals who are already in a coalition and those who are not are probabilistically apart from time perspective. If Z had appeared earlier than Y, then Z would have very high probability of taking the position of Y and vice versa. In summary, the concept of inefficient equilibrium can be applied for any number of individuals, even for the population of a country or of the whole word wherever information sharing strategies of few individuals shapes and limits actions and behaviors of many individuals.

A New Welfare Model

In this article, we will follow Arrow (1964) and Debreu (1959) and many other neoclassical economists to make micro-like macro-economics[1]. Macro economics has evolved from the basic problem of scarce resource. Information about scarcity deals with the problems of scarce resource. The inefficient equilibrium under information asymmetry can also be extended to model our macro economic problems based on scarce resources. For example, information about scarcity explains the situation why employed workers receive high wages while identical individuals are unemployed[2]. We may conclude that the employed workers establish an inefficient equilibrium with the unemployed individuals since the economy has certain capacity of employment under certain conditions. When the conditions will change, the employment capacity of the economy will also change. This concept of inefficient equilibrium can be applied to develop a more realistic model of economic welfare.

The Fundamental Theorems of Welfare Economics lies with neoclassical economics on which the mainstream economists are divided into two groups. One group of the economists is stick with

[1] 'This appeared as point of debate whether we want to make micro-like macro or a macro-like micro' (Stiglitz, 1991).
[2] Stiglitz (2000) cited this example to explain information about scarcity.

restrictive assumptions of neoclassical economics, particularly of general equilibrium theory formalized by Arrow (1964) and Debreu (1959). The other group is skeptical about the neoclassical approach for its normative bias and unrealistic set of assumptions. I would like to call the first group as the optimists and the second group as the pessimists. The optimistic assumptions are used as foundation of general equilibrium theory like perfect information, complete set of markets, no enforcement problem and perfect competition. The optimists are induced by Adam Smith's invisible hand proposition and perhaps they believe in 'the market is always right' principles. On the other hand, the pessimistic assumptions are just negating the optimistic assumptions like imperfect information, incomplete set of markets, imperfect competition and so on. The pessimists believe that the invisible hand is palsied or simply is not there (Stiglitz, 1991). However, they can not tell how we can measure the extent of imperfections or the extent up to which the imperfections affect the general equilibrium or the Pareto efficiency.

The first welfare theorem states that 'under certain conditions (optimistic) any competitive equilibrium is Pareto efficient'. The important assumptions include here complete market and price-taking behavior of market. This theorem is considered as analytical confirmation of Adam Smith's invisible hand hypothesis. However, Stiglitz (1991) argued "Smith was undoubtedly right that individuals' pursuit of their private interest lead to social consequences ….but whether it leads to (Pareto) efficient outcomes is a far different manner". On the other hand, Greenwald-Stiglitz (1986) showed that there would be (constrained) Pareto inefficiency of market economics with imperfect information and incomplete market. The underlying price assumption of the welfare theorems persuades the economists to become very much concerned about the efficiency properties of market. However, as Wicksell (1958) mentioned "Pareto efficiency and social optimum (welfare) need not be the same". The economic literatures on welfare still have both the views, optimistic and pessimistic; they revolve around the validity of Pareto efficiency with respect to standard set of the Arrow-Debreu assumptions although empirical linkage of Pareto efficiency is matter of interpretation and judgment. They could not add much value toward solutions of our core economic problems like unemployment, inequality or poverty.

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The second fundamental welfare theorem says that 'under more stringent conditions (optimistic) every Pareto-optimal allocation can be sustainable by a competitive equilibrium after a suitable redistribution of initial endowments'. It necessitates involvement of government to vitalize competitive equilibrium by means of lump-sum taxes and subsidies. It says that we can separate out issues about efficiencies from the issues of equity although in real life we can not (Stiglitz, 1991). It also says that instead of focusing lots of externalities and factors, only limited government intervention can restore market failure and uphold market power. It ignores the history of market formation and institutional involvement where 'invisible hand' was crippled. For example, we see few individuals already have accumulated too much wealth and have got control of the market. They have the power even to influence the government to protect and uphold their interest. The government can only impose tax on them for a current year's earning. In fact, this theorem has no empirical relevance other than prohibiting government from owning public goods or providing services that have price impacts on market but eventually let the wealthy people monopolize the market. In this context, the pessimists are right that 'laissez-faire result in common bad rather than common good produces an intolerable degree of inequality' (Feldman, 1987).

