

Decision Making Method in Seasonal-Domestic-Migration: A Critical Appraisal

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Cost-benefit analysis is one of the most important instruments in the discipline of economics to assess or evaluate any project or plan. It is a fundamental method to analyze human migration decision. The attributes of human socio-economic conditions and geographical spatiality are closely ingrained to the use of cost-benefit analysis. The aim of this research is to draw some extension of previous Cost-benefit analysis method with somewhat concentration on the cost-benefit (or benefit-cost) ratio which implies the marginal rate of return i.e. marginal output. The contentions on conventional Cost-benefit analysis method are evidential. To ease the arguments attempts have taken to discuss the incompatibility and to yield the benefit of investment associated with seasonal-domestic²-migration decision.

JEL classification: D61, G11, J61.

Key Words: *Seasonal-domestic-migration, Cost-benefit ratio, Pareto optimal, Marginal rate of return.*

1. Introduction

Evidences suggest that traditional cost-benefit analysis deals with two parties, one winner and another loser (for example, see- Zerbe et al., 2006; Hofmann and Wangenheim, 2003; Howarth and Norgaard, 1993; Anderson, 1993; Mishan and Page, 1992; Campen, 1986) but the conventional cost-benefit analysis of migration decision concerns single actor (for example, see-Massey et al, 1993; Konseigg, 2005) which considers individual or household unit. In traditional cost-benefit analysis, matter of compensation or income distribution is an arguable fact to compare interpersonal utility which accrues from alternative out-comes of a project or plan. In case of two parties involvement, emphasized has been given on integrated social well-being to develop assumptions and all the way light has been focused on the Pareto optimality. To concise the scope of CBA, Hofmann and Wangenheim (2003) states that any decision procedure can be called CBA if it satisfies the following conditions, like (1) enumerate

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² Domestic means the incident occurs within the geographical frontier of a nation.

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the alternative outcomes of the decision, (2) described the predicted consequences of these alternative out-comes and how these predictions are derived, (3) assign evaluations to these consequences which are numerical and based on the same dimension and (4) choose the out-come for which the sum of the evaluated benefits exceeds the sum of the evaluated costs by the largest difference. The evaluation may be based on the willingness to pay or the willingness to accept and also on personal value judgments of the decision maker.

The paper is structured as follows that the background of cost-benefit analysis is discussed in section-III, migration theories and determinants are explained in the next section which is section-IV. The conventional subtraction method is illustrated in section V and in the subsequent section the critical argument has been drawn and consequently the perception of cost-benefit ratio to bring into the decision making process to undertake seasonal-domestic-migration has been discussed in the following sub-section. At the end the concluding remarks has been added to augment this paper.

2. Aim of the Paper

Migration is the exposition of predisposition of human mobility. Since the inherent attributes of multidimensionality, the analysis of migration is an insurmountable task to accomplish by any single unique theory. The complexity of migration requires recall different disciplines which, explicitly and/or implicitly, assimilate human behavior. The decomposition of human behavior is also another cumbersome interactive exertion. So the researchers analyze migration decision through persisting invariance in between theories to pursue various objects. The aim of this research paper is raised the Cost-Benefit analysis as an issue of contention and simultaneously to elicit the appropriateness of conventional Cost-Benefit analysis to understand the contemporary migration (seasonal and domestic) decision.

3. Background

A cost-benefit analysis is a mathematical tool to judge the output differential on the feasibility of a plan or action of communities or households or individuals whether to except potential outcome. Methodologically, it's a decision making method to understand the possible future turn out. Since the economic changes affect a large number of individuals from different directions, so the acceptance of out-come varies with individual or households position in the social income distribution ladder. People who are close to the bottom of the ladder show high propensity to accept the outcome even with marginal benefit. If the proportion, not the amount, of benefit increase, then the acceptability of out-come also increase by the upper stair group of the distribution which may be better understood through "revealed preference" concept.

According to Mishan et al. (1992), some sort of criterion is necessary to rank alternative out-comes. The researchers state that a more relevant criterion is potential Pareto improvement: if the aggregate value of individual gains exceeds the aggregate value of individual losses, then an economic measure is said to have a net social benefit. They

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also argue that this criterion makes the rich richer and the poor worse off, which has disputed to its adoption.

Cost-benefit analysis relates future costs and benefits into current economic calculations via the process of discounting (Howart and Norgaard, 1993) but the outcome of analysis critically dependent not only on the discount rate but also on detailed assumptions about the increase or decrease in consumptions, saving and investment (Mishan and Page, 1992).

