

# A Contingent Valuation Method for Determining the Intangible Costs of Development-Induced Displacement

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## Abstract

This thesis presents a method for determining earlier overlooked costs of development-induced displacement, to be used in the cost–benefit analysis framework. More precisely, the method aims to determine asset-and-income loss complementary, ex post willingness-to-accept for the first year of displacement. The method was developed within the contingent valuation framework and was thus implemented as a survey. Implementation was conducted in the Damnak Troyung resettlement site, by interviewing displacees from the Boeung Kak lake area, in Phnom Penh, Cambodia. The method was evaluated on the dimensions of method reliability, usability, and practicability. It is concluded that although the method needs further testing and improvement, it represents an advance toward determining all costs of development-induced displacement.

**JEL classification:** C83, H43, O22

**Date submitted:** May 15, 2013

**Supervisor:** Örjan Sjöberg

**Date of presentation:** June 7, 2013

**Examiner:** Yoichi Sugita

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### **Acknowledgements**

We would like to thank our field supervisor, professor Pou Sovachana, whose kind help and hospitality made our stay in Cambodia both simpler and more memorable. Furthermore, we are deeply grateful to Vin Kagnara and Vann Yuvaktep, for the invaluable help and much enjoyable company in the field. We would also like to thank our supervisor at home, professor Örjan Sjöberg, for assisting us from a distance, providing us with much needed guidance. The fieldwork was funded by a Minor Field Study grant, awarded by the Department of Economics at Stockholm University and financed by the Swedish International Development Cooperation Agency (SIDA). We would like to thank both these institutions for making our fantastic journey possible. Last but not least, we would like to express our deepest gratitude to the people of Damnak Troyung. All mistakes are ours alone.

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# 1 Introduction

Since 2007, more than 3,000 families have been displaced from the Boeung Kak lake area in Phnom Penh, the capital of Cambodia. The large lake, located near the city center, has since been filled with sand to make way for an up-market real estate development, while the former residents have been displaced to small resettlement sites on the outskirts of the city. In exchange for giving up their homes, displacees received compensation equivalent to a fraction of land value. A number of families are still fighting for their right to proper compensation and the case has received attention in international media (Bugalski and Pred, 2010; Phorn and Zsombor, 2013).

Development-induced displacement (DID) arises in several contexts worldwide, with varying consequences for the displaced. Causes range from urban development projects such as the one in Boeung Kak to road- or dam-building in rural areas. Approximately 10 million people are forcibly displaced yearly according to a commonly cited estimate by the World Bank (1996), a majority of which in the developing world.

While seemingly unfair, DID is considered economically justified when serving the greater good, i.e. although a project might negatively affect some people, the aggregate societal benefits exceed the costs. This notion is formalized by cost-benefit analysis (CBA), applied by decision-makers when evaluating proposed large-scale projects. In practice, governments that bother with conducting CBA normally offer compensation to the displaced, in an effort to leave all affected parties at least as well off as they were before. However, compensation sufficient to meet this goal is not always paid out, as demonstrated by the introductory example from Cambodia and several other projects in developing countries (Asian Development Bank, 2007). This implies that some governments may only consider the net benefits of a project and disregard their distribution, or—perhaps even more likely—only the benefits accruing certain individuals.

Inherent problems with CBA include the difficulty of quantifying intangible costs for displacees, e.g. loss of social assets and psychological damage from displacement (Pearce, 1999). Consequently, they are often left out from the analysis, causing an upward bias of a project’s net benefits. The bias becomes particularly great for projects where insufficient compensation is paid out, where multiple risks of additional impoverishment are created (Cernea, 1999), increasing the omitted post. Evaluations of the aforementioned type of projects could thus easily lead to false conclusions regarding overall social benefits, even with the question of equitability set aside. Despite the frequent occurrence of projects involving DID, research on displacees’ intangible costs remains scarce (Mariotti, 2012).

## 1.1 Objectives

With this thesis, we aim to contribute to the development of a more complete method for measuring the full costs of displacement, to be used within the CBA framework. In particular, we aim to address intangible costs experienced by displacees in connection with development-induced displacement involving impoverishing compensation practice, as is occurring in Cambodia and in developing countries elsewhere.

While projects with insufficient compensation may not be desirable, they are at present

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a fact of development around the world. In this thesis we hope to create a basis for future, more effective CBA that includes the costs of development-induced displacement more accurately. Such CBA could potentially be used by external observants to back up criticism of inefficient and unjust practice, highlighting displacees' hardships. Furthermore, the method could serve as a basis for calculations aiming to determine appropriate compensation for displacees. Finally, on a more general note, we hope that our research could help guide coming attempts to determine the full costs of displacement but also that it could inspire other applications of our findings.

## 2 Current State of Knowledge

To determine what contribution can be made to CBA practice, we first review the current state of knowledge on cost–benefit analysis and development-induced displacement. This exposition starts with a theoretical foundation, then discusses displacement and applied CBA, and ends with current research on relevant topics.

