

# Teaching Contingent Valuation and Promoting Civic Mindedness in the Process



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## Abstract

Economics majors are often assumed to lack civic mindedness. The purpose of this paper then is to demonstrate how by engaging students in the proper understanding of contingent valuation (CV) methodology and by evaluating a social service, we can improve student outcomes in two areas: increasing their competence in research design as well as in the process teaching them to consider the more unfortunate. Since students are really learning by doing in this prescribed process, the attractiveness of the teaching methodology is that the instructor substitutes direct learning and instruction on research design for one where students learn much of the subject matter through experimentation. This paper articulates the experiences of conducting a CV exercise with 49 second- and third-year economics students from the National University of Singapore (in the Environmental Economics course) during the month of October 2001.

## Are economics majors less civic minded?

Since the study of Frank, Gilovich and Regan (1993), the notion that economics majors look towards the interests of the wider community was firmly put in doubt. The study compared undergraduate economics majors to non-economics majors in a prisoners' dilemma experiment in which unenforceable cooperation between two participants would benefit both more than either one who went on his own. Sixty per cent of the economics majors looked out for themselves and defected. Only 38 per cent of non-economists defected. Since that study, other papers have

considered the view that those with economics training are different (Carter and Irons, 1991; Kirchgassner, 2005) and may seem less civic minded (Frey and Meier, 2003). Yetzer, Goldfarb and Poppen (1996) give contrary evidence to show that those with economics training do not necessary differ from the behaviour of those disciplined in other areas when it comes to behaving in real-world situations.

Is it then economics training, stressing self-interest and maximising utility that led to the lack of cooperation in that experiment, or could it be that uncooperative people tend to study economics? Put in a different way, are our economics departments attracting students who might have potentially entered into economics merely because it offers one of the highest starting pay degrees<sup>1</sup> available in the market today? This paper does not attempt to draw conclusions from the earlier literature cited, but proceeds from a premise of 'what if'. If those who study economics are indeed predisposed towards uncooperative behaviour then should the courses we teach perhaps promote civic mindedness in principle? This is where this paper suggests a way not only to teach a core component in many environment economics, or cost-benefit analysis courses, but promote civic-mindedness in the process, without trading off too much time against content – an almost 'have your cake and eat it too' analogy. This is where economies of scope can be reaped, especially when both pursuits are mutually reinforcing.

This paper discusses how CV is taught in most classrooms today and the lack of engagement that often accompanies the topic. It then explains how CV can be used to engage the classroom, while simultaneously attaining the additional benefit of increasing civic-mindedness. As this is an instructional article, the methodology of CV is discussed briefly, while the lesson plan is presented in the manner that I have taught it to my classes.<sup>2</sup> A case study using a special school in Singapore is used for illustrative purposes but should not detract from the main thrust of the paper.

## A brief overview of contingent valuation (CV)

CV methodology is an established methodology and has been in use for over 45 years. The chief advantage of this methodology is that it allows one to determine direct and indirect use values for non-market goods (e.g. public goods). CV methodology uses questions representing a hypothetical change in an attribute or service, and eliciting responses to this proposed change which are measured as money changes in welfare. Through the contingent valuation method, one can vary the amount of change in the public good rather than inferring changes from solicited data. Furthermore, the level of change in a composite good can be directly measured through CV but may be very difficult to measure in data collected from

an appropriate sample. If it is not used, there is a danger that the environment will not be taken into account at all when cost-benefit analysis is the principal methodology. In particular, it is hard to take account of 'non-use value' (e.g. aesthetics) without some form of contingent valuation.

