Revisiting the Concepts of Market Demand in Various States of Disequilibrium

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Foreword

Why is there a need to go back to the basic concepts of demand today? It is not because this will provide solutions to the economic problems embedded in the world of speculation and arbitrage, whether for real goods and services or for financial products including derivatives. It rather attempts to provide a direction and guidance with the aid of analytical tools that is based on a disequilibrium framework to understand the dynamics of the market.

The principle of equilibrium in economics deals with the relationship between aggregate demand and supply of products and services in a market. Equilibrium of prices is established when the aggregate of demand and supply is matched. Hence any price above the equilibrium price creates a surplus of quantity and conversely at a price below the equilibrium creates a shortage. Real world never operates in a perfect equilibrium and hence the process of optimum price discovery is critical for all of us. Though these principles are based on theories of classical economist, Keynes, there are shortcomings even today and one hopes to develop new analytical tools to study consumer of enterprise behavior.

The discussions in this paper set the tone for new studies on investment behavior of firms where neither market signals nor budget constraints remain within the ambit of those theoretical positions derived from equilibrium or a neo-classical disequilibrium models.

Introduction

Although the concept of demand seems to be easily understood and is taken to involve a lot of accounting significance, in reality, it is an extremely complex analytical category, both at the micro and macro levels. In economic theory, and more particularly in neo-classical economics, there is not just one concept of demand but many. Each concept is based on a distinct analytical structure and takes into account a host of assumptions to account for varying understanding of the economy and different aspects of the problem from both logical and practical points of view. So, the concepts

are necessarily to be studied in the context of the analytical frameworks from which they emerge.

There are two broad analytical frameworks in which the concept of demand is studied - one is based on the equilibrium and the other on the disequilibrium state of the market. This paper makes an attempt to first review some of the mainline neo-classical concepts of demand both in the equilibrium and disequilibrium framework and bring out the significance of the core issues in the development of the theoretical foundation of it that takes into account the consumer behaviour as well as the economic surroundings that shape the consumer behaviour. More importantly, the paper attempts to trace the evolution of the concepts of demand in disequilibrium and to the extent such efforts have been able to provide a theoretical basis to analyse the problems in hand.

The Equilibrium Framework

Walras, Arrow and Debreu

In the Walrasian system, effective demand is that amount of the commodity that is demanded at a definite price in exchange of some other commodity or commodities.[1] At each different price, there will be a definite effective demand.[2] At the equilibrium price, the effective demand will also take the equilibrium value. In the Walrasian system, disequilibrium states do not have finite length of existence. It can be traced only in the process of tatonement, when the price quoted is not the equilibrium price. However, no exchange does take place during tatonement. It is assumed that the price movement in the Walrasian system, i.e. during tatonement, is so fast that equilibrium is reached instan-taneously. Once equilibrium is established, it remains to exist permanently and only at that set of prices real exchanges do take place. Therefore, the effective demand in Walras is a concept only in the context of equilibrium. At the point of equilibrium, each individual maximises his `effective utility'.[3] At this point, his effective demand should at most be equal to the `effective offer'.[4]

The assumption of the permanency of equilibrium is crucially important as far as the understanding of the concepts of demand and supply is concerned. In Walras, after equilibrium is attained, the clock stops - and also production, consumption and trade. In contrast, the most

authentic of the general equilibrium systems, the Arrow-Debreu model incorporates a timeless horizon - all trading (of current and future commodities) take place before the point of equilibrium.[5] Once the equilibrium is established, it stays undisturbed for an infinite length of time. Although the institutional framework is different in the Arrow-Debreu world, the model upholds the same definition of demand as given by Walras.

Walras did not address himself to the question what would happen if the equilibrium is disturbed. This was the case with Arrow and Debreu too. Walras made the question redundant by assuming cessation of all economic activities after the equilibrium point. Arrow and Debreu simply foreclosed the possibility of such a situation by incorporating all future trades into his tatonement at the `present instant' itself.[6]

The absence of a disequilibrium state for a finite length of time in the Walras-Arrow-Debreu general equilibrium model and measuring demand only at the point of equilibrium, *ex-post*, makes the definition of demand narrow and specific only to a particular set of circumstances.

Permanency of equilibrium and the absence of a finite disequilibrium state lead to an important characteristic of the behaviour of the agents in the economy. The agents are all aware of the existence of equilibrium and are all price-takers. They do not feel the need or the urge of individual intervention in the price formation process and so remain passive in the market.

