History and uses of cost benefit analysis economics essay

Introduction

Cost Benefit Analysis (CBA) is a technique which seeks to bring greater objectivity into the decision making. It is a well known evaluation technique that is extensively engaged by both public and private organisations to support the decision making process. It can be useful to almost any kind of decision in any kind of field. It is helpful to identify all the relevant benefits and costs of a particular scheme and to quantify them in monetary terms. The practice arrived in the United Kingdom in 1960s for use in the transportation sector. CBA techniques were extended to cover a wide range of applications, such as water resource management, motorways, nationalized industries, airport locations, forestry, recreational facilities and a wide range of urban investment projects (Paul, 2000).

Private sector, direct monetary costs and benefits determines the profitability and increases the output and investment. All costs and benefits in public sector, affected by an investment must be evaluated in some other way. Welfare economics helps to resolve such issues as how to assess costs and benefits of a non-monetary environment & how to assess the community benefits when no charge made for public facility and how to fiddle with the market failure.

Cost Benefit Analysis

CBA rests on the recognition of a potential Pareto development. The basis for this is the proposition that, a decision is justified if those who benefit from it could compensate by those who lose by it. Compensation needs not really occur. What is essential is that the expenses of a policy to those who suffer

the costs are exceeded by the value that beneficiaries place on it. This may still remain on an adequate basis for judgment because CBA attempts to ascertain whether the resources are being used efficiently. It will often be the case that the occurrence of costs and benefits, i. e. who bears them, will moreover be very important. CBA may provide a framework designed to identify accurately where the costs and benefits fall, so that a political judgement may be completed as to their satisfactoriness.

CBA is a widely used technique which evaluates public spending and aims to avoid inappropriate distribution of public resources. In theory, it helps public decision-makers to invest only in the projects that create more profitability from the viewpoint of the community.

To function perfectly, the CBA procedure needs to be engaged prior to the decision is made, so that the potential of the range of project proposals can be compared and evaluated. It ” aims to evaluate the set of direct and indirect effects of a project, its financial and non- financial effects on the set of economic agents concerned with the investment. These effects are then synthesized, after monetary evaluation, to assure a socio-economic balance which establishes the return on the investment, with this return being estimated on the basis of specific indicators” (Auzannet, 1997).

According to Boardman et al. (2006) the major steps in CBA are as follows;

Specify the set of alternative projects

Decide whose benefits and cost count

Catalogue the impacts and select measurement indicators

Predict the impacts quantitatively over the life of the project

Monetize (attach dollar values to) all impacts

Discount benefits and costs to obtain present values

Perform sensitivity analysis

Make a recommendation

History and Uses of CBA

At present, CBA is being used in both government and international organization. While certain concepts of the technique oriented from Europe in 1840s, the use of CBA in environmental economics is relatively a new incidence which is becoming recognized after regulations were set by the US government. And this made the use of CBA compulsory in the 1930s (E. J. Mishan and Euston, 2007). It was used to generate a solution toward the problems of water provision. After World War II, there was pressure towards the " efficiency in government" and the search was on for ways to make sure that the public funds were efficiently utilised in major public investments. This resulted in the beginnings of the fusion of the new welfare economics, which was essentially a Cost-Benefit Analysis and practical decision-making. This particular process arrived in the United Kingdom in 1960s in support of the transportation sector. It was applied to the construction of M1 motorway and the Victoria line on the underground (Economic & Labour Market Review, December 2008). In recent years, it is recognised as the major appraisal technique for public investments and public policy.

Principles of CBA

There are eight basic principles under this CBA. These are;

There must be a common unit of measurement

CBA valuations should represent consumers or producers valuations as revealed by their actual behaviour.

Benefits are usually measured by market choices

Some measurements of benefits require the valuation of human life

The analysis of project should involve a with or without comparison

CBA involves particular study area

Double counting of benefits or costs must be avoided

Decision criteria projects

Emergence of CBA

CBA allows different projects to be rank according to highest expected net gains in social welfare. This is giving important limitations of government spending. The main stages in CBA approaches are,

Calculation of social costs and benefits. This is include direct and indirect costs and benefits

Sensitive analysis of events occurring

Discounting the future value of benefits

Comparing the costs and benefits

Comparing the net rate of benefits

The Application of CBA

In the private sector, financial CBA is used to justify equipment and technology investment, measure life cycle costs, meet regulations cost-effectively and quantify hidden costs and intangible benefits. It is also useful to demonstrate how outsourcing and leasing can result in cost savings and how quality improvements can affect returns. Social CBA is being used to evaluate the social merit of projects or policies.