In ideal conditions which do not exist in reality the choice of discount rate is simple. If the ideal conditions persist then the market rate of interest is equal to both the marginal return on investment and the marginal rate of substitution between present and future consumption (Howart and Norgaard, 1993). Here the ideal conditions, probably, imply the undistorted capital market, fixed future economic condition (i.e., no uncertainty) and optimal income distribution. As the ideal conditions arguable so the uncertainties persist which induces individual behaves rationally. And if individual does behave so, she/he must assign a cash value to risk to the action of movement from subsistence labor market to commercial to industrial labor market. During the movement, in general, seasonal domestic migrants do not concern the hazardous nature of the job rather than the wage differentials sustaining in between markets. In a competitive equilibrium, Enderson (1993) states that wage differential would measure “revealed preference” for safety. In case of laborers who migrate to support families, job choices are not made on an egoistic basis, expressing solely personal attitudes towards risk:

“the opportunity to earn a living is not merely another commodity, like a toaster. It is both a need and a responsibility. To the extent that workers’ choices reflect this view, wage differentials do not represent the cash values people place on their lives, rather, they reflect the risks people feel obliged to accept so as to discharge their responsibilities” (Enderson, 1993).

The remark is, probably, applicable when seasonal-domestic-migration is undertaken as an ex ante livelihood strategy, as Waddington and Sabates-Wheeler (2003) states that migration is an attractive alternative livelihood if it occurs out of necessity. This predisposition is pervasive in the internal migration process when the migrants are poor and vulnerable. When migration occurs out of choice then the contention growth out as this type of migrants are more likely from better off households.

4. Migration Theories and Stimulant (stimulus)

The complexity of migration can't be explained by any single theory as the idiosyncratic strength of migration theories is not so rigid like some other fields of research. This is, may be, because of migration still a growing field of research, especially from the view point of development economics.

Overall in the laws of migration space and time, stream and counter-stream, urbanization, technological development and succession of migration from rural to sub-

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urban to urban has given importance. But the main reason of migration, as pronounced in all migration theories, is economic.

In an erudite research, Lewis (1954) proposes the best known theory which is developed originally to explain labor migration in the process of economic development. He believes that at subsistence wage there are unlimited supplies of labor in many underdeveloped countries. The main assumption of Lewis model is that labor is available in the capitalist sector at a fixed real wage (Taylor and Martin, 2001).

In 1962 Sjaastad presents a microeconomic theory of migration which is called human capital migration model, which encompasses migration as an investment decision entailing both costs and benefits over a certain period of time. He believes that the decision primarily, is an individual calculative response to the income differential between area of sending and receiving (Bequm, 1999). Taylor and Martin (2001) mention that the human capital view of migration has the key implication that the type of individuals selected into migration are those for whom, over time, the discounted income (expected income) differential between migration and non-migration is greatest and/or migration costs are lowest.

According to Lee (1966) migration factors which influence the decision to migrate and process of migration are both positive and negative in nature and both types of factors are prevailing in both areas of origin and destination. These factors are related with the stages of life cycles. For the knowledge deficiency and lack of information migrant must always be faced some uncertainties in the area of destination at initial stage.

Todaro (1969) proposed a migration model which incorporates the intersectoral income differential and labor market imperfection within the sectors, and focuses that migrants respond, primarily, to income differentials between sectors. This model doesn't consider the risks and uncertainties which always concomitants with migration. With overstating urban unemployment rates, the Todaro model certainly overstates the costs of migration for rural migrant sending areas (Taylor and Martin, 2001). Another shortfall of Todaro's model, as Begum (1999) states, is the assumption that potential migrants are homogenous in skills and education and are informed enough about the chances of job to be engaged in a preexisting highly unemployed situation.

Rural-urban migration is an indispensable part of labor mobility bearing spatial geographic attributes for the economic development of any region. Akin L. Mabogunje (1970) introduces the General System Theory to study the rural-urban migration. In this system, urban labor movement is getting stimuli from the environment. In general, people have predisposition of having good life and hence migrate from isolated rural area to more open urban center where opportunities are available to fabricate life with increasingly converging facilities of goods and services. If want to stay in the rural area, the villagers have to produce more agricultural goods and enter into an exchange system with the city to acquire these goods and services which are available over there or alternatively, they can move to the urban area to get wages in exchange of labor to satisfy the needs of goods and services. This is the environment, Mabogunje tries to

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elucidate in the General System Theory, within which migration from rural to urban areas operates.