Carson *et al.* (1995) gives a bibliography of over 2000 papers and studies dealing with the topic. Illustrative applications of CV to estimated benefits include the following: increasing air and water quality; reduced risk from drinking water and groundwater contaminants; outdoor recreation; protecting wetlands, wilderness areas, endangered species and cultural heritage sites; improvements in public education and public utility reliability; reduction of food and transportation risks and healthcare queues; and provision of basic environmental services such as drinking water and garbage pickup in developing countries. The vast majority of CV applications as noted by Carson *et al.* (1995) have been undertaken for the purpose of assisting in policy evaluations. Other studies have been undertaken for social services such as healthcare (Amin and Khondoker, 2004; Diener, O'Brien and Gafni, 1998). It is readily accepted that the most direct method of obtaining willingness to pay estimates for non-market goods (or public goods) is the CV method. This however does not suggest that it is the most appropriate method under all circumstances. An alternative approach is the use of citizen juries (CJ). Whereas CV considers benefits, CJ considers both costs and benefits; CV is a private valuation decision whereas CJ takes a public stance and engages in public debate to derive a valuation. Another key point is that CJ allows for more debate and time for decision making, whereas CV is more a survey-related technique and is highly dependent on the questions asked and biases included in the survey. One key disadvantage to the CJ process is that it comes not from a stakeholders' perspective and therefore may understate the true impact of environmental disruption.

The main argument against the use of contingent valuation to determine the value of a public good is the fact that respondents are usually unacquainted with the prospect of placing a dollar value on environmental or public goods. However there are many instances of goods that respondents would be suitably qualified to make stated preference evaluations. One such example is the provision of social services but a discussion of that is reserved for the next section. Therefore it is also important in any attempt to teach CV to explain the relationship between a well-specified and reliable CV study in terms of the ability of its respondents to make informed 'stated preference' evaluations. Carson (2000) discusses that well-specified and well-designed surveys are highly effective and perhaps the most cost-effective method as well in eliciting non-use values for public goods. Since 1993, this necessitates following the major guidelines outlined by the National Oceanic and

Atmospheric Administration (NOAA) Panel (NOAA, 1993) which became the 'industry' standard in legitimising such studies.

## Most teaching of CV is in the classroom

CV should be learnt through experimentation and direct contact with stakeholders in order that students better appreciate the practical difficulties of using this methodology. There is an artificiality associated with classroom learning. It is perhaps the best way to learn facts, but it may not be the best way to promote CV and, in my belief, not the best way to teach CV either. Since CV lends itself readily to engage the wider community (in fact I assert that the methodology itself is meant to engage the community), it is such a shame that most lecturers teach it in the classroom, instead of actually conducting CV surveys. CV when taught in a classroom setting tends to fail one of two acid tests: (1) non-partiality of the instructor and (2) relevancy to the audience.

### *Non-partiality of the instructor*

Instructors rather than practitioners teaching CV tend to *overemphasise* the weaknesses of the methodology at the *beginning* before students have a chance to evaluate the possibility of its usefulness. This thereby biases students at the outset against CV methodology without appreciating that a well-designed CV study has many attractive benefits. This may sound overly stated, but I believe relevant to the point being made. Consider a topic in econometrics. In courses of beginning econometrics, students are taught the primary method of deriving ordinary least squares (OLS) estimates first despite its rather simplistic assumption of a normal distribution of error terms with overall zero mean. If an instructor in this case were to start to downplay the contribution of the OLS methodology and dismiss its impact, the attractiveness of the model and the appreciation of extensions that can correct simplifying assumptions, would possibly be ignored. In teaching CV, the instructor needs to present the idea impartially at the outset and relevantly choose examples which will highlight the appropriateness and inappropriateness of the use of CV in previous studies.

### *Relevancy to the audience*

This is one component in a lecture series that lends itself fairly easily towards some sort of student participation. Instructors then tend to take a well-specified survey that has been tried and tested in the field and conduct that survey among students. After all, it allows students to achieve a certain level of engagement with the topic at hand. However most of these surveys would question students about non-market or public goods with which they would not be well acquainted. Take

**Box B**

During the period of the spill there were about one and a half million seabirds and sea ducks of various species in the spill area inside and outside Prince William Sound. (POINT)

As you can see from this card, 22,600 dead birds were found. (POINT)

The *actual* number of birds killed by the oil was larger because not all the bodies were recovered. Scientists estimate that the total number of birds killed by the spill was between 75,000 and 150,000.

