ESTIMATION OF TOURIST EXTERNALITIES ON RESIDENTS- INTRODUCTION OF CHOICE MODELLING APPROACH

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Abstract

Externality means spill over effect. In Tourism also we can see various kinds of positive and negative externalities. During holidays tourists contribute direct and indirect effects on destination residents. In this paper, the researcher investigates how residents of Muzhappilangad beach, a popular drive in beach in Asia, hosting tourists and how they are internalising such effects. Here, the researcher use a stated preference approach and a desirable choice modelling technique within this framework, it is possible to test some conjectures about resident's welfare, by measuring their willingness to pay for alternative scenarios regarding the use of the territory. Tourist policies and public investments in the destination affect resident's welfare and result might suggest areas of potential synergies and trade off leading to important policy implications.

Keywords: Tourism, Externalities, Discrete choice Modelling.

Introduction

An externality is a positive or negative consequence of an economic activity experienced by unrelated third parties. Pollution emitted by a factory that spoils the surrounding environment and affects the health of nearby residents is an example of a negative externality. The effect of a well-educated labour force on the productivity of a company is an example of a positive externality.Many definitions live in the literature to reflect the idea behind what economists call an externality, the classic case of market failure. But whatever it may be, the general idea is that an externality exists which one person's actionsaffect other people, who neither receive compensation for harm done nor pay for benefit gained.

Externalities occur in an economy when the production or consumption of a specific good impacts a third party that is not directly related to the production or consumption. Almost all externalities are technical externalities. These types of externalities have an impact on the consumption and production opportunities of unrelated third parties, but the price of consumption does not include the externalities.

This makes it so there is a difference between the gain or loss of private individuals and the aggregate gain or loss of the society as a whole. Oftentimes, the action of an individual or organization results in positive private gains but detracts from the overall economy. Many economists consider technical externalities to be market deficiencies. This is why people advocate for government intervention to curb negative externalities through taxation and regulation.

A useful definition is provided by Kenneth Arrow regarding externalities. Arrow (1969) defines an externality as "a situation in which a private economy lacks sufficient incentives to create a potential market in some good, and the nonexistence of this market results in the loss of efficiency".

Types:**Positive and Negative Externalities**

Most externalities are negative. Pollution, for example, is a well-known negative externality. A corporation may decide to cut costs and increase profits by implementing new operations that are more harmful for the environment. The corporation realizes costs in the form of expanding its operations but also generated returns that are higher than the costs. However, the externality also increases the aggregate cost to the economy and society, making it a negative externality. Externalities are negative when the social costs outweigh the private costs.

Some externalities are positive. Positive externalities occur when there is a positive gain on both the private level and social level. Research and development conducted by a company can be a positive externality. R&D increases the private profits of a company but also has the added benefit of increasing the general level of knowledge within a society. So, while a company such as Google profits off its Maps application, society as a whole greatlybenefits in the form of a useful GPS tool. Positive externalities have public, or social, returns that are higher than the private returns.

Objectives:

The present study has the following objectives:

1. To describe choice modelling technique
2. Evaluate the impacts of beach tourism on residents of Muzhappilangad.

Methodology:

The study based on both primary and secondary data. Secondary data collected from various articles, books and internet relating to tourism regarding the choice modelling technique and the externalities of tourism.

Primary data collected from the residents of Muzhappilangad beach to evaluate the impacts of tourism upon them. The researcher selected this area to evaluate externalities because; Muzhappilangad beach is Asia's

number one drive in beach tourist destinationand collected information from the local residents regarding the positive and negative impacts through direct personal interviews. And the information collected from them expressed in tables to show that the negative externalities are higher than positive externalities. To show that results, direct choice modelling technique was employed.

Profile of the study area - Muzhappilangad Drive in Beach

This beach is the largest Drive-In Beach in Asia. Even though Goa has many beautiful beaches, it does not have a Drive-in beach.The beach festival is celebrated in the month of April and it is one of the important tourist attractions in the district of Kannur in Kerala. The youth also try many driving stunts in cars like drifting and wheeling in bikes as this is a paradise for driving along the shore. Just 100m from this beach you would find a private island, which can be reached by walk at times of low tide.Approximately 100–200 m south of the beach there is a private island called Dharmadam Island or Green Island. It is possible to walk to the island during low tide.

State government took lots of initiatives to develop Muzhappilangad beach as a major tourist destination in Kerala. Kerala Tourism Development co-operation going to starts its hotel there. State government also started companies with the help of local people, and it would be beneficial to various tourism projects. This beach has great tourism potential and only with the help of residents it can grow into extreme. Nearby place DharmadamThuruth can be connected to this beach and it can develop as an international beach tourism destination.

Destination Management Council (DMC) will allow planning and co-operation on part of local people. DMC included local body members, cultural activists and officials in each tourism destinations.