To have a concept of demand, more general, one has to drop the assumption of the permanently stable equilibrium.[7] once, that is done and a finite disequilibrium state is incorporated, the assumption of all the agents constantly possessing equilibrium awareness finds its redundancy. This opens up the possibility of individual action of the agents affecting the price system. Some of the recent studies, mainly on the question of stability of equilibrium, have opened up certain interesting dimensions of the problem of **effective demand**.[8]

Stability analysis of equilibrium starts from a situation when the system is out of equilibrium.[9]

In Samuelson's stability analysis of a dynamic system, although the existence of a disequilibrium state is recognised, the price system is assumed so efficient and responsive to the change in the **effective demand** in the market that the system is brought back to equilibrium instantaneously.[10] Most of the economists who have worked on the stability of equilibrium have taken up only this question: - **what would happen if the prices do not correspond to the equilibrium state?**

Basically, the studies have been on tatonement. In Arrow, Debreu and Walras, tatonement precedes equilibrium. Tatonement will be set in if the initial set of prices is disequilibrium prices. Now, the study of this situation, when the market/markets is/are in disequilibrium, can be the starting point for the study of the behaviour of the individual agents in disequilibrium.

Let us accept that it does not matter to us whether the disequilibrium state is a pre-equilibrium tatonement or a post-equilibrium displacement. If we allow trade to take place in this state, we enter into a totally different realm of economic problems - the study of `non-tatonement' or `trading processes.[11]

Non-tatonement
Trading Processes

The Edgeworth trading process is derived in tune with the Walrasian system which accommodates an `auctioneer' and assumes away production, consumption and trade at all points out of equilibrium. The underlying idea in this model remains that trade takes place only when each of the parties involved is made better off, after trading, in terms of utility, at the current set of prices. There is no scope for speculation, i.e., agents do not catch arbitrage opportunities which involve trading at a particular price which does not increase their utility directly and then re-trade at a more favourable price.[12] Such restrictions on the Edgeworth process do not allow for a proper disequilibrium state. So long as actual trading is not allowed at disequilibrium prices within the trading process, disequilibrium behaviour of the agents in the economy will neither be exhibited nor the same can be expected. Here, demand, expressed at each disequilibrium or equilibrium price is a mechanical quantity decision taken on the basis of the price - the relationship between the quantity and the

price being predetermined on the basis of certain behavioural rules and optimising calculations (e.g. utility maximisation within the budget constraint). Basically, one remains within the realm of the equilibrium theories so long actual trading is not incorporated in the model.

The Hahn Model

Hahn made his departure precisely at this point. He allowed for actual trading to take place and assumed a well-organised market where `unsatisfied buyer' and `unsatisfied seller' for the same good do not exist simultaneously.[13]

In a model of pure exchange, Hahn demonstrated that an individual facing an excess demand situation for the good he wants to sell, will gradually find his `target utility' decreasing as trading goes on.[14] This simple model focuses upon certain crucial aspects in demand theory. Hahn demonstrated the need to sell before one buys and in an extended version of the model with the introduction of money, on the need to hold positive amounts of cash.[15] This points to the idea that every demand has to be backed by required purchasing power. This leads to the distinction between `target' excess demand and `active' excess demand. The first being the one unconstrained by purchasing power and the other backed by money (used as the only medium of exchange) which also involves actual efforts as in the Arrow-Hahn model.

The Arrow Hahn Model

There are two important characteristics of the Arrow-Hahn trading model. One, it goes on to say that equilibrium can be established only by reducing expectations of the individual agents in the economy and two, the agents possess equilibrium awareness and thereby are passive price-takers. The model thus focuses only on the behaviour of the individual agent in the economy who has just failed to realise his transactions as a result of incompatibility of individual optimising plans of transaction.

Fisher Model

Advances made by Fisher lies in his incorporation of disequilibrium awareness on the part of the seller. Fisher brings in a price making seller of

the Lange' type. His model assumes perfectly flexible prices and allows trade, consumption and production to take place out of equilibrium. There is individualistic price adjustment by the seller - different price offers by the seller being taken as data by the buyers and on the basis of which the latter takes quantity decisions regarding his demand.

What Fisher attempted to bring forth was that, given the disequilibrium price level, the active agents in the system perceive new opportunities and actively try to grab those.[16] So long such new opportunities are perceived, the system will remain out of equilibrium. Moment such perceptions disappear; the system will be back to equilibrium. This equilibrium is rational expectation equilibrium.