About *three-fourths* of the dead birds found were *murres*, the black and white bird I showed you earlier. This is shown on the first line of the card. (POINT)

Because an estimated 350,000 murres live in the spill area, this death toll, though high, does *not* threaten the species.

One hundred of the area's approximately 5,000 bald eagles were also found dead from the oil.

The spill did *not* threaten any of the Alaskan bird species, including the eagles, with extinction. (PAUSE)

Bird populations occasionally suffer large losses from disease or other natural causes. Based on this experience, scientists expect the populations of all these Alaskan birds to recover within 3 to 5 years after the spill. (PAUSE)

for instance the case of an oil spill that is described in Box B reproduced from Carson *et al.* (2003). Richard Carson and Michael Hanemann are considered the gurus in the field of contingent valuation.

Any question posed to students which attempts to value the wildlife loss using this in a classroom example would be problematic. Some students would be able to identify with the problem but most would not, hence students would tend not to represent their preferences very well. If a question were to be asked stating that if the respondent were a resident, how much would he/she be willing to be compensated, would such a respondent view the death of the 22,600 birds or 150,000 birds in the same light? Not to mention, how does one delineate from the embedding biases found in any question? These refer to the confusion of the precise 'good' that people are evaluating. If it is not well specified, the reader may embed the question into a larger context leading to an over- or understatement of the *willingness to accept* value. Certainly the question is too 'loaded' with information for a student or even a potential respondent to make appreciable changes to their answers in response to variations in the information set given in the question. To have students undertake questions specifically aimed at non-users or users of a public good serves to confuse the issues and the validity of any result. These problems would lead discerning students to dismiss the conclusions as highly circumspect.

## Addressing non-partiality and relevancy in the case of social services

By allowing students to engage with the public they learn on their own the limitations and merits of CV methodology without the viewpoints of the instructor. The attractive feature of this type of lesson plan is that instructors act as facilitators, while students carry out the role as researchers. There are complementarities of functions where economies of scope can be achieved. Beyond just the study of a single topic in a course, students are able to study research design, methodology, sampling and, hopefully, civic mindedness, without adding greater workloads for the instructor as students become the vehicles for their own learning. Students are also able to see how CV methodology can be improved upon in order to address certain biases (see Table 1).

The choice to evaluate a social service therefore allows students the opportunity to meet with families in less fortunate circumstances. By directly assessing the impact these services have on the public and especially putting a human face to suffering, privilege and non-privileged students alike are able to learn CV methodology from the ground up. This allows the student the dual opportunity to learn how biases involving the interviewer's perception of the situation can affect answers elicited through the interview process as well as achieving the purpose of letting students interact with the wider community, especially the less-privileged or disadvantaged.

The evaluation of a social service has the added benefit in that it is relatively easy to distinguish the relevant audience. Charities and social services have a long history of soliciting donations from users and well-wishers. The willingness to pay (WTP) is usually perceived as a 'feel-good' altruistic action and is incentive compatible if the payment vehicle is well specified. This includes specifying a payment scheme for which money can actually change hands. It may not be necessary to charge participants as long as participants understand that 'there is a chance that they may pay' and that it is a legally binding contract. In Sinden (1988), there is no statistical difference between actual and hypothetical willingness to pay in 17 parallel experiments soliciting actual and hypothetical monetary donations to a fund for assisting soil conservation or controlling eucalypt dieback. Carson, Hanemann and Mitchell (1986) and Kelly and Mirer (1974) support this result when the experiment is credibly carried out.