The principle concept of new economics of labor migration theory, which can be denoted as combined household model, is presented in Stark and Bloom (1985). The key insight of this model is that undertaking migration is a combined decision of household unit rather than any isolated individual. So the point is that all the individuals in a household act collectively not only to maximize expected income but also to minimize risk and to loosen constraints associated with different types of market failure which includes crop insurance markets, unemployment insurance, imperfect capital markets, future markets (Massey, 1993; Taylor and Martin, 2001).

In case of migration decision, Massey et al (1993) states that people choose to move to where they can be most productive, given their skills; but before they can capture the higher wages associated with greater labor productivity they must undertake certain investments, which include the material costs of travelling, the costs of maintenance while moving and looking for work, the effort involved in learning a new language and cultureⁱ, the difficulty experienced in adopting to a new labor market and the psychological costs of cutting old ties and forging new ones. Sjaastad (1962) divides private costs into monetary and non-monetary costs. The former are those involved in moving to another place, increase in expenditure for food, lodging, transportation. The latter includes the 'psychic' costs of changing one's investment, salary forgone while travelling, and searching for and learning a new job (Begum, 1999).

5. Cost-Benefit Analysis in Migration

The cost-benefit analysis could be calculated to the ratio (marginal benefit) of positives (benefits) and negatives (costs) aspects or difference (net benefit) to yield the benefits outweigh the cost. Jhingan (2003) mentions that there are four benefit-cost criteria have discussed by the US Sub-Committee on Benefits and Costs. These are 'B-C'; $B - \frac{C}{I}$; $\frac{\Delta B}{\Delta C}$ and $\frac{B}{C}$; where B and C refer benefit and cost respectively, I- relates to direct investment and Δ is incremental or marginal.

The cost-benefit analysis in migration is very straight forward which considers, so far, the difference of the benefits from the costs to yield the net benefit of migration decision. Individual rational actors decide to migrate because a cost-benefit calculation leads them to expect a positive net return, usually monetary, from movement (Sjaastad, 1962; Massey et al 1993)

Neoclassical migration models are the precursor of cost-benefit analysis in migration decision. Massey et al (1993) pick the idea up to a rigid form of toil in where they state that net returns in each future period are estimated by taking the observed earnings corresponding to the individual's skill in the destination and multiplying these by the probability of obtaining job there to obtain "expected destination earnings". These expected earnings are then subtracted from those expected in the community of origin (observed earnings there multiplied by the probability of employment) and the difference

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is summed over a time horizon from 0 to n, discounted by a factor that reflects the greater utility of money earned in the present than in the future. From this integrated difference the estimated costs are subtracted to yield the expected net return to migration.

If the quantity of expected net return is positive for some potential destination, the rational actor migrates; if it is negative the actor stays; and if it is zero, the actor is indifferent between moving and staying.

On “Human Capital: Migration and Rural Population Change” Taylor and Martin (1991) mention and describe that Todaro (1969) proposes a modification of the neoclassical migration model in where the expected income maximization is the base objective to make decision to undertake rural-urban migration. Expected urban income at a given area is the product of wage and the probability that a prospective migrant will succeed in obtaining an urban job. The individuals are assumed to migrate if their discounted future stream of urban-rural expected income differentials exceeds migration costs.

The decision making process for internal rural-urban migration is summarized mathematically by the following equation:

$$\Delta = \int_0^T e^{-\delta t} [P_u(t) Y_u - Y_r(t)] dt - C \text{ ----- (1)}$$

Where Δ is the urban-rural expected income differential; $P_u(t)$ is the probability of urban employment at time t; Y_u denotes urban earnings given employment; $Y_r(t)$ represents expected rural earning at time t, C is migration costs and δ is the discount rate.

Migration occurs if Δ is positive otherwise the individuals like to stay in the rural labor market.

6. A Critique of CBA

The conventional cost benefit analysis considers the difference of positives (benefits) and negatives (costs) aspects to yield the net benefit of migration decision. Since migration is a very small to somewhat medium investment project so ‘B-C’ criterion may not be able to produce a prolific analytical result; and to support this statement it is reasonable to remember that Jhingan (2003) mentions “the adoption of the B-C criterion would always favor a large project, and makes small and medium size project less beneficial” and also adds that “ this B-C criterion can only help in determining the scale of the project on the basis of the maximization of the difference between B and C”.

Idiosyncratically, individual’s or household’s decision to undertake seasonal-domestic-migration is nothing but livelihood coping strategy mostly and rarely a small amount of capital accumulation strategy.

