

Using Stated Preference to Determine Consumer Surplus to TV Viewers and Radio Listeners

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Radiocommunications Conference DTI

Thursday 15 February 2001

Presentation Notes

1 Objectives

The Radiocommunications Agency (RA) commissioned MVA, in association with Aegis, to carry out research in order to determine the consumers' surplus accruing to TV viewers and radio listeners in the UK. In particular the RA commissioned us to use the Stated Preference (SP) method to determine the willingness to pay for viewing TV and listening to radio, where broadcasting is via radio frequencies (terrestrial and satellite, ie not cable).

2 A Brief Introduction to Stated Preference Techniques

- Traditionally demand modelling using Revealed Preference (RP) analysis (data and techniques), ie choices and decisions that have actually been made in the marketplace.
- With theoretical advances in econometrics, there has been great expansion in the field.
- There are practical limitations to the RP approach: survey costs, difficulty in distinguishing the effects of 'softer' attributes, new alternatives, no-market commodities
- As a consequence, there has developed in the field of market research a practice of basing demand estimates on an analysis of responses to hypothetical choices
- The alternatives are presented in terms of their component attributes, which can take different values

3 A Brief Introduction to SP ctd

- Introduce figure with an SP example question

4 - Methodology

- Design the alternatives to be offered in SP and the variables (attributes) comprising each alternative
- Design levels for each variable of each alternative

- Prepare a questionnaire including a 'SP story' to generate the intended trade-off environment
- Develop the SP design (using a fractional factorial set)
- Correlation check
- Common sense check
- Use simulation to check whether the design can recover a wide range of valuation with appropriate accuracy
- Pilot survey as a 'real life' check
- Repeat from above as appropriate in order to optimise design

5 Methodology ctd

The final tool should be:

- Able to provide interpretable and applicable results
- Have meaning and interest for each respondent
- Avoid risks of policy-response and other bias
- Be practical, straightforward and attractive to administer

6 Surveys

We carried out a total of 415 surveys of TV viewers in households randomly chosen across the UK of Great Britain and Northern Ireland. They were evenly split between terrestrial and satellite TV and in areas with and without access to cable TV.

A total of 51 Enumeration Districts (EDs) were randomly selected from the UK census including England, Wales, Scotland and Northern Ireland. Within each ED we randomly selected households and instructed our interviewers to survey the person in the household who decides and pays for TV services.

In addition, we carried out 105 surveys of radio listeners sampled similarly to TV viewers.

7 Stated Preference Design

- Choice between two hypothetical services (pair-wise comparison)
- Valuing existing products introduces practical complications
- In this case we composed packages which offer other improvements to compensate for the removal of an existing service
- But we could also decompose the existing product or service into its elementary attributes and evaluate it as the sum of the values of its constituent parts
- Each service comprised of one or two new packages of TV channels and possibly existing channels
- Some popular existing TV channels were used alongside new hypothetical offers

- They differed in terms of their programme content, ie movies, sports, drama, news, documentaries, etc
- For each service there was a subscription charge but the current TV licence fee was removed. The respondents were told that installation and basic equipment are free of charge and provided by the sponsors of the services

8 SP design ctd

- show Figure 3.1, stimulus material
- New TV package 2 was used to describe the qualities of digital TV

9 SP design ctd

- Respondents were asked in total 11 SP questions (pair-wise comparisons). See Figure 3.4

10 SP design ctd

- SP design see Table 3.1
- Contents of SP design and package availability and interactions (see Table 3.2)

11 Stated Preference Analysis

- Discrete choice analysis and random utility attempt to find a formula for this utility in terms of well-defined attributes (variables) of the alternatives
- However, it also allows for the fact that there will be random effects as well
- The general practice is to assume that utility is linear in the relevant factors (though this is by no means essential)
- In this case utility formulations of the following type were tested:

$$U = \beta_p P + \beta_Q Q$$

where U is the utility of a particular service (A or B) P is the Price and Q is a service package

ϵ is the error term

β (betas) are coefficients (or relative utilities) to be estimated and they are defined as a movement from best to worse

12 SP analysis ctd

- The estimated coefficients (betas) can vary across different groups of people

- There may be effects which vary across the population, but about which we have no information (unawareness or cannot measure them). These are treated as random through the error term of the utility formula.
- It is this error terms distribution that allows us to make the transition between preference and the probability of choosing any particular alternative
- A common assumption (the reasons for making it are largely practical) is to assume that the error terms are independently and identically distributed, with the Weibull distribution. This yields the well known multinomial logit model

$$p_i = \frac{\exp(U_i)}{\sum_j \exp(U_j)}$$

- The ratio of any package beta over the beta of cost represents the marginal rate of substitution, ie in this case the value in monetary terms of any of these packages
- And therefore, people's willingness to pay for each of these packages

13 Results

- Show results of terrestrial TV viewers (Table 4.2) and explain terms
- Briefly explain T-statistic and statistical significance

14 Results ctd

- Discuss TV viewers results

15 Results ctd

- [Possibly show and discuss results of TV viewers with and without access to cable TV (Table 4.3)]
- [Possibly show and discuss results for satellite viewers (Table 4.4)]
- [Possibly briefly discuss issues with the radio survey]
- [Possibly show Table 4.8 and discuss results of radio survey]

Bio

George Terzis is a Managing Consultant with MVA and has 18 years of experience in the field of transport planning and economics, having worked in the UK and abroad. Dr Terzis specialises on demand forecasting, market analysis and policy appraisal. He is also MVA's expert on stated preference techniques. He has a wide experience in planning and product evaluation and has advised a number of clients such as: Department of Transport and the Regions (UK), Strategic Rail Authority (UK), London

Transport, the Dutch Railways, RATP (Paris), the Swedish and Danish Governments, Eurotunnel, the Metropolitan Transportation Authority (New York), the British Airport Authority, Cathay Pacific, and other private clients.