Due to the establishment of hotels, lot of local people get direct employment, which is tourism multiplier is happening there. Then these hotel and companies demanding local farm products for food preparation from local farmers especially form local fisherman communities who constituted a major population at Muzhappilangad beach.

Muzhappilangad beach is good for nature lovers, experience seekers, adventure seekers and photo fanatics. No entry fee is imposing here. Around 2 to 3 hours is the visit duration. Cars can be driven all through the 4 km stretch of hard sand on the beach. This beach looking best during sunset. The best time to visit the beach during beach festival that takes place in April. The nearest town, Thalassery is 7 km away from the beach. The atmosphere is breezy and pleasant. There are few places in the beach that offers snacks and ice creams. Careful attention should be made in the case of parking of vehicles. Suppose you park it close to the

water, it may sink a bit into the sand due to waves. Moreover, if your vehicle goes into the ocean, a fine may impose by the police. But there are no top-class facilities.

Pros and Cons of Muzhappilangad Beach

It is a perfect beach for driving since the sand is hard, amazingly beautiful during sunset, cool and breezy and no entry fee. But at the same time, here, swimming can a limited extent only, not many places to ear nearby, car get stuck if you park near water and cannot expect too much cleanliness.

Tourism act as one of the important service sectors with enormous economic consequences on residents. It is the contribution of job creation and income generation. It is the world largest generator of jobs. It is an economic activity capable of earning valuable foreign exchange, generating employment, stimulating infrastructural development, and paving the way for overall economic growth.

Choice Modelling Technique:

One of the important methods that we are using to evaluate externalities is the Choice modelling technique. **Choice modelling** (CM) is a 'stated preference' technique that can be used to estimate non-market environmental benefits and costs.

Choice modelling attempts to model the decision process of an individual or segment via revealed preferences or stated preferences made in a particular context or contexts. Typically, it attempts to use discrete choices (A over B; B over A, B & C) in order to infer positions of the items (A, B and C) on some relevant latent scale (typically "utility" in economics and various related fields). Indeed many alternative models exist in econometricsand other fields, including utility maximization, applied to consumer theory, and a plethora of other identification strategies which may be more or less accurate depending on the data, sample, hypothesis and the particular decision being modelled. In addition, choice modelling is regarded as the most suitable method for estimating consumers' willingness to pay for quality improvements in multiple dimensions.

There are a number of terms which are considered to be synonyms with the term choice modelling. Some are accurateand some are used in industry applications, although considered inaccurate in academia. They are stated preference discrete choice modelling, discrete choice, choice experiment, stated preference studies, conjoint analysis and controlled experiment etc.

The theory behind choice modelling was developed independently by economists and mathematical psychologists. The origins of choice modelling can be traced

to Thurston'sresearch into food preferences in the 1920s and to random utility theory. In economics, random utility theory was then developed by Daniel McFadden and in mathematical psychology primarily by Duncan Luce and Anthony Marley. In essence, choice modelling assumes that the utility (benefit, or value) that an individual derives from item A over item B is a function of the frequency he chooses item A over item B in repeated choices. But because of the use of Normal distribution, Thurston was unable to generalise this binary choice into a multinomial choice framework, hence why the method languished for over 30 years. However, in the 1960s through 1980s the method was axiomatised and applied in a variety of types of study.

Choice modelling (CM) is a 'stated preference' technique that can be used to estimate non-market environmental benefits and costs. It involves a sample of people, who are expected to experience the benefits/costs, being asked a series of questions about their preferences for alternative future resource management strategies. Each question, called a 'choice set', presents to respondents the outcome of usually three or four alternative strategies. The alternatives are described in terms of a common set of attributes. The alternatives are differentiated one from the other by the attributes taking on different levels. One of the alternatives – that relating to the 'business as usual' (BAU) option – is held constant and is included in all the choice sets. The levels of the attributes in the alternatives involving change from the BAU are distributed according to an experimental design so that respondents are faced with a wide range of future outcomes. Respondents' choices of their preferred alternatives demonstrate their willingness to trade-off one attribute against another. So long as one of the attributes used to describe the alternatives is monetary, it is possible to estimate respondents' willingness to pay to secure additional units of the non-market environmental benefits described by other attributes (or to avoid non-market environmental benefits described by other attributes). It is also possible, using the choice data, to estimate the values respondents hold for the changes from the BAU to some alternative strategy. This format of value estimate is consistent with the requirement of cost-benefit analysis.

Generally, discrete choice modelling technique involves some steps. They are;

*Identifying the good or service to be valued.

*Deciding on what attributes and levels fully describe the good or service.

*An experimental design should construct, and which is appropriate for those attributes and levels, either from a design catalogue, or via a software program.

*Constructing the survey, replacing the design codes with the relevant attribute levels.