Fisher holds that the agents in the economy in disequilibrium do not exhibit rational behaviour - because they do not have perfect foresight. This is precisely the element that provides dynamism to the model. Otherwise, with perfect foresight, the prices will respond to the demand expressed and every point in the course of the economy will be a point of equilibrium, even if it is not a Walrasian. The main characteristics of disequilibrium lie in the fact that there are agents in the economy whose intentions (actions thereby) are not fulfilled. This inability to carry out purchase or sales plans is the outcome of various constraints. If the transaction constraint is binding, the system moves to quantity constrained non-Walrasian equilibrium. Otherwise, in the absence of such constraints, the equilibrium is Walrasian. The movement towards non-Walrasian equilibrium takes place with constant revision of transaction constraint perceptions, and in this process, if the perceptions turn out to be correct, the system lands on the non-Walrasian equilibrium point.

In Fisher's world, production, consumption and trade - all take place out of equilibrium, and equilibrium means not cessation of trade, but its continued existence at correctly foreseen prices. He maintained that whether the equilibrium is a rational expectation type, Walrasian or a quantity constrained one, it is globally stable, i.e., from any disequilibrium point, the adjustment path converges on to the equilibrium point. This stability assertion is analytically significant. In fact, he brings in two types of equilibrium. One, the rational expectation type, falling largely into the mainstream of equilibrium theory, and the other, the quantity constrained one that opens up the avenue for disequilibrium theories.[17]

Integrating Arrow, Hahn and Fisher

In this given framework (we will call it **Arrow-Hahn-Fisher model**), the concept of demand exhibits certain important characteristics. Since prices are flexible and individualistic price adjustments do take place, the individual buyer in the disequilibrium state revises his demand on the basis of i) actual price offers, ii) expectation of future prices, and iii) transaction and other constraints which he perceives. In the formation of demand, as in the mainstream general equilibrium theories, prices play the most important role in this model. The definition of demand implies that at every single price offer, there will be a definite demand. So, in the adjustment process towards equilibrium, at various prices, the size of demand will also keep varying.[18] Now, if we take the initial price as a reference to make an idea of the size of the initial demand, we will notice that in this model, since the perceptions of constraints and expectation of the future prices enter as determinants of demand at the instant before trading starts, the actual desires to buy (backed also by purchasing power) do not get reflected in the actions of the individuals (same will be the case at other prices). This is precisely the problem which is encountered in the host of demand definitions in the disequilibrium framework.[19]

Being in the tradition of the equilibrium theories, the AHF model assumes flexible prices. The model breaks down if prices are assumed fixed. There is no scope for quantity adjustment.

In the integrated AHF framework, particular attention has been paid to the understanding of demand only as active attempts to purchase and not identify it with `desire' without the backing of purchasing power. But, here, the optimum consumption plan (according to the individual buyer) of the buyer is being assumed always to be identical with active attempts to purchase. This will create certain analytical problem (`sham magnification') which will be discussed later.

Although the A-H-F model provides us with a concept of demand in a disequilibrium state, it does not take us very far, as it fails to incorporate other relevant features of disequilibrium, all of which will be dealt with subsequently in this paper.

We have noted earlier, neither the Walras-Arrow-Debreu framework nor the subsequently developed ideas of general equilibrium (concentrated

mainly on the stability question) with disequilibrium foundation (e.g., the Arrow-Hahn-Fisher model) has provided an adequate answer to the analytical problems involved in the definition of demand. The idea of a quantity constrained equilibrium in the AHF model, although, is important in our study, faces a major shortcoming. In a flexible price system, quantity constraint can arise only when transactions do not take place as a result of the buyers not meeting the sellers, i.e., as an outcome of informational lag - or trading takes place at false prices. But will trading go on at false prices even at equilibrium? Will the seller not perceive any new opportunity in raising the price of the commodity when the excess demand prevails in the market? Short term (rather immediate) transaction constraints which lead to trading at false prices are different from the long term conditions of a market where prices do not rise (even with increase in demand) as a result of which the market remains in perpetual excess demand. Therefore, the analytical significance of such quantity constrained equilibrium, as in the AHF model, has little significance to us. We will concentrate on the second type of a market situation and for which we will need to drop the assumption of perfectly flexible prices.

The concept of demand in the disequilibrium models

The models which drop the assumption of price-flexibility and permanency or existence of equilibrium ('Equilibrium' in the Walras-Arrow Debreu sense) and incorporate the possibility of a state of economy where markets do not clear at the given set of economic variables and the agents in the economy are aware of this resulting market disequilibrium (either at the micro or at the macro level) fall into the realm of disequilibrium theories.[20] Disequilibrium models fall into various shades depending upon the nature of assumptions and thereby the range of deviation from the equilibrium framework.