The marginal rate of substitution concept is able to give more pragmatic result on the analysis of better off condition. When marginal benefit exceeds the marginal cost then individual can accept the outcome to accumulate more social wellbeing by undertaking

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internal seasonal migration. That is $\Delta B - \Delta C$ is another criterion to do the cost benefit analysis, which may be more accurate and acceptable. But the best, as Jhingan (2003) states, and the most reliable criterion for the evaluation of any investment decision is the ratio of B and C.

Considering the above statement, the following situations would be possible ---

If $\frac{B}{C} > 1+r$; migrants are willing to accept the cost of risk, migration gets the momentum with full benefit of action, which is an ex-post capital accumulation strategy.

If $\frac{B}{C} > 1-r$; this is situation in where people undertake migration as an ex-ante livelihood strategy or risk management strategy because in this case the benefit is at best at marginal.

For both cases the condition should be $0 < r < 1$.

7. Justification of above Decisionⁱⁱ

In case of first supposition, the following clarification might be helpful to understand the situation. For any investment in seasonal migration the marginal rate of return is to be $MR_r = \frac{R}{C}$, if any migrant earns a sum of \$R in per unit of t time on an investment of \$C for same time period. But this relationship is operationally useful only for the simplest cases. As the seasonal internal migration retains the dynamics of complexity so it requires different but reasonable exposition to falsify the phenomenon up to an understandable manner.

And so, consider a household migration model in where collective decision is often made for the investment of migration. Consider again, if, migration costing \$C today and yielding a benefit \$B in the future t period of time, then the migration decision will be come out with the evaluation of investment, here \$C, in respect of its marginal rate of return at time period of t which is the duration of seasonal migration. In an uncompetitive financial market, this is very much usual in the rural area of developing country, assume the amount of \$C is invested with a least rate of return r, after a certain time, which is preordained - t period, with the forgone profit \$Cr the total financial investment is to be amounted as \$(C + Cr), that is, (1 + r) C amount of investment which will be available for the consumption at t time period. So the total change in consumption after t time period is \$[B-(1+r) C]. In as much as, the decision of seasonal domestic migration should be taken by the household, if only,

$$\frac{B}{C} > 1+r.$$

When seasonal domestic migration is a livelihood strategy migrants are risk neutral and 2nd supposition holds this assumption. In this case, seasonal migrants are poor to very poor as they have only physical capital (labor) to invest for earnings. Because of individual lack of human capital together with social, economical and political deficiencies the marginal rate of return from physical investment after t time period is somewhat close to zero. So, after the seasonal migration period the level of consumption is rarely changed and hence the total change in consumption after t time period is \$[B - C]. Hence the decision of seasonal domestic migration could be taken by

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the household when $\frac{B}{C} > 1$ but, because of poverty situation and lack of financial institution in the rural area (migrants producing area) in developing countries like Bangladesh, to undertake migration usually the poor households borrow money from the rural money lender/s with a high interest rate, lets r is the interest rate for t time period. So the total change in consumption after t time period is \$ $[B - (1 - r) C]$. Hence the decision of seasonal domestic migration should be taken by the households, if only,

$$\frac{B}{C} > 1 - r.$$

8. Conclusion

The CBA is an analytical method to understand the migration decision through the evaluation of positives (benefits) and negatives (costs) aspects associated with the act of movement. Prediction of human behavior is not straight forward because of its inherent complexity. The mathematical tool like CBA is able to produce a fruitful yield when material variables are concerned. The traditional CBA method which is incorporated with the difference of positives and negatives aspects is evidently helpful to determine the scale of seasonal-domestic-migration rather than the yield. The benefit/cost ratio is the best to yield the net benefit of investment because of marginality. Marginal rate of return is highly and positively correlated with the benefit incurred from the seasonal-domestic-migration. When migration decision is undertook as a livelihood coping strategy the CBA helps to explore the economic implication of seasonal internal migration decision. Idiosyncratically, the predisposition of individual or household unit is to be better off. Potential Pareto improvement is the fundamental concept of better off exertion. Seasonal-domestic-migration can make someone better off without making anyone worse off. So the calculation of economic, rather than social, well-being CBA is a useful tool but requires considering the ratio gauge rather than the difference of benefits and costs.

Footnotes

ⁱ This fact is evidently true when seasonal migration occurs in between the Indian states.

ⁱⁱ For this clarification, some idea has been extracted from the Stiglitz, J.E (1983), "The rate of Discount for Benefit-Cost Analysis and Theory of Second Best" (see references).

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