### 2.1 Cost–Benefit Analysis

Cost–benefit analysis (CBA) is an economic tool that aims to determine the magnitude of the discounted net changes in social surplus that is caused by a particular project and, based on that information, to recommend whether to carry out the project or not. CBA is often used in policy making, especially in developed countries. Boardman, Greenberg, Vining, and Weimer (2011) provide elaborate guidelines describing the nine steps in conducting a complete CBA:

1. *Specify the set of alternative projects.* In this stage, one specifies all the different projects that are to be evaluated and compared. In practice, this is often a difficult task since the projects can be infinitely varied, creating an infinite amount of alternatives. One usually decides to analyze only a handful of projects. However, it is possible to analyze only one project relative the status quo.
2. *Decide on whose benefits and costs count (standing).* Here, one decides on which stakeholders have standing, i.e. whose costs and benefits count. The set of stakeholders given standing can vary from only the shareholders of a company to all people on Earth. Federal governments usually only give citizens standing, although this stance is continually being criticized and urged to give way to a more global perspective.
3. *Catalogue impacts and select measurement indicators.* In this stage of the analysis, one comes up with all the expected relevant impacts of the specific project and determines the relevant measurement indicators. In order for an impact to be included it has to be caused, directly or indirectly, by the project.
4. *Predict the impacts quantitatively over the life of the project.* In this stage, one quantifies the impacts specified in stage three and estimates at which points in time they will occur.
5. *Monetize (attach dollar values to) all impacts.* Here, one uses the measurement indicators from stage three in combination with the chronological segmentation of impacts from stage four and monetizes the impacts. This, of course, requires (sometimes resourceful) ways of transforming the physical measurements into monetary terms. As will be elaborated on later, benefits are monetized by measuring stakeholders' willingness-to-pay (WTP) for a perceived benefit and costs by measuring their willingness-to-accept (WTA) for a perceived cost.

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6. *Discount benefits and costs to obtain present values.* In this step of the analysis, one discounts future costs and benefits to their present values (PV), to allow for comparison between those occurring at different points in time. Discounting is needed since people tend to attach greater weight to impacts occurring close in time, compared to future, uncertain impacts. The PV of benefits and costs can be written, respectively, as follows:

$$PV(B) = \sum_{t=0}^n \frac{B_t}{(1+s)^t}, \quad (2.1)$$

and

$$PV(C) = \sum_{t=0}^n \frac{C_t}{(1+s)^t}, \quad (2.2)$$

where PV denotes present value,  $B$  and  $C$  are benefits and costs respectively,  $t$  is the year in which a cost or benefit occurs,  $n$  is the number of years for which costs or benefits attributable to the project continue to occur, and  $s$  is the social discount rate. The social discount rate is subject to extensive deliberation, outside the scope of this thesis.

7. *Compute the net present value (NPV) of each alternative.* The NPV of a specific project is calculated as follows:

$$NPV(B, C) = PV(B) - PV(C). \quad (2.3)$$

This net present value is equal to the discounted net changes in social surplus.

8. *Perform sensitivity analysis.* Understandably, estimations of the magnitude of the costs and benefits as well as of the points in time in which they occur are usually subject to a great deal of uncertainty. Therefore, one should perform a sensitivity analysis, assessing how changes in these estimations affect the NPV of the project in question.
9. *Make a recommendation.* At this final stage, one makes a recommendation on which project to choose based on which project has the highest calculated NPV.

The above stages describe the CBA procedure. In order to understand its widespread popularity and how the final decision rule is justified, one has to appreciate the conceptual foundations on which the CBA framework rests.

### 2.2 Conceptual Foundations of CBA

Pareto efficiency is a cornerstone of welfare economics and, in particular, of CBA (Kanbur, 2003; Boardman et al., 2011). Boardman et al. (2011, pp. 27–28) define the term as follows: an “allocation of goods is Pareto efficient if no alternative allocation can make at least one person better off without making anyone else worse off.” Kanbur (2003, p. 27) explains further that a “Pareto improvement’ takes place when, compared to the *status*



*quo ex ante*, at least one individual is made better off and *no individual is made worse off*.” The terms better off and worse off refer to individual utility, i.e. not necessarily physical goods or money.

Even though a Pareto improvement with resulting Pareto efficiency seems highly desirable, it does not form the basis of CBA—probably because it is very conservative in the sense that it obstructs redistribution of wealth from the rich to the poor and is impossible for any project to guarantee in practice (Kanbur, 2003). Instead, CBA is based on the so-called compensation criterion, or the Kaldor–Hicks criterion. Boardman et al. (2011, p. 32) define it as follows: a “policy should be adopted if and only if those who will gain can fully compensate those who will lose and still be better off.” Or put another way: as long as the aggregate benefits of a policy exceed the aggregate costs, it should be adopted, no matter if some people will be worse off as a result. One can instantly see why this loosened criterion is easier to meet: most projects will have losers.

The compensation criterion, not prescribing actual compensation to be paid out but only that it should be theoretically possible to make no one worse off, is subject to extensive debate. The reason for this debate is that the compensation criterion separates the concepts (Pareto) efficiency and equity, the latter being a concept of economic fairness and equality, concerned with the distribution of wealth. The founders of the criterion, Kaldor and Hicks, both meant that economics should be used for normative purposes only, not prescriptive (Garikipati, 2010). This stance is contrasted by some economists today whose opinion can be summarized by Garikipati (2010, p. 187) in the following way: “such a position is untenable as soon as we leave the abstract world of normative analysis and enter the practical world of policy, where the use of some value judgment becomes an imperative.”

Upon accepting the compensation criterion, we have implicitly assumed that money can theoretically be passed from winning to losