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Glimpses of Amartya Sen's Contribution to Economics

Dr. Sunil Kumar Dalal

Department of Economics, S.M.B. Government P.G. College, Nathdwara (Raj.)

Prof. Amartya Sen is world's most renowned and influential intellectual, thinker and philosopher. His academic contribution to economics is perhaps much wider than any contemporary economist. Sen has made several contributions to research on fundamental problems in economics, especially welfare economics. His contribution ranged over axiomatic theory of social choice, welfare economics, development economics, economic methodology, construction of poverty indices, empirical studies of famines, and political and legal philosophy among other fields.

The award of Nobel Prize to Prof. Amartya Sen in 1998 recognised the central role of human development in the professional endeavour of an economist (Bagchi, 1999a). In his work on human development, third world occupies a central position. His focus on human development has resulted in a paradigm shift in development economics and influenced developmental policies to a very great extent. Sen advocated for an effective and ethical system of developing economic policy. In the present paper on the contribution of Amartya Sen to Economics, an effort has been made to highlight his wide spread seminal work on various issues which won him Nobel Prize of Economics in 1998.

Patnaik (1998) identified at least six major fields where Sen has made seminal contribution. These include the theory of planning and choice of techniques, economics of agriculture, welfare economics and the theory of social choice, work on poverty and famines, development and reinforcement of concepts and measures of poverty, unemployment and inequality. Bardhan (1998) believed that Sen is not just a mother Theresa figure for economists but a person who has valiantly tried to restore economics to the larger and more sophisticated tradition of its founding fathers, Adam Smith of the Wealth of Nations and theory of Moral Sentiments. Sen ventured in new conceptual territory with rigorous training in conventional economics, the formal logic of social choice theory and analytical philosophy and demonstrated his prowess in all these areas through powerful streams of papers and books (Bagchi, 1999a).

Choice of Techniques

As an undergraduate student at Trinity College, Sen wrote a dissertation on the Choice of Techniques, a work that was influenced by Joan Robinson, Maurice Dobb, and A. K. Dasgupta (Basu, 1998). The dissertation with some modifications won him a Ph. D. in 1960 and was also published as a book.

Criticising purely market based criteria for choice of techniques; Sen formulated a criterion that aims to maximize the surplus with a view to maximize the rate of growth of national income and finally the rate of growth of per capita consumption. Sen continued to modify his criteria by incorporating the influence of international trade, and choice between imports, domestic production, domestic consumption and exports.

He formulated the problem of choice under the condition of future changes in income and consumption streams because of technological change or any other unforeseen development. Sen carried forward an idea of Ricardo in the famous chapter "on machinery" in his Principles to the context of planned economy to argue that if the ability to mobilize resources depended on the choice of techniques then the conventional wisdom of favouring labour intensive techniques in development plans drawn up for a labour surplus economy made little sense. Sen (1968, 1984) argued that the problem of choice of techniques in developing countries arose because saving rates of these countries were suboptimal, judged by most reasonable criteria. Further, sectoral choices of techniques could be made rationally only if it was made quite clear what constraints on planners' preferences and on the space of available technologies were being imposed (Bagchi, 1999a).

Economic Growth

Sen's early work on aggregative models of planned growth and capitalist growth can be found in Raj- Sen model and in model of unstable growth under capitalism (Bagchi, 1999a). The Raj-Sen model tackled the problem of how to allocate a given value of foreign resources in the presence of limited export possibilities. The result obtained by this model strengthened the general conclusion of Feldman Mahalanobis model of planning, namely, that a larger allocation of investible funds to the capital goods sector would raise the rate of growth of economy. It also gave a theoretical underpinning to the contention of Mahalanobis and other top policy makers around that time. As regard to question of intergenerational allocation of resources, Sen favoured a careful consideration of welfare judgment and not just mechanical calculations of growth.

In his model of capitalist growth, Sen tackled the issue of Harrodian instability. In the Sen Model, there exists a rate of rise in money wages that equalize the warranted rate of growth to natural rate.

Social Choice and welfare economics

During his stay at Delhi School of Economics (1963-1971) as Professor, his focus shifted to the problem of welfare economics and to a very difficult question of voting and social choice. In the 1950's Kenneth Arrow propounded a path breaking 'Impossibility Theorem' which concerned with the problem: how to arrive at judgment about social welfare from consideration of individual interest, or alternatively, how on the basis of a consideration of individual interest, should social decision be made? The Arrow's Impossibility Theorem assumes that different individuals in society may have different rules that they believe in and on the basis of which they have different ordering of 'social states'; how can these social orderings be aggregated into social ordering, satisfying certain criteria of reasonableness? The question being asked is whether the views of different citizens can reasonably aggregated into a social view. Arrow's answer to this question in negative threw doubt on the very possibility of democratic decision making. Arrow showed that all system of voting, existing or conceivable, will violate some elementary and desirable axioms of democracy (Basu, 1998). Arrow showed the impossibility of getting an aggregation of individual preferences into social choices based on particular set of regularity and reasonable requirements (Bardhan, 1998). Majority voting is perhaps the most common rule for making collective decisions. However, this rule was found to have serious deficiencies like suppressing a minority, failing to produce a clear result in a group when voted between different pairs of alternatives and in case of intra transitivity between different alternatives, the majority decision rule cannot select an alternative that is best for any majority(ET,1998).