In practice CBA vary between countries and sectors within countries. The main differences include the types of impacts that included as costs and benefits within evaluations. This is extent to which impacts are express in monetary terms and differences in discount rate between countries. The public CBA may also vary from private CBA (S. L. Kirama, 2010). CBA is likely to have its main use in the public sector where (J. Harve and E. Jowsey, 2004);

Price signals are insufficient to guide investment decisions

Spill-over benefits and costs are important owing to the magnitude of the schemes

The wellbeing of unborn generations has to be allowed

2. 5 Key Concepts in CBA

There are some key concepts in CBA. There are; present value, discount rates, opportunity costs, cost and benefits, discounting, net present value, shadow prices, etc. (J. Harve and E. Jowsey, 2004)

Government Decision- making

Government may take the form of regulation such as building regulation to reduce fire hazards, taxes or subsides or providing goods and services. The main difficulty in many public-sectors is that the goods are provided free of charge or below the market price. So they are forced to focus on short-term special effects of the financial system and the long-standing sustainability of the public finances.

Government decisions depend on subjective political considerations. For example, obtaining a social mix council housing may be providing an expensive residential area. However, public investments have serious defects.

The one-man, one-vote principle does not weight votes according to the intensity of welfare gain or lost. Therefore, majority of the decision allow two voters marginally in favour of a scheme to outvote one who strongly opposes it in spite of the fact that the sum of their benefits is less than the costs impose on the single opponent.

Political decisions are important & one-sided. Economic efficiency in resource allocation requires that objective criteria should be used as far as it is feasible.

The extension of government involvement in the economy has increased the weight and complexity of decisions which needs to be made at government level. Many argument says that decentralisation of decision-making is desirable.

Application to Construction Industry

Government is basically responsible for roads, bridges, airports, parks, amenity land, new urban areas and housing. CBA is normally being favoured by many transportation economists. It assesses the entire benefits and costs associated with highway project, including both capital and user costs. In this case, project requires less cost but provides more benefits right through the analysis period which are chosen first. CBA estimates the costs in monetary terms. Traditionally, a benefit-cost ratio, net present value or internal rate of return is being used. Recent research suggests that the net present value (NPV) may provide the best project selection measure if the transportation program is under financial constraints (Reed and Rutherford, 1997).

3. 1 The use of cost benefit analysis in transportation sector

Transportation policy and scheduling decisions often engage tradeoffs between conflicting objectives. Most highway cost allocation and investment evaluation studies are primarily concerned with direct market costs, such as road construction and maintenance, travel time, vehicle operating costs and crash damages. These vary depending on vehicle type and roadway conditions. They assume that the total amount of vehicle travel does not change, so were unconcerned with vehicle ownership and parking costs. Other types of studies incorporate environmental impacts, primarily air pollution, but sometimes it also includes noise and water pollution, and

various other categories of land usage impact. Some studies have only considered external costs avoiding the internal ones.

CBA is extensively used within the transportation segment. CBA of transportation investment projects tend to neglect long-term environmental consequences and needs among the community group with a low ability to pay. It has been emerged as one of the most used tools in deciding the viability of proposed infrastructure projects. The predictions regarding the impact of such projects are often problematic & uncertain. The transport modelling tools are used in order to estimate positive as well as the negative impacts.

3. 1. 1 Case Study – Heathrow Terminal 5

In this case, the British Airport Authority (BAA) planning to build terminal 5, the cost is £4 billion. Planning application was submitted in February 1993 (Heathrow T5, October 2005). They were consider the following benefits,

Economic growth: Demand for air travel in south-east England is forecast to double in the next 20 years, making expansion vital. So, many thousands of jobs and businesses depend on Heathrow airport expanding to provide sufficient supply capacity to meet this growing demand. An increase in the capacity of Heathrow will make best use of airport’s existing infrastructure and land.

The economy and trade: if it does not meet demand, UK will lose airlines and foreign investment to European. The benefits of a world-beating industry would be reduced. Therefore, many sectors of our aviation industry have a comparative advantage and add huge sums to our balance of payments.

Jobs: This project will create an estimated 16, 500 jobs. And create 6, 000 construction jobs during the building phase. This will have multiplier effects on the local / regional and national economy.

Transport: The terminal will be the centre of a world-class transport exchange, with new Tube and rail links. Car traffic will rise only slightly. The social costs of increased traffic congestion have been exaggerated by the environmentalists.

Environment: The site allocate for terminal 5 is currently a disused sludge works. And any displace wildlife and plant life will be carefully relocated. The noise climate around Heathrow Airport has been improving for many years, even though the number of aircraft movements has increased significantly. Partly due to the phasing out of older, nosier aircraft.

Noise and night flight: BAA promises no increase in overall noise levels or in night flights. The number of flights will be increase by 8%.

(Source: http://tutor2u. net/economics/revision-notes/a2-micro-cost-benefit-analysis. html)

Objections are rise against this project but those were not enough to refuse planning permission.

Conclusion

CBA provides a rational technique for the evaluation of projects where market information is either non-existent or deficient. But it should not make false claims for objectivity by dealing in precise sums. However it is helpful

for decision-making purposes, it is not an alternative for it. Further, CBA is potentially a useful aid towards planning decisions and it does not avoid the need to make value judgements in the evaluation of intangible arising from different projects. The overall conclusions are to be drawn from the assessment of costs and benefits. However, such value judgements are made clear in the evaluation & decision making process.