The Swedish School

The concept of demand finds an important place in the Swedish disequilibrium theories.[21]

In the equilibrium theories, demand (or supply) is measured at a given price in the market. In Walrasian tatonement, the disequilibrium state is momentary. Price movement is instantaneous whenever the

quoted price is not the equilibrium one. So, defining demand at a given price implies defining the same at an instant. In the AHF model, the disequilibrium state persists although the prices are flexible. Since the speed of adjustment is not defined, the length of existence of a disequilibrium price remains unspecified. This difficulty forbids one from having a definition of demand (or supply) over a period (finite length) of time.

The concept of demand had been treated in two ways in the Swedish School, especially by Hansen, with respect to its time dimension.[22] In the first place, it has been taken as a `stream' at an `instant' determined by its `intensity' or `speed' at that point of time. Secondly, it has been defined over a period of time.[23] The treatment of the problem of demand in a discontinuous time frame thus brings in major deviation from the earlier equilibrium studies.

For Lindahl, demand is the planned purchase. [24] He then assumes that all the purchasing plans, existing at the beginning of the plan period, are fulfilled irrespective of whether these are related to commodities or factors. With this assumption, he blurs the distinction between the general equilibrium and the disequilibrium theories.

> If,
> Planned purchase = actual purchase   ....(1)
> and we know that at the point of equilibrium,
> amount purchased = amount sold   ....(2)
> Implication of (1) and (2) would be that all purchase plans are fulfilled, i.e.,
> D = S; which is nothing but a Walras-Arrow-Debreu
> equilibrium condition. [25]
> D = aggregate demand
> D = aggregate supply

The general argument given in support of this position is that the plans which are not carried out have no significance.[26] The argument can make some sense so long one is considering only a buyer`s market. As noted by Bent Hansen also, the theory was built up by the Stockholm School during the '30s to study the economies with predominantly buyers' market. [27] Lindahl also argues, in defence of the general character of his assumption, "since this assumption (...that purchase plans are fulfilled)

however, merely signifies that the period considered must be taken sufficiently short, it does not move us from reality."[28] He probably argues with the assumption that if the periods are sufficiently short, then the size of the stock in relation to the length of the plan period will be relatively large, which will make it easy to take care of the gap between the planned purchase and the expected sales. But the assumption of a constant stock, the size of which is independent of the length of the plan period and thereby the production process itself, is totally unreasonable - leave alone the fact that the idea of such short periods will itself have little practical relevance.

It may be noted in the argument of Lindahl that the plans which are not carried out have no significance. The point which has (perhaps) been made is that desires or `internal wishes' do not constitute demand.[29] Till this point, Lindahl simply reiterates the conventional and well accepted understanding of demand as `something' necessarily to be backed by purchasing power. But in the next step, assuming internal expectations and wishes to be necessarily put into active attempts to purchase, he falls into the fallacy of equating `desires' or `internal expectations' of the buyer, first, with active attempts to purchase, and then following his earlier logic, with demand at the point of transaction.

In this framework, planned purchase, in the ex-ante sense, is often taken as commodity bundle which the consumer considers as the easiest to obtain implying thereby that the consumer takes into account transaction and other constraints which he perceives in formulating his demand. It specifies that plans to purchase are shaped by the consumer's resource position and his expectations regarding the availability of goods in the market during the coming plan period.[30]

Another definition of demand appears as `optimum purchases'. Optimum purchases are "those purchases which it would be worthwhile to make from the point of view of a `rational' calculation (of utility, or costs) if the subject were free in this respect, within the financial resources and within the framework of legal restrictions which is assumed to be given."[31]. The `optimum', category reflects the `potential behaviour' of the buyer and not the `actual' behaviour.[32] This definition, as is clear, does not take into account any transaction constraint. It assumes the consumer to carry out neo-classical type of optimisation calculations before expressing his demand.

The third major concept of demand in the Swedish disequilibrium framework appears either as `active' demand or as `active attempts to purchase'.   "The plans concerning demand are introduced into the calculation of excess demand in that form in which they may be considered to exercise active demand in the open market."[33] Lack of clarity on the concept of active demand is evident from here. Possibly, it was assumed to be identical with active attempts to purchase. But, one has to note here that the Stockholm economists, to a large extent, have identified active attempts to purchase with optimum purchase, with the clear cut assumption that all the optimum purchase plans are actually put into the process of implementation.[34]

Defining demand as the active attempt to purchase has notable analytical and accounting significance. It does not rule out the scope of any a priori "rational" calculation on the part of the economic agent. At the same time, this, as an analytical category, takes us closest to the actual size of demand and thereby to the understanding of concrete situations. However, a major drawback of this definition of demand lies in its use as a computational category which may not be able to take care of the problem of `sham magnification' of demand.