Arrow's theorem set the agenda for Sen's work on social choice. As an innovative successor of Arrow, Sen focused his attention to social mechanism that influence peoples' behavior with respect to saving and work and also examined the nature of social values and social choice. Sen also sought to bridge the gap between social values and economic facts (Bagchi, 1999a).In the paper titled "Optimising the rate of savings", Sen raised a question: how can the present generation represent the sovereign consumers of tomorrow whose fates were going to be decided by savers of today? Sen argued that decision about saving is essentially a political choice because everybody's welfare is affected by what everybody else does. This kind of interdependence is explained by Sen through the concept of "isolation paradox". According to Sen, a person may save more if she knows person B is also going to save more, but not if she has no such knowledge. The reason being that A cares about the welfare of future generation but thinks that her saving alone would not make much difference whereas if other persons are also saving more, it is going to make a big difference. Thus a person behaves differently in these two different situations.

Sen provided a positive way out of impasse by breaking through the informational restrictions that traditional welfare economics had imposed on itself by using richer utility and non-utility information, allowing for inter personal comparison of well being, partial ordering of social states and considerations like rights and liberty (Bardhan, 1998). According to Basu (1998), Sen introduced a new axiom to this frame work, that of individual liberty, that every individual should have some protected sphere over which he or she has the right to decide, without being constrained by what others feel. This draws the subject of right and liberty into the domain of social choice.

Sen's response to the problem of social choice can be tracked in three distinct phases (Patnaik, 1998). The first was the imposition of restrictions on the configuration of individual preferences, i.e. value restrictions. He showed that welfare judgments that become embodied in social decisions are necessarily political and democratic politics necessarily involves putting restrictions on peoples' preference. Secondly, Sen moved away from a social ordering altogether and concentrated only on conditions for rational choice and he demonstrated the relevance of inter personal comparison in making social choice. Finally, Sen questioned Arrow's problematic itself and hence rejecting welfarism. Sen brought in the facts of real world into welfare discussion. In a paper on "the Impossibility of Paretian Libral" Sen showed how welfarism could clash libertarian. To Sen, the real issue in a democracy is to raise awareness, to mould individual ordering of social states so that they do not lie over an unrestricted domain. The point is to introduce restrictions into domain of these orderings through praxis. Sen (1970e, 1982) proved that no liberal who believe in the sanctity of individual preferences can also believe that every Pareto- superior state should be acceptable to Society. Sen argued that if liberalism consisting in respecting individual preferences then a social choice function protecting such preferences does not exists (Bagchi, 1999).

Sen was actually working on a much larger canvas than Arrow's and was determined to go on exploring fundamental concepts that held together the economics of welfare, namely, preference, choice, rationality, interpersonal comparability, equity, justice and human liberty(Majumdar, 1998).

Inequality and Poverty

Sen engaged himself in the closer examination of the nature and structure of inequality in existing human societies. Sen was concerned with the people who are disadvantaged because of low incomes, but also because of ill health, illiteracy and so on. He wanted to talk about inequality where it hurts the most. Sen asserts that poverty should be seen as a deprivation of basic capabilities, rather than inadequate income. He takes the view income poverty alone should not be focus of development. People living in poverty means they are unable to realize their capabilities. For Sen, capability deprivation is a better measure of poverty than lowness of income. It is generally expected that higher per capita GDP should mean better quality of life, but relationship is not straight forward, for example, Sri Lanka and Indian state of

Kerala have lower per capita GDP but have higher life expectancies and literacy rates than richer countries like Brazil and South Africa. Sen has objected to two widely used measures of poverty, namely, head count ratio and income gap. Head count ratio refers to the ratio of population below poverty line whereas income gap refers to the deficit of actual income of the poor from the total they would have to receive if they were all to reach the poverty line income. Sen found head count ratio as insensitive to the depth of poverty among the poor and to him income gap alone would provide no information about the number of poor people. Sen proceeded to formulate a new measure of poverty (P) as-
$P = H [1+ (1-I) G]$

Here H stands for head count ratio that is equal to q/n i.e. the ratio no. of people below poverty line to total no. of people, I stands for poverty gap ratio rates which is equal to g/qz where total poverty gap g is equal to Σgi and $gi = Z-Yi$, Z is poverty line and Yi income of person i. and G stands for Ginni coefficient.