Apart from these debates, I would like to take position between the pessimists and the optimists. Stiglitz (1991) rightly mentioned "the welfare theorems are just that: theorems, the conclusions of which follow inevitably from assumptions". We see that the more global market is liberalized by means of free trade or open market, the more money is agglomerated in hands of fewer people leaving more and more people straggling with hunger and poverty. As Yunus (2006) mentioned "ninety four percent of the world income goes to 40 percent of the population while sixty percent of people live on only 6 per cent of world income. Half of the world population lives on two dollars a day. Over one billion people live on less than a dollar a day". As also Feldman (1987) commented, "Some people are endowed with resources that make them rich, while others, through no fault of their own, are without". The world has now two kinds of people. One is riding over the benefits of development or growth and another is receding in the race and stranded in spiral of hardships. In this case, it can be said that the people of the first kind establish an inefficient equilibrium with the second group as described in the

previous section to achieve more benefits of economic growth than that of efficient equilibrium The people of the second kind receive benefits less than that of inefficient equilibrium.

The neoclassical assumptions are unrealistic for aggregation of the whole population of an economy. However, they may be valid for part of the population of an economy where they have win-win relationship to share the outcomes. This part of population can be abstracted as a coalition. A coalition is valid as long as there is no conflict among the individuals to achieve their utility maximization goals. Every individual in a coalition can be assumed to share the same level of information. The assumptions concerning information have very important links with the other key assumptions in the mainstream economic theories (Stiglitz, 2000). Similarly by following neoclassical economics, it can also be imagined that the assumptions of the fundamental welfare theorems are valid for that part of the population but are not valid in general. That is, there exist perfect information sharing, perfect competition, complete set of markets and no enforcement problem within them. I would like to name this part as a Pareto efficient coalition (PEC). The PEC is an analytical abstraction where the concept of methodological individualism is valid and every individual share the benefits of development with each other in a defined manner without any further institutional intervention. On the other hand, the welfare is yet to achieve for the remaining population. I would like to name the remaining part as a Pareto Improvement Space (PIS). By complying with neoclassical economics for the PEC, we may say that institutions do not matter much within the PEC or the institutions work very well for the individuals belong to the PEC. However, institutions do matter outside the coalition when the PEC interacts with the PIS. By definition, the PEC establishes an inefficient equilibrium with the PIS. For onward discussion, let me call the term 'inefficient equilibrium' as Inefficient Welfare Equilibrium (IWE). The inefficiency is supposed to be reduced by institutional intervention. The concept of IWE narrowly defines where a government should work by means of re-distribution of resources, defining property right, policies, norms, law and orders and their enforcements and so on. Unfortunately, there are chances that the government is part of the PEC and in that case government support does not work beyond the IEB. There is no guarantee that the government is well functional rather there are equal chances that it may reinforce the inefficiency. This model also defines that the

individuals of the PEC has active involvement to create, run and control the institutions while the individuals of the PIS have mostly passive involvement.

The Welfare Dynamics

It can be concluded from above discussion that the PEC is separated from the PIS by means of an abstract boundary that may be called as the Inefficient Equilibrium Barrier (IEB). The IEB may also be interpreted from the view of institutional economics as IEB imposes transaction cost to the individuals in the PIS. If an individual in the PIS wants to enter the PEC by crossing the boundary, he or she will have to pay the transaction cost. A market is a place to produce commodities and also to provide wages to the producers to buy the commodities. This capacity of the market with respect to time for an average individual can be defined as 'market energy'. The term 'market energy' is to be distinguished from the term 'market potential'. In economic literatures the term market potential corresponds to a geographic location. For example Krugman (1992) defined market potential in terms of the weighted sum of purchasing power of all the regions under the market. A Pareto efficient economy has the same level of market energy across the economy. Similarly a coalition represents the same level of market energy for every individual in the coalition. In an incomplete or imperfect market, market energy will vary among different coalitions or among the individuals who have different levels of information sharing. However, market potential is independent of information sharing since that is calculated by aggregating the purchasing powers of different coalitions.

Perfect information and complete market were never in existence in real world nor possible to exist in future but may be considered as expected characteristics of a market. Stiglitz (1991) described that imperfect information and incomplete markets alter the standard micro-economic results in fundamental ways. However, the extents of imperfections have differential existences in different markets in different time frames. Neoclassical economists believe in market power and ignore the role of institutions perhaps because they assume that the market has ability to override the institutions. On the other hand, the institutional economists believe in institutional dominance. "The polity that defines and enforces property right is more important and effective to shape economic performance of an

economy than competitive equilibrium" (North, 1991). It can be said that the institutions are there to energize, facilitate and guide the market. Combining both the economics, we may define that the IEB is the result of institutional failure to empower the market and market failure to bring the Pareto efficiency. If there were no IEB in an economy then the whole economy would become Pareto efficient.

The first welfare theorem says that competitive equilibrium leads to an efficient allocation of resources. This can be interpreted in this model as the competition enhances market energy such that it weakens the IEB and eventually leads to Pareto optimality. As North (1993) described "Efficient markets are created in the real word when competition is strong enough via arbitrage". That is, a competitive market can be attained through favorable institutional process and it may counteract the unfavorable institutions (unfavorable agreements and enforcement practice) and instigate them to change. In the extreme case, if there is perfect competition in an economy, the IEB will disappear and the economy will become Pareto efficient. This is how the concept of inefficient welfare equilibrium (IWE) modifies the first fundamental welfare theorem. In the real world, institutions changes through learning processes and therefore, they are quite slow to change. As a result, IEB will continue to exist even if competition increases in an economy.

Amartya Sen (1993) described that the market mechanism promotes two aspects of individual freedom, namely 'the opportunity aspect' and the 'process aspect'. The fundamental welfare theorems define only 'allocation Pareto optimality'. Tadenuma & Xu (2002) extended the fundamental welfare theorems for two more optimality conditions, 'opportunity Pareto optimality' and 'overall Pareto optimality'. The opportunity-Pareto optimality 'reflects the situation in which it is impossible to improve one agent's opportunities without reducing any other agent's opportunities'. Every economy has started from a reference position and the position of IEB has moved to existing position through economic and political activities over time. Interestingly, the individuals of the PIS can be made better off without making the individuals of the PEC worse off if that do not interfere agglomeration of the resources on the PEC. However, it is not possible to distribute the resources already piled up on the PEC side since the IEB is preventing that to happen. Feldman (1987) pointed out "the first theorem ignored the basic distributional questions: how should unfair distributions of goods be made fair?"

Therefore, we may say that the PEC has an optimum size under certain conditions such as certain technological state, motivational state or availability of natural resources. The individuals in the PIS and the individuals in the PEC are substitutes and therefore, for example, if there is technical advancement, the capacity of the PEC will increase. In other words, there will be more opportunities in the economy and some individuals from the PIS will move to the PEC and the economy will reach to another inefficient equilibrium. This is how the position of the IEB is supposed to move further into the PIS because of technological advancement by creating new opportunities for an economy.

In real world, the individuals who have better opportunities to acquire better skill, better employment opportunities also have more capacity to fulfill their demands than that of the others. We may imagine a compatible market corresponding to each side of the IEB. The market on the PEC side is more powerful than the market on the PIS since the PEC agglomerates the resources produced in the economy. In the context of the whole economy, it can be said that the overall market is biased toward the PEC Zaman (2008). According to the basic assumptions of neoclassical economics, when a market is biased, the market is failed. However, when we will use the term 'biasing', we can ask about the extent of the biasing whereas when we will use the term 'failure' it will not give any more information. The extent of biasing can be measured by comparing the market energy on PEC side with the market energy on PIS side. If both are equal, then there will be no biasing at all. If biasing is high then most of the benefits of economic growth will go to the PEC and the IEB will be further strengthened. On the other hand, if the PIS can hold much of the benefits they produce, the biasing will be low and the IEB will be weakened. In a market based economy it is supposed that price convey the relevant information (Hayek, 1945). I would disagree and therefore, I like to point out that price only convey biased information, not the actual information. Can we conclude that the top ranked box office movies are really the best movies? Or the life in big cities is more worthy than the life in rural areas? If an economy is heavily biased toward the PEC, the PIS will be affected by the biasing for whatever opportunities are created. This kind of opportunities can be called as ‘pseudo-opportunity’. Examples of pseudo-opportunities are the employments in the booming readymade garments sectors and in similar labour intensive manufacturing industries in Bangladesh where the workers are low paid and it is said that they are living no better than medieval slaves.

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The concept of inefficient equilibrium and the second welfare theorem both take the same approach, called the market failure approach. The second fundamental theorem tells that Pareto efficiency can be restored by limited government intervention like lump-sum redistribution to the market and then the market will take over the rest of the responsibilities. On the other hand, the concept of inefficient equilibrium tells that market failure is inherent in every economy since the market structure can not change the institutions as a whole because of their slow responses. Therefore, the lump-sum allocation is not a panacea for solving poor economic performance. The inefficient equilibrium barrier is the demarcation where both the market and the institutions fail. I agree with Ng (1984) that instead of 'Pareto social improvement' we should say 'quasi-Pareto social improvement' where 'for all levels of income, the average household was made better off but the average household at any given level of income might be worse off'.

The abstraction of the IEB is absolutely subjective that depends on the discretion of the analyst. According to the definition of biasing strength, the more individuals are abstracted on the PEC side, the more the IEB will be strengthened. That means the strength of the IEB will be more in case of placing individuals having high income and mid income on the PEC side than in the case of putting individuals having high income only on the PEC side. Similarly the fewer individuals will be in the PEC, the more will be the market energy. By assuming compatible market energy in each case, we may imagine that the whole economy is distributed in layers of market energy states. The rich people are on the upper energy states and the poor people are on the lower energy states. The market energy is the highest at the centre and it gradually decreases away from the centre. Similarly the probability of Pareto efficiency is the highest at the centre and it becomes increasingly difficult to bring the Pareto efficiency away from the centre. There exists an inefficient equilibrium barrier between two market energy states. According to the definition of inefficient equilibrium, the interaction between two states is such that money goes up from lower energy state to upper energy state. Eventually money is agglomerated toward an imaginary centre from where market gains potential (for example, technological advancement) to centrifugally spread over the economy again Zaman (2006). This model can be described as "The Market Model of Welfare Dynamics". This model substantiates Krugman's (1992) Dynamic Spatial Model of economic geography where he described that economic

geography exhibit a tension between two kinds of forces: “Centripetal” forces that tend to pull economic activity into agglomerations, and “centrifugal” forces that tend to break such agglomerations up or limit their size. In an ideal economy having local market, entrepreneurs take the challenge to bear high wages and achieve good return. Therefore, they are supposed to diversify their investments

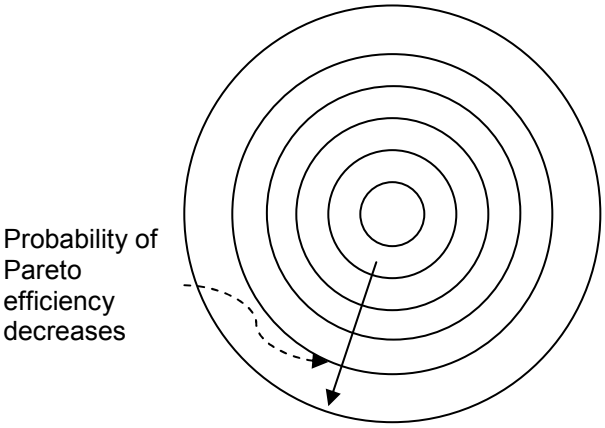

Figure 02: The Market Model of Welfare Dynamics

by adopting new techniques and new strategies. However, in the open market global economy entrepreneurs do not necessarily produce products for their wage takers. Therefore, policy supports particularly by concerned government, for example, property right, tax credit are outmost important to define the balance between how much money will remain in lower energy state and how much will go up. The policy supports will act as catalyst to the centrifugal force.