The Swedish disequilibrium theory is oriented towards the study of a quantity constrained system in a fixed price wage situation at a macro level. Since the attempts have not been in the direction of building up of a micro theory, especially to arrive at certain behavioural rules related to the consumers, the theory faces the obvious shortcoming of not providing any strong basis for an analysis of consumer behaviour in disequilibrium.

The second important feature in the Swedish disequilibrium theory has been that, it is directed towards a situation where supply and demand are not matching (as a result of prices and wages kept fixed for a considerable length of time, as they assume) - a situation occurring particularly in a war economy, say, even in a capitalist economic environment. The scope of the models does not actually include the conditions in a socialist economy.

Concept of Demand in Modern Disequilibrium Theories

After the path breaking works of Malinvaud, Clower, Leijonhofvud and Hansen mainly, the increase in the study of disequilibrium states, especially in developing concepts of demand, seems to have been reinforced in the recent time. [35] But the multiplicity of approaches to the problem has made the entire literature complex. A detailed study of each of such contributions remains beyond the scope of the present study. We will confine ourselves to taking an overall view of the entire disequilibrium school in respect to its contribution towards understanding the concept of demand and identify the basic strands of thought having analytical significance to our study.

The modern disequilibrium theorists, in a manner similar to those of the Swedish School (discussed earlier), define demand in the ex-ante sense and incorporates into the concept the possibility of a situation when demand exceeds supply (either at a macro or a micro level). The situation is described as the consumer facing transaction constraints in the market (for the particular commodity) with his demand remaining unrealised.[36] A major area of debate within the disequilibrium framework lies precisely on the question of specifying such transaction constraints.

The nature of the transaction constraints specifies the behaviour of the consumers and defines the parameters which determine the consumption decisions of the individual buyers in the economy. We have already noted that the concept of demand or supply, takes into account the specifics of the institutional setting defined in the framework from which it emerges.

The modern disequilibrium theories, even though sometimes branded as neo-Keynesian, largely emerge from the equilibrium theories only. **Their radical difference from the equilibrium models lies in accepting a finite and permanent disequilibrium state, disequilibrium awareness on the part of individual agents in the economy and in incorporating quantity adjustment in their models.** But their conceptual apparatus is still based on certain optimising calculations assumed to be undertaken by the individual agents in the economy and is centred on the concept of market. Their main attempt has largely been at

developing general equilibrium conditions with price rigidity.[37] this, according to them, broadens the general equilibrium framework, which in its pure form is highly restrictive. To this extent, the limitations of the modern disequilibrium theories are to be recognised.

Allowing disequilibrium awareness on the part of the individual agents in the economy opens up the possibility of the host of manipulative actions on their part and in that quantity becomes an important variable in formulating demand. Again, quantity constraints granted, demand ex-ante, will not necessarily be equal to the level of actual transaction carried out. Perception of such transaction constraints (quantity constraints) has been crucial in the study of demand in the modern disequilibrium framework.

In general, demand in the disequilibrium framework appears as the level of exchange of a particular good that the agent wishes to realise in the market. With the introduction of transaction constraints (real or perceived), the analytical significance of the variable changes along the multiplicity of the perception of transaction constraints. In the Clower definition, the demand for a good is the level of intended exchange on the market for it of the individual agent (the potential buyer placing the demand for it in the market) who maximises his utility taking into account the exchanges he perceives as feasible on the other markets. The individual agent carries out this optimisation calculation for each of the markets separately. So the constrained demands are determined separately on each of the markets.[38]

In the Dreze' definition, such constrained demands are determined simultaneously. But the difference lies in defining the constraints. He assumes the buyer for the good to take into account the constraints he perceives in all the markets, including the one for that. One major characteristic of Dreze' demand lies in its assumption that actions are always identical with their expected consequences. This leads to the identification of the perceived constraints with real constraints on actions in his programme giving optimal demands.[39]

Benassy, on the other hand, presents two models, the institutional arrangements being different from each other. In one, he assumes sequential visits to market and in the other simultaneous visits. In the sequential system, in a decentralised monetary economy, where `markets are independently operated', the determination of demand involves a