Sen's formula to measure poverty possesses following properties that make it a better measure-
(i) Other things remaining same, a reduction in income of a person below poverty line must increase poverty measure.
(ii) The transfer of a income from a person below poverty line to one who is richer must increase poverty measure, and
(iii) P is insensitive to an increase in the income of a non poor person.

Famines

From an analysis of inequality and measurement of poverty, Sen moved to an enquiry into the causes of famines. Sen's interest in famine stemmed from personal experience. When he was only a nine-year-old boy, he witnessed the Bengal famine of 1943, in which three million people died.

It was in the year 1981, Sen published Poverty and Famines: An Essay on Entitlement and Deprivation (1981), a book in which he argued that famine occurs not only from a lack of food, but from inequalities built into mechanisms for distributing food. In other words, it was argued that famines are not caused by food availability as by failure of exchange entitlement. To him, the collapse of purchasing power because of lack of employment, especially rural employment, caused by flood, drought, or war can lead to prolonged starvation and famine even though food is available. The people who are dependent on their own produce or gathering produce from fields and rivers for the subsistence can be forced to starvation if these avenues are closed through the privatization or state takeover of common property resources in the interest of trade and commerce (Bagchi, 1999). He argued that the Bengal famine was caused by an urban economic boom that raised food prices, thereby causing millions of rural workers to starve to death when their wages did not keep up. Sen, with the help of empirical data revealed that in many cases of famine, food supplies were not significantly reduced. In Bengal, for example, food production, while down on the previous year, was higher than in previous non-famine years. Thus, Sen points to a number of social and economic factors, such as declining wages, unemployment, rising food prices, and poor food-distribution systems. These issues led to starvation among certain groups in society.

Governments and international organizations handling food crises have been greatly influenced by Sen's work. His views encouraged policy makers to pay attention not only to alleviating immediate suffering but also to finding ways to replace the lost income of the poor, as, for example, through public-works projects, and to maintain stable prices for food. A strong defender of political freedom, Sen believed that famines do not occur in functioning democracies because their leaders must be more responsive to the demands of the citizens. Sen advocated public action to eliminate poverty and hunger. Famines and poverty are avoidable phenomenon provided there is a public action that makes it too expensive for a government politically to ignore them. In order for economic growth to be achieved, he argued, social reforms, such as improvements in education and public health, must precede economic reform.

Development Economics

Sen's contribution to development economics is based on his concepts of capability developed in the article 'Equality of What'. He has been able to relate his concepts of capability and freedom to analyses of deprivation, inequality and poverty in human society. Sen viewed development an expansion in the range of capabilities of the individuals of a society. According to him, the expansion of capabilities is dependent on the expansion of basic education and provision of basic health facilities, neither of which follow from high growth in income. Sen defined development as a process of expanding human freedom. It also means the removal of major sources of lack of freedoms such as poverty, all types of discrimination and inequality, neglect of public facilities, lack of economic opportunities, social exclusion, state policies that limit freedom and so on. For him freedom is the primary goal of development. He saw individuals as agents of change rather than patients diagnosed with illness of poverty. It means that he emphasized on evaluating capabilities and potential of individuals rather than just their income levels.

Sen's work in the field of development economics has had considerable influence in the formulation of Human Development Index (HDI). The HDI offers a powerful alternative to per capita income as a measure of national development. HDI combines the average achievement of a country in three basic dimensions of human development. These ares-
(i) A long and healthy life as measured by life expectancy at birth.

(ii) Knowledge as measured by the adult literacy and school enrolment.
(iii) Standard of living as measured by per capita GDP in purchasing power in US dollars.

The first human Development Report of 1990 defines human development as a process of enlarging people's choices and stated that income is a means, not an end of human development. In his book Development as Freedom, Sen prescribed five types of freedoms that tend to contribute to the general capability of a person to live more freely. These are-

(i) Political freedom- This essentially include functioning democracy, freedom to scrutinize and criticize actions of authorities, freedom of expression and speech and presence of free press
(ii) Economic facilities- such as peoples' opportunity to have and use resources or entitlements.
(iii) Social opportunities- Access to health and education services.
(iv) Transparency guarantees- Transparency in the functioning of authorities.
(v) Protective Securities- Social protection to vulnerable people.

Thus development ought to be people centric and both socially and environmentally sensitive.

CONCLUSION

Above mentioned contributions made by Amartya Sen to economic philosophy and theory are just a few drops in the ocean of thoughts, ideas and concepts developed and propounded by him. Sen has been able to influence practically all branches of human sciences. Patnaik (1998) has concluded the Sen's contribution as " if one were to trace a common thread in all of Sen's working, it would be his emphasis on the need and possibility of public action for human development". As rightly said by Bagchi that it will take a team of scholars familiar with all the forays he has made to prepare an adequate map of his long and conceptually exciting journey.

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