Another concern about CV studies is the added complication of surveyors correctly identifying users from non-users,<sup>3</sup> or more specifically to adequately categorise between use values, option values and existence values. Existence value is derived from the desire to preserve such services for the betterment of society; option value is motivated by a desire to preserve a service for possible future use; use

**Table 1** Addressing biases encountered during the pretest

Addressing biases	What was carried out in the actual survey?
Interviewer biases	49 second- and third-year students of NUS carried out the pretest. The pretest was designed to teach the interviewers the specific biases captured in the survey responses. Each student had to carry out four interviews. After pretest briefing, it was revealed that most of those interviewed were undergraduates and friends of the interviewers. After the biases were identified, students were briefed on the specific interview technique, and carried out the actual CV survey a month later.
Embedding biases	In the pretest, interviewers used only an information sheet without photographs. In the actual survey, every respondent was first given a more detailed sheet that carefully described, using words and pictures, the school in question, the services it offered, especially explaining what the aims and effects that individual therapies could facilitate, as well as the total number of students it cared for.
Rank order biases	In the original pretest, the four therapies were described in a single sheet. In the actual survey, respondents received a set of cards, with detailed explanations and photographs, detailing the four services being evaluated. These cards were shuffled in front of the respondent and he/she was asked to place the cards on the table individually as the service was explained carefully.
Sampling biases	In the pretest, students asked their friends and relatives only, while in the actual survey, 20 mass rapid train (MRT) stations were targeted as representative of the population. The selection of the stations was random and each had an equal probability of being chosen. Altogether they covered main districts in the north, south, east and west representing almost 59.60 per cent of the population who live in housing development board (HDB) flats. The interviewer went to five homes, randomly assigned, that were situated around a three-flat radius from the MRT station. The interviewer was given a randomised three-digit number where the first digit represented the number of flats away from the station, the second digit represented the number of floors, and the third digit represented the number of houses away from the stairwell or elevator.

value reflects utility obtained from the ongoing use of the service. Though this can be presumably determined *ex post*, a mistaken classification could upwardly or downwardly bias the mean or median values used to aggregate across the population, as well as inflate or deflate the correct percentage of different user and non-user groups within the population. In evaluating a social service, users and non-users are clearly distinguished by virtue of readily available census statistics. In the specific case of a special needs school, it is not difficult to know the total number of users of the services in the school and find out who are not currently enjoying certain services but would value the option of those services. This could include couples preparing to start a family and families with children with minor disabilities who may deteriorate further over time. Everyone else would see it as an existence value. Values for use and options are solicited from the parents of current students. Existence values are determined through random sampling of the population using either a stratified or purely random design.

### Conducting the lesson

I used the following procedure in teaching CV in my Environmental Economics course. The specific focus of the CV study was the evaluation of four types of services offered by a special school (SNS)<sup>4</sup> in Singapore in 2001. The services provided for children with multiple handicaps and autism comprise primarily: physiotherapy, occupational therapy, speech and language therapy and music therapy. The aim of the CV exercise is to provide a social valuation of the services provided. The outline of the lesson plan is presented below:

1. Students engage in a pretest with a prepared survey prior to the lecture as an assignment. There are no guidelines given and they are required to explain possible biases and problems encountered during tutorials. This first step was instrumental in engaging the students at the outset and helped them learn first hand the type of errors and biases one can encounter in these studies.
2. Tutorial on CV starts with allowing students to voice their opinions about the methodology and the pretest results. The following biases are explained in detail: interviewer bias, embedding bias, rank order bias and sampling bias.
3. The lecture continues with a discussion about redesigning the CV methodology in order to correct for these biases.
4. In order to gauge existence values, a second assignment was given such that students were given a random train station (randomly selected by the instructor) and a random set of addresses that they need to go to, to conduct the corrected survey.



5. In order to gauge use and option values, the students were assigned families (with the cooperation of SNS) according to a stratified sampling approach. Families were chosen from low-, medium- and high-income groups. Students would use the stratified sample to derive estimates to approximate the population of the school.
6. Students needed to calculate existence values, option and use values based on guidelines given to them.