`sequential dynamic programming'. [40] In this set up, each agent in a particular market has already encountered some constraints (leaving aside the first market visited) and expects some constraints in the current and the future markets as well. These expected constraints may be either deterministic or stochastic (probabilistic). In the first case, the expected future constraints are known with certainty. Here, the expected constraints on the current markets may be assumed away. The `effective demand' in this situation would be the "trade that maximises the decision criterion of the agent, subject to the usual budget or technological constraint and also taking into account the given past transaction and the expected constraints on the future markets". [41] But in the sequential system, an un-rationed person (a buyer) stops trading moment his demands are fulfilled. So he is not likely to know the exact level of additional quantity of that good that would be available to him. [42] So the case of constraints with certainty has application only in those cases with rationed buyers. So in the un-rationed case, it is desirable to bring in certain stochastic elements to determine the constraints. The perceived constraints in this case are assumed to be functions of quantity signals generated in the market. These signals in turn arise from the effective demands generated in the market. [43]

It is to be noted that in both the cases (one with deterministic transaction constraints and the other with stochastic constraints) the constraint in the market for the given good is disregarded in determining the demand for it. This specification on the behaviour of the individual agent has been maintained in all the models of effective demand in Benassy. In the multi-market simultaneous market visit model, the effective demand for the good is derived as the best transaction. [44] If transaction constraint on the market for it is taken into account, the problem of multivaluedness of the solution is encountered and the solution provides only optimal values of effective demand and not the best.

Benassy follows Clower model. Whereas in the Clower model, the effective demands were determined separately on each market, Benassy's method paves way for simultaneous determination of the same in all the markets. This overcomes the problem of optimal solution with multivalued effective demands in Dreze'. The crucial factor determining the conceptual frames of Clower-Benassy and Dreze' in the treatment of transaction constraints in the market considered has been already discussed earlier.

In the Clower-Dreze'-Benassy disequilibrium models, demand has been identified as expressed demand (similar to the concept of active attempts to purchase in Swedish School, particularly Hansen). It is explicitly assumed that every purchase intention is expressed in the market. To this extent, this concept of demand is different from Kornai's earlier concept of `aspiration level' of the buyer. As discussed in the previous section, in the context of the Swedish disequilibrium models, such a definition may pose two types of analytical problems especially having computational relevance. First, it is the problem of magnification of demand. Benassy has taken note of this problem. But, in his analysis, magnification effect results through overbidding, as a case of manipulation. Further, for simplicity he has incorporated only manipulatable cases in his analytical frame. This has restricted the scope of his model to a large extent. The modern disequilibrium framework does not make a distinction between initial (original) demand and the case of forced substitution and consumption.[45] This leads to an overestimation of demand when aggregated over markets. The concepts based on expressed demand also tend to underestimate the real demand. This can happen when buyers expecting transaction failures in the face of acute shortage decide not to express their demand at all. Such de-escalation effects cover up a part of the actual shortage. Such downward readjustment of expressed demand normally stays for a short period of time.

In the whole of modern disequilibrium tradition, demand is based on certain rationality norms defined on the individual agent (the buyer) and it reflects the ideal size with the maximisation of the given decision criterion (say, utility). Given a single such decision criterion even though the same may be very broad based the behaviour of the consumer and his decision horizons are both narrowed down. The model would break down once more complex aspects of consumer behaviour are incorporated. Similar problems are encountered in the models developed within the general equilibrium framework. The only difference one finds here in the case of disequilibrium systems discussed above is that the institutional structures are less restricted. Therefore, it provides a wider analytical perspective.

Benassy's models, with simultaneous and sequential market visits, do not bear on the actual shopping behaviour of an individual.[46] In reality, markets are visited neither sequentially nor simultaneously. Secondly, at a time, only a section of the market is visited, unless it is spatially extremely small. The disequilibrium theories have not really got out of the influence

of the overall Walrasian concept of considering market for a commodity as single point in space. This theoretical abstraction has restricted the study of the market both in the equilibrium and the disequilibrium traditions.

The more important contribution of the modern disequilibrium theories lie in the study of the consumer behaviour, a subject that requires independent and detailed treatment. This aspect has been left out of the scope of this paper. But, as far as the understanding the concept of demand is concerned, their contributions are rather limited.