Market Loop

The concept of capitalism tells that any new capital created in an economy should be distributed in accordance to the ownership of existing capital. However, the capitalists are not created at once. The above market model tells that the money that is unpaid to its contributor goes to the upper layer energy states from the lower layer energy states. From there the market centrifugal force powered by technology and competition is supposed to weaken the IEBs and to spread down by means of new products and services with resized prices. If the centrifugal force on the lower market energy states is very weak compared to that of on the upper market energy states, we may say that the market is

trapped within the upper markets. Then it makes a loop as shown in Figure 03 where the market dynamics circulates within upper layer markets. In a developing country where financial market is immature, a huge amount of idle money will circulate within the limited number of individuals and apparently the country will experience high inflation and corruption. A corrupted government official normally does not take bribe directly from a poor individual but takes from a rich contractor or businessman. In a corrupted economy, a huge amount of free money circulates on the upper layers, which again gives birth of money grabbers. Whatever is the way to gather money on the upper layer, the money mostly circulates among the pockets of the grabbers. There are fierce contentions among them to dominate over each other to grab and control of the institutions so that they can establish monopolistic decision making process to dictate the economy as per their interest and wish. Moreover, the individuals who are not corrupted but are supportive to this structure also get indirect raise of their salaries. Consequently, the net result is that the rich individuals become richer and costs of property ownership become high, increasingly unreachable to outermost layer individuals. A market loop inflates a market, especially land, property prices and stock prices and boost up financial business. The

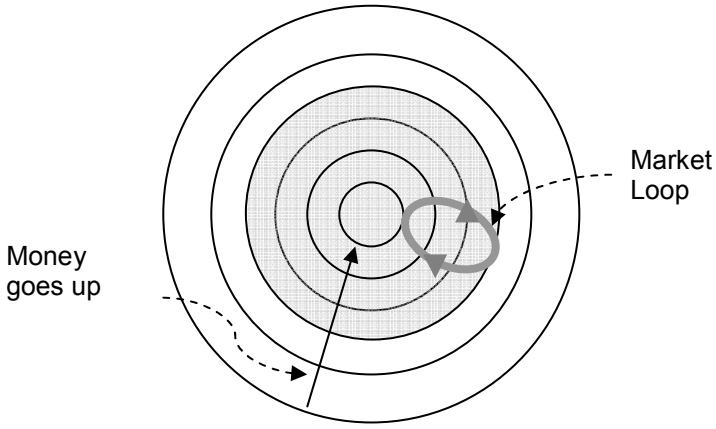

Figure 03: Market Loop

financial businesses are credit oriented and the mathematical models have been used for market modeling are based on unrealistic assumptions such as market always being in equilibrium (NewScientist, 2008). From the concept of market model we know that they consider only upper layer market, which is a partial view of the whole market and "ignore what is happening in the real world"

(NewScientist, 2008). Although analysis of the recent global financial crisis is out of scope of this paper but it can be told from the market model described in the previous section that why US financial market has become the one of the global financial agglomeration centers and therefore, poor financial decisions of few investors and managers have impacted the global market and lead to global recession. The market loop is not discovered at its initial stage because the money trapped in the market loop of upper market energy states is backed by certain flow of money from lower market energy states. If this flow is interrupted it does not show up because market loop continues with 'mispricing' and similar historic data and prediction. Moreover, when the market is unregulated, it becomes a black hole to absorb money until there is a colossal collapse as discovered recently in US mortgage market. In US it is estimated that this unregulated market grew astronomically from $900 million in 2000 to over $50 trillion in 2008 (Murphy, 2008). Experts describe the mortgage market crack down as only a component and symptom of the deeper problem (Murphy, 2008). Mispricing in financial market is very common and unavoidable as long as businesses continue to grow. The global financial markets are interlinked and every other business is linked with financial business for their growth and therefore, the risks it runs become dependent on the risks of the financial market.

Unbiased Pareto improvement

The ultimate victims of any market loop are the individuals on the lower or outer layers market energy states of the market model. Their situation is further worsen by any financial crisis, recession or natural disaster and eventually more and more individuals fall down to down to the outermost layer and deep rooted poverty. The outermost layer is the true Pareto improvement space (PIS) separated from the rest of the economy by the toughest inefficient equilibrium barrier (IEB). A country is poor because it has got a very robust IEB for its outermost layer market that has developed gradually through many years of economic and political activities.

This article has an intention to focus on those people for whom the standard welfare theorems do not work well. The second fundamental welfare theorem tells that the government plays an essential role to keep alive the 'invisible hand'. Unfortunately the 'lump-sum distribution' from

government may also get caught into the market loop. In a weakly organized government, the decision makers inside the government are part of the upper market and eventually the government reinforces the IEB. Most of the efforts for poverty alleviation whether by government or by non-government circulates within the market loop. Therefore, they are pretty stereotyped at functional level-the same work force, the same mindsets, the same processes but only paper works are different. However, every effort has a biased and an unbiased component. They can be named as Biased Pareto Improvement (BPI) and Unbiased Pareto Improvement (UPI) respectively. For example, Grameen Bank's micro-credit program for poor people is criticized for imposing very high interest rate but it is doing many good things that otherwise would not be possible. The part of interest that is perfectly converted into their human value out off the market process is the UPI for the economy. The remaining part is the BPI. The success of microcredit program is very much dependent on its unbiased component.

The welfare programs in a developed country, for instance, in health and education sectors, also focus on the benefits of the low income people that are quire opposite to lump-sum allocation. If we consider the government as a player in the market not an independent body, we will see that the apparently equal access to health and education services are not equal in the sense that the net benefit goes to the low income people since they pay lower tax.

A bright idea by Quadir (2003) called "bottom-up economics" proposed to nurture and promote entrepreneurship at the level of the poor people in developing countries like village phone program in Bangladesh or Stirling engine in Africa. Unfortunately those were small scale discrete efforts and failed to integrate with the existing markets since the existing market did not have enough incentives for that. To find a more realistic way for UPI, we may go back to the previous example in section 2. If another individual joins with Z and make a coalition **A2**, then they will gain more bargaining power to deal with coalition **A1**. As a result the inefficient equilibrium will be counteracted and IEB will be weakened. We may apply this concept for the outermost layer individuals of the 'market model' to make them a collective body so that their on-ward economic activities will have cumulative impact on the IEB to weaken its strength Zaman (2001).

We are so far concerned about only quantitative growth only but the development has a qualitative aspect too. Although it is true that an underdeveloped country has fastened with corruptions, poverty

and undignified values but it also to be noted that good values and high growth may take different paths and independent efforts. A developed country have got frustrated young generations and degraded cultural and social values too. Environmental declination is another issue for which developed countries are mostly responsible. The individuals who are the ultimate sufferers of the above problems are to be isolated in a coalition and the problem areas are to be set with some local quantitative or qualitative bench marks. Unbiased Pareto improvement measures can directly improve the local bench marks that eventually will improve macro economic or global bench marks.

Conclusion

Development has a human aspect. If the fundamental welfare theorems are valid for a certain range, competition may not take care of human value. For example, competition is good but we need to evaluate whether the competition is for transforming all of our milks into candy or for keeping the milk as much as possible for our kids. The concept of inefficient equilibrium provides an analytical framework beyond standard welfare model. It also tells that a sustainable solution of any financial crisis not only lies in financial measures but also lies in non-financial measures. Nevertheless poverty is the biggest challenge to us. Prahald (2002) shown that there will be two possible scenarios for the evolution of global market in coming 15 years: the 1 Billion Market and the 4 Billion Market. The standard welfare theorems may be valid for the 1 Billion. This article is intended for the later.

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