The strategies used to address certain biases in the actual survey are summarised in Table 1. Many of the key features of the actual survey which differed from the pretest were a direct result of student contributions during lectures.

## Methodology and results

The various ways of calculating existence, option and use values are given below.

### *Existence values*

Questions utilising the technique of paired-comparisons were used to determine existence values. This methodology has been shown, when used in a referendum approach, to have incentive-compatibility properties or, at worse, not to have the incentive for lying. Two out of four therapies were highlighted and respondents had to choose which therapy they preferred. Six possible combinations were shown with each therapy having the same probability of winning three times.

A pretest was carried out by 49 second- and third- year students of NUS in the Environmental Economics course during the month of October 2001. Each student had to carry out interviews mostly from friends and relatives. They were not given any interviewing training, neither did they use the referendum approach to solicit results via pair-comparisons. The results derived from the pretest served as a checklist of things to avoid during the conducting of the actual survey which was compiled from a discussion with the class after the pretest had concluded. The biases associated with the pretest are summarised in Table 1. For the actual survey, these biases were addressed. The final amended questionnaire that was used to solicit existence values is provided in the Appendix. (The photos that accompanied the description of the services are not provided but can be furnished upon request.)

### *Option and use values*

For determining option and use values,<sup>5</sup> the methodology of evaluating the individual contributions of particular services utilises WTP values. Twenty respondents (parents of the school's overall student population of 360) accepted

interviews.<sup>6</sup> These respondents came out of three stratified samples, grouped as low-, medium- and high-income groups. The averages of each group were later aggregated across the school population.

The first question determined what the overall value of the services is worth to the parent for his/her child. Parents currently pay a subsidised rate for their children to attend, without regard to the amount of services used but rather as calculated by their affordability.<sup>7</sup> As substitutes to the school are available in the market, though perceived as less desirable by the respondents, parents were asked the following question:

A. Suppose that the Board of Directors close down all the programmes and gives control to a private organisation. As a result, this private organisation will charge an individual fee for each service, if no one pays for a particular service, they will close it down. In order to keep the \_\_\_\_\_ service running, would you be willing to pay \_\_\_\_\_ ?

(Note: If the contribution rate is too low, the programs are automatically cut.)

Based on a referendum approach where interviewers based their starting bids from household income and current school fees (which were solicited from the school since our sample of parents came from a stratified sampling procedure), parents were presented with the scenario that even with the addition to the present school fees, the school had no choice but to close down and had instead contracted out that particular therapy service to private organisations. A menu of prices was presented to respondents for individual services and a referendum approach was again employed to elicit willingness to pay for individual services. As with double-bounded approaches, if the first starting bid was accepted, the next bound would be selected. Based on the level of hesitancy, values between bounds were also used. Parents were asked if they were willing to pay an extra \$10, \$20, \$40, \$80 or \$120 to allow their child to attend each of the four therapies in succession (the order that therapies were presented were randomised). Due to the fact that the payment vehicle is well-specified<sup>8</sup> and the contingency posed is credible, the stated preference is taken as a reliable estimate of true willingness to pay.

## Results

As this is an instructional article, the results are presented here without much discussion. The average WTP estimates from non-users, option users and direct users are summarised in Table 2. All values are in S\$ amounts/per year.

**Table 2** Average\* WTP existence values and *Shapley* option/use values (\$/yearly)

	WTP (pretest)					WTP (actual)				
	Physio	Occup	Speech	Music	Total	Physio	Occup	Speech	Music	Total
Existence values	7.07	10.27	11.09	4.39	33	11.50	14.68	20.11	5.97	52.27
Option and use values						592	618	509	348	2066.40

\* The average figures all include 'zero' bids.

From the class project, the total estimated value<sup>10</sup> was \$514.46 million dollars a year based on the total of use and option values as well as existence values after the appropriate aggregation across the population. While actual users of the service provided in SNS value the school to the amount of \$730,000 a year, non-users view its existence values as roughly 18.79 times that of actual use and option values.

### Did students learn research design and were they touched by the experience?

The students were involved in a pretest which they carried out without prior instruction and then after the pretest suggested ways to improve the survey by voicing their experiences. After detailed explanations of possible biases, a further discussion was carried out about how to properly account for those biases pertaining to that study. In this way students were instrumental in the design of the survey and also its implementation. They also understood the importance of a pretest and proper sampling techniques. Hence it is asserted that the objective of learning research design was well met.

Having these 49 students understand both the non-use and use values of the four services offered by SNS as well as having had direct contact with the users of these services opened up a world of understanding on very basic notions that we take for granted: mobility, intelligence, even speech. The exercise had a positive impact on their ability to relate to people and to those who had faced crises as evident from anecdotal evidence through informal feedback received from students in the course of the exercise. However, as economists, we demand greater evidence of this increase in civic mindedness. In reply to this, all I can offer by way of evidence is the amount of money raised through pledges that these students received through the pretest. Friends and family members were informed that their pledges and contact

details would be given to SNS. Altogether those 49 students interviewed 76 friends and family members and raised S\$2,803, which is on average S\$57.20 per student. It is noteworthy that a class exercise that was not required for credit received such an enthusiastic response.

After the actual survey was conducted, from discussions with students, it was also voiced that the experience had also given them a greater understanding about the human face of suffering. It is therefore also stressed that in order to attain the desired outcome of promoting civic mindedness in the course, the lecturer should take note of students' experiences from the exercise whether formally or informally.

## Conclusion

In the course of this exercise, students in my classes came to understand that the economic/social value of a social service, especially providing for the needs of the disabled, comes more from the existence value and option value of the service rather than its value of use. This is consistent with what we teach as 'positive externalities'. The private benefit of a social service can be limited to only a certain segment of the population but the positive externality of having that service present in society may confer benefits to non-users and option users. Thus, a social planner giving an autistic child a subsidy of \$500 for a month of schooling, will be disappointed to see that its only effect is that of the boy smiling more and hitting objects less. However the goodwill generated from that allocation from his parents and a society that values such humanist altruism, may provide positive externalities that are usually ignored by policymakers. The approach adopted in this paper saw students learning research design and engaged them in discovering the merits of CV methodology. As a possible side benefit, it raised students' awareness of those less fortunate than themselves and affected their way of seeing the less fortunate.

## Appendix

### Survey Form

I am a student from the **National University of Singapore** working with **SNS** conducting a joint study to see how much value a Special Needs School (children with handicaps) adds value to everyday Singaporeans. There is no right or wrong answer, please answer the questions as honestly as you can. This survey will take 10–15 minutes of your time. Any questions can be directly communicated to : *Roland Cheo, Department of Economics, Tel: 874-3729.*

1. Name: Race:    C / M / I / O                      Sex:            M / F
2. Address:
3. How often have you donated to a social cause (eg. Community Chest, Charitable Associations)  
 None     Once a year     2-3 times a year     4 or more a year
4. Type of donation  
 Flag-day     Charity event (eg. walkathon, telephone donations)  
 Direct involvement (GIRO, cheques)
5. What is the highest level of qualification you have attained  
 No formal education                      Primary                      Secondary  
 VITB, Vocational                          Pre-U/ JC                      Polytechnic  
 Teacher Training Institute              University
6. What is your monthly family income  
 Less than \$1500                       \$1501–2500     \$2501–4000  
 \$4001–5000                           above \$5001

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SNS is one of 17 Special Needs Schools in Singapore but is one of only 2 specialized schools dealing with students with autism or multiple handicaps such as

- Limited speech or communication;
- Difficulty in basic physical mobility;
- Tendency to forget skills through disuse;
- Trouble generalizing skills from one situation to another; and
- A need for support in major life activities, e.g., domestic, leisure, community use, vocational.

Their students suffer from Down Syndrome, Cerebral Palsy, Autism, Multiple Disabilities and Neurological breakdowns.

The following therapies are available to these types of children

<b>Service</b>	<b>Description of Service</b>
Occupational therapy	<p>OT teaches <b>foundational skills</b> that help students <b>see, store and use information</b> in order to solve problems; and <b>understand relationships</b> between people and objects, time and space, cause and effect while <b>developing motor skills, balance</b> and equilibrium reactions; muscle tone; eye-hand coordination, grasp-release and manipulation of objects.</p> <p>They teach such students to use their mouths to suck, chew and learn tongue movements as a foundation for speech, using gestures and facial expressions for nonverbal communication, <b>while learning how to feed, dress, go to the toilet</b> and other hygiene skills; plus awareness of environmental dangers.</p>
Music therapy	<p>Music is used as an enjoyable and non-threatening tool to help children break through <b>barriers of insecurity</b>. Music therapy is not about teaching music, but rather about <b>helping a client achieve health</b> through the active exploration of instruments, singing and other ways of music making. It <b>encourages spontaneous responses</b> and <b>improves self-esteem</b> in multiply-handicapped children; learning social skills, increasing eye contact and <b>improving the quality of relationships</b> in children with autism; and encouraging vocalisation in children with communication delays.</p>
Speech and language therapy	<p>They help students <b>move from gestural to verbal</b> communication, helping students talk more, and have <b>more meaningful dialogue</b>, while increasing understanding of situations and vocabulary. They <b>teach expressive language skills</b> so that children can ask questions and understand subtle meaning between different combinations of words.</p>

Activities act as way to get spontaneous language development. During play the foundational skills for more sophisticated, higher level use of language are taught, eg) sequencing, making predictions, **expressing “why” something happened, reasoning** and abstract thinking skills, making inferences, and problem solving.

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Physiotherapy

They devise a **special programme for students’ individual needs like purposeful play using toys**, ball games, balance and climbing activities, or specialised equipment.

They encourage **reach and grasp, eye-hand co-ordination**, body movement and exploration, achievement of sitting and walking, improved balance and co-ordination, muscle strength and flexibility. Help you understand your child’s problems and teach you to **encourage normal movement when parents dress**, bathe or play with their child.

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## II. Choose the option that you think is more important for Special Needs students

Eg.  Chocolate vs  Ice-cream

Meaning: I think chocolate is more important than ice-cream.

- a.  Physiotherapy vs  Music Therapy
- b.  Occupational therapy vs  Music Therapy
- c.  Speech/language therapy vs  Physiotherapy
- d.  Music therapy vs  Speech/language therapy
- e.  Speech/language therapy vs  Occupational therapy
- f.  Occupational therapy vs  Physiotherapy

The last question involves a pledge of a voluntary donation. All surveys results will be made known to SNS and there may be a chance that they will contact you, though this is not certain.

## Question

A. Suppose that SNS, one of only three specialized special education centers in Singapore were unable to provide their services to the public because of lack of funds. In order to maintain their services, a general appeal to the public were made. By filling out a form, a donation of your choice can be GIRO-ed as a one time payment yearly to the school. What is the maximum you would be willing to GIRO out of your account. (Please note that this information will be given to SNS )