Conclusions

Defining demand has been more of an analytical issue rather than an accounting or economic problem in both the equilibrium and disequilibrium economics. The analytical significance of the work at various stages and by various eminent scholars notwithstanding, the applications of the concepts that emerged out of those in explaining real economic problems has been rather limited due to poor accounting relevance, inadequacies to represent consumer behaviour in the real sense and high level of rigidity in the structure of the models and the concepts therein or associated with those. The equilibrium 'ideal state models, converted to disequilibrium models merely to accommodate deviations from the 'ideal' state of equilibrium do not add to the analytical significance either. After all, unless there is a strong analytical description of the state of the real market, the concepts of demand, both within the equilibrium and disequilibrium frameworks will not take us very far. One major shortcoming of the disequilibrium or equilibrium models discussed above is that these are invariably based on a hard budget constraint assumption. The concept of demand finds a new treatment later with the works of the Hungarian economist Janos Kornai who introduced the concept of a soft budget constraint to explain certain behaviour of firms as a buyer of inputs in the overall context of a shortage economy. The disequilibrium models so far have not been built to accommodate states of perpetual disequilibrium, for example, a shortage economy.

Notes

1. Leon Walras, **Elements of Pure Economics: The Theory of Social Wealth**, Translated by William Jaffe (London: George Allen and Unwin, 1965)

2. Walras used the term `effective demand' for demand. While referring to Walras, we will be using the term `effective demand'. In the Walrasian multi-market system, where many commodities are exchanged for many others, one of the commodities may act as a numeraire (which may be money). Since the household may possess one or more goods in a definite amount and that every demand is to be in exchange for some definite amount/amounts of one or more good/goods, the budget constraint faced by the effective demand curve is assumed to be continuous.

3. Walras used the terms `effective utility' and `satisfaction of wants' synonymously.

4. Walras left room for the possibility of non-negative amounts of stock of commodities held by an individual after the trade is over. The term effective offer in Walras is the same as supply in ordinary use in economic literature.

5. Gerald Debreu, **Theory of Value: An Axiomatic Analysis of Economic Equilibrium** (London: Yale Univ. Press, 1971). K.J. Arrow and G Debreu, "Existence of an Equilibrium for a Competitive Economy", **Econometrica**, Vol.22, 1954, pp. 265-290.

6. Present instant - origin of the elementary compact intervals of equal length in the chronological order of time (of a finite number). Refer to the problem of dated commodities in Debreu - each good is different from the other according to time and space (date and location at which it will be available, and physical characteristics).

7. Permanently stable equilibrium was arrived at by Arrow and Debreu by assuming homogeneity, Walras's Law and gross substitutability. See, Arrow and Debreu, op cit.

8. Frank H. Hahn, "A Stable Adjustment Process for a Competitive Economy", **Review of Economic Studies,** Vol.29, 1962, pp. 62-65. "On the Stability of Pure Exchange Equilibrium", **International Economic Review**, Vol. 3, pp.206-13. Franklin M. Fisher, **Disequilibrium Foundations of Equilibrium Economics** (Cambridge, Cambridge Univ. Press, 1983).

9. So far we have been using the term equilibrium in the Walrasian sense.

10. Paul Samuelson, **Foundation of Economic Analysis** (Cambridge: Harvard Univ. Press, 1983)

11. In the Walrasian or Arrow-Debreu tatonement, actual trade does not take place. Contracts are signed at quoted prices which will be declared null and void when the new price is quoted.

12. Franklin Fisher, Op. Cit, p.31.

13. It is a fairly important assumption in the disequilibrium economics (to be discussed later). See Clower, Benassy.

14. Target utility is the utility that the individual buyer expects to derive from his target transactions, i.e. when all his expected transactions are fulfilled. The individual agent in the simple exchange model, being faced with an excess demand situation as a buyer, finds the price of the commodity he wants to buy going up (Walras' Law) and as a seller, commodity he wants to sell going down - implying a situation where his command over the commodity he wants to buy gradually shrinking, thereby leading to a fall in the target utility. As

mentioned earlier, the situation is valid only when market efficiency assumption and Walras' Law are granted. Institutional arrangement in the model is a simple two-commodity - two-individuals set up. Moment the number of commodities and individuals set up. Moment the number of commodities and individuals is increased, the model breaks down. Refer to the `Simple Simon' problem in Fisher, op. cit..

15. The Simple Simon problem was resolved in the Arrow-Hahn model with the introduction of money. Money has been introduced in the model not only as a medium of exchange, but also as a factor affecting the utility function of the individual buyer. cf. Arrow and Hahn, (*General Competitive Equilibrium Analysis,* Oliver and Boyd, 1971).

16. It does not matter whether the new opportunities do really appear - so long the agents keep perceiving those given their own assessment and expectations. The cases of favourable surprises have been assumed away in the model. The cases of false or mistaken perceptions are although included.