*Administering the survey to a sample of respondents in any of several formats including paper and pen, but increasingly via web surveys.

*Analysing the data especially by using Multinomial logistic regression model and given its attractive properties in terms of consistency with economic demand theory.

CM is versatile in its application. Because the alternatives presented to respondents in the choice sets are hypothetical, the CM analyst can design an application to estimate a wide range of values including use and non-use values of the environment. Studies have also estimated non-market, social values associated with environmental management strategies including the impacts of unemployment. Where the outcomes of alternative environmental management strategies are sufficiently complex to require their description using more than five attributes, the ability of respondents to cope with the choice sets is likely to be compromised.Choice modelling is particularly useful for:

- Predicting uptake and refining development of the new product
- Estimating the implied willingness to pay (WTP) for goods and services
- Product or service viability testing
- Estimating the effects of product characteristics on consumer choice
- Variations of product attributes
- Understanding brand value and preference
- Demand estimates and optimum pricing

The time involved in a CM application depends on the form of the survey. For a mail out/ mail back format, two to three months should be allowed as a minimum. For a personal interview survey, one to two months is possible. The selection of the survey form will depend on the scope of the study. For a national, random sample, mail out/ mail back will likely be the most feasible format. Localised issues can be tackled using personal interviews. The cost of an application will depend on the scope/scale of the survey used. The only acceptable substitute technique is contingent valuation. While this technique may be less expensive to implement, it produces estimates for single policy options. In contrast, CM produces a value function that can be used to estimate values associated with multiple policy options. CM is therefore potentially more cost-effective. CM, as a stated preference technique, requires the collection of primary data. This in turn requires the use of a survey. The smallest CM exercise would normally require a sample size of around 1000 valid responses for it to provide sufficient statistical power. However, smaller samples are possible where respondents may be expected to answer a greater number (more than eight) of choice sets in each questionnaire. This is likely

to occur when the issue of interest directly affects respondents (e.g. a local issue).

Both positive and negative externalities are affecting the residents of Muzhappilangad beach. Data collected from the farmers, fishermen community, local dwellers, and vehicle owners of the nearby places. Due to the start-up of hotels by KTDC and other non-governmental organizations, how they benefitted through their farm products especially, demand for fresh fish, snacks and ice cream, other toys and balloons etc. Respondents respond towards the attributes of risk of overcrowding, environmental protection of the beach, different combinations of cultural offer, evening and night beach services, the level of taxation needed to finance the proposed projects, problem of pollution including noise, air and plastic pollution.

From the analysis, it is observed that the residents are facing more negative externalities than positive externalities. In the case of positive externalities, almost all residents enjoying an increasing level of employment and income during beach festivals than the other months. There is a hike in their employment level of income during April and other festival months (August, December).

They are facing more negative externalities such as noise pollution, air pollution and plastic pollution. During beach festivals, many people are reaching there through vehicles and some rides and other noise articles are situating to attract tourists.

Air pollution is happening through emission from vehicles, especially because of drive in beach, emission of carbon monoxide may comparatively be high at this place throughout the year and it will reach its maximum during beach festivals. Then environmental quality also damaged.

Due to lack of proper security personal and control, visitor is using different plastics and throw their waste towards sea especially plastic waste include bottles, plastic carry bags etc. And after the festival, no proper cleaning methods are following by the authorities. Then residents are compelled to burn that waste in the seashore, it creates so many health problems to the residents. Moreover, the waste dumped into the sea becomes a barrier to the fisherman to catch fish properly.

Lack of proper infrastructure especially lights during nights create so many illegal activities and it leads to some prostitution activities and child labour in that region. Most often some cultural clashes are also seen in the area. It creates a total insecurity to the nearby residents. If the government takes proper steps to develop more infrastructure and other security measures, it may become an important source of revenue to the government and can attract more

tourists not only from Kerala but from others states and countries also. And the residents are expressing their willingness to pay to beautify the beach.

Conclusion

Tourism acts as one of the important service sectors with enormous economic consequences on residents. It is the contributor of job creating and income generation. It is the world largest generator of jobs. It is an economic activity capable of earning valuable foreign exchange, generating employment, stimulating infrastructural development, and paving the way for overall economic growth. Muzhappilangad beach is a mass tourist destination, but also a medium-sized city and the residents' willingness to pay for a more environmental-friendly city might play a crucial role both in the policy strategy, and in terms of tourism development. But regarding the cleanliness, this beach is very backward. Due to open defecation from the nearby public, this beach sometimes fails to attract tourists. But at present Kerala Suchithwa Mission and Swatch Bharath Programme, some agencies are functioning there to clean that area and try to make it more attractive. Moreover, this beach also lacking good quality hotel and accommodation facilities. If the government paves more interest to expand this tourism product, we can market this product in a better way.

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