\$ \_\_\_\_\_

## References

- Amin, M. and Khondoker, F. (2004) 'A contingent valuation study to estimate the parental willingness-to-pay for childhood diarrhoea and gender bias among rural households in India', *Health Research Policy and Systems*, 2(3).
- Carson, R. T. (2000) 'Contingent valuation: A user's guide', *Environmental Science & Technology*, 34(8), 1413–1418.
- Carson, R. T., Hanemann, W. M. and Mitchell, R. C. (1986) 'The Use of Simulated Political Markets to Value Public Goods', *Working Paper*, Economics Department, University of California, San Diego.
- Carson, R. T., Wright, J., Carson, N., Alberini, A. and Flores, N. (1995) *A Bibliography of Contingent Valuation Papers and Studies*, NRDA: La Jolla, CA.
- Carson, R. T., Mitchell, R. C., Hanemann, W. M., Kopp, R. J. and Presser, S. (2003) 'Contingent Valuation and Lost Passive Use: Damages from the Exxon Valdez Oil Spill', *Environmental and Resource Economics*, 2(5), 257–286.
- Carter, J. R., and Irons, M. (1991) 'Are Economists Different?', *Journal of Economic Perspectives*, 5, 171–177.
- Diener, A., O'Brien, B, Gafni, A. (1998) 'Healthcare contingent valuation studies: a review and classification of the literature', *Health Economics*, 7, 313–326.
- Frank, R., Gilovich, T. and Regan, D. (1993) 'Does Studying Economics Inhibit Cooperation?', *Journal of Economic Perspectives*, 7(2), 159–171.
- Frey, B.S., and Meier, S. (2003) 'Are Political Economists Selfish and Indoctrinated? Evidence from a Natural Experiment', *Economic Inquiry*, 41, 448–462.
- Kelly, S. and Mirer, T.W. (1974) 'The Simple Act of Voting', *American Political Science Review*, 68, 572–591.
- Kirchgassner, G. (2005) '(Why) are Economists Different?', *European Journal of Political Economy*, 21, 543–562.
- National Oceanic and Atmospheric Administration (NOAA) (1993) 'Report of the NOAA Panel on Contingent Valuation', *Federal Register*, 58(10), 4602–4614.
- Sinden, J.A. (1988) 'Empirical Tests of Hypothetical Biases in Consumers' Surplus Surveys', *Australian Journal of Agricultural Economics*, 32, 98–112.
- Yetzer, A.M., Goldfarb, R.S. and Poppen, P.J. (1996) 'Does Economics discourage cooperation? Watch what we do, not what we say or how we play', *Journal of Economic Perspectives*, 10, 177–186.



## Notes

- 1 The National Association of Colleges and Employers (US) conducts a quarterly survey on starting pay and reports that for the graduating class of 2005, economics degrees received \$42,802 compared to a marketing degree that received \$37,832 or a liberal arts degree that received \$30,337. It is also reported that an economics degree starting pay was comparable to the starting pay for accounting, civil engineering and information science degrees. The margin of difference between the different starting pay was marginal at \$1000 a year.
- 2 The actual derivation of the final figures are available upon request.
- 3 Take for example, a public park. A person who lives near a park, has used it in the distant past, and regards with conviction the need for the park, may incorrectly be classified as a user or an option user, though he may actually view it in terms of an existence value. I credit my own irrational desire to keep a gym membership current even though I find myself too busy to go. I vehemently consider myself a gym member and user and will be offended if someone suggested otherwise.
- 4 One of 17 Special Needs Schools in Singapore but it is one of only two specialised schools dealing with students with autism or multiple handicaps such as limited speech or communication, difficulty in basic physical mobility, tendency to forget skills through disuse, trouble generalising skills from one situation to another; and a need for support in major life activities, e.g., domestic, leisure, community use, vocational training.  
The school name has been changed and is referred to throughout as SNS (Special Needs School) in order to preserve anonymity.
- 5 For the purposes of this study, we group option and use values together because of the degenerative nature of the disabilities for children with multiple handicaps and autism. Just because a child is not using a particular service at the moment is no indicator that he will not be doing so in the near future.
- 6 Since the purpose of this real-life example is for teaching purposes, the low participation rate is acceptable as it is used for illustrative purposes only.
- 7 Government social workers are usually assigned to families to make a needs-based assessment before the school fee is determined.
- 8 Parents were told that this was a survey undertaken by SNS and that all responses would be disclosed to the school and, if necessary, donations may be solicited.
- 9 Of this total value, the lowest valued of the four therapies – music therapy – was accorded the total value of S\$1.5 million dollars a year. The actual subsidy provided by the government to run this program is S\$1 million dollars a year.

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