17. The non-Walrasian equilibrium models are definitely not identical with the disequilibrium models, discussion on which will follow shortly. But the acceptance of disequilibrium awareness and the perception of constraints (real or imaginary) along with a host of other new assumptions, bring these models close to the disequilibrium models.

18. Ideally so. Walras' Law assumed. But the actual size of the demand since will depend on other factors mentioned, it is perfectly possible to get the same demand at different prices.

19. This problem will be discussed later.

20. As we have discussed in the previous section, some of these models which allow for both disequilibrium state and non-clearance of markets/market, fall actually in the realm of equilibrium theories : generally known as non-Walrasian, quantity constrained or even rational expectation equilibrium etc. But here, in this type of models, prices are assumed flexible.

21. Bent Hansen, **Study in the Theory of Inflation** (New York; Augustus Mckelly Pub. 1968) E. Lindahl, **Studies in the Theory of Money and Capital** (London : George Allen & Unwin 1939). In this approach, one does not find any attempt to build a theory of shortage. What theoreticians like Lindahl, Hansen etc. have done is to build up models of repressed inflation - i.e., the demonstration of the possibility of `inflationary gap' in a situation when prices and wages are fixed. Hansen has actually developed two models of repressed inflation, one applicable to a situation of a perfectly competitive market and the other to a monopoly situation. The Swedish framework is based on Wicksellian ideas and is influenced by Swedish School, and counters, as did Wicksel, the classical ideas (quantity theory of money) that inflation can be explained only in terms of supply of money.

22. Bent Hansen, ibid. p.21. The concept of time in the demand theory is crucial - but a detailed discussion on this problem is beyond the scope of this research.

23. Hansen, ibid. see Chapters II, III and IV, particularly his models of repressed inflation.

24. Lindahl Op. cit. p.26.

25. Refer to the discussion on the equilibrium framework. The assumption of realisation of all purchase plans appears in a number of places in the general equilibrium theories. For example, see Hahn, **Equilibrium and Macro Economics,** (Basil Blackwell, Oxford, 1984) Chapter I. He finds ground to support the possibility of a long run economic equilibrium with

constant expectation functions : a relationship connecting past experiences to future expectations. This long run expectational equilibrium in Hahn presumes,

Planned purchase = actual purchase.

26. Hansen, op.cit. 29.

27. Hansen, ibid. 29.

28. Quoted by Hansen, ibid, pp. 30-31.

29. Refer to the discussion on Arrow-Hahn-Fisher model.

30. Hansen, op.cit.. pp.23-24.

31. *ibid.* p.63.

32. *ibid.,* p.24.

33. *ibid*., p.24.

34. *ibid.,* p.24.

35. R.W. Clower, (1965) **"The Keynesian Counter Revolution: A Theoretical Appraisal"**, in F.H. Hahn and Brechling (Ed). **The Theory of Interest Rates** (Macmillan, London, 1965). Hansen, op.cit. A. Leijonhufvud, **On Keynesian Economics and the Economics of Keynes** (Oxford University Press, London and New York, 1968). E. Malinvaud, **The Theory of Unemployment Reconsidered** (Blackwell, Oxford, 1977).
 36. Clower, ibid. J.P. Benassy, **Economics of Market Disequilibrium** (New York : Academic Press, 1982). J. Dreze', "Existence of an Equilibrium Under Price Rigidity and Quantity Rationing" in **International Economic Review,** pp.301-320.

37. J.P. Benassy, "Neo-Keynesian Disequilibrium Theory in a Monetary Economy", **Review of Economic Studies,** Vol. 42, 1975, pp. 503-523.

38. Clower, op. cit.

39. Dreze', op. cit.

40. Benassy, "Quantity Signals and the Foundations of Effective Demands", **Scandinavian Journal of Economics,** vol. 79, 1977 p.157.
41. Benassy, **Economics of Market Disequilibrium,** op.cit. p.42.

42. Ibid. p.206.
This assumption, as we will see later, on the behaviour of the buyer, has serious analytical significance to the development of the concept of demand.

43. Benassy, *Ibid.*

44. Benassy, *Ibid.* p.191

45. The phenomena of forced substitution and forced consumption will be discussed in the next section. See Kornai, **Economics of Shortage** (Amsterdam : North Holland, 1980) for further clarity.

46. In fact, Benassy asserts that the actual shopping process is a sequential market visit. The simultaneous visit to market is assumed just to prove the consistency of the defined

consumer behaviour, their actions, the given set of economic variables and the final equilibrium state in the market with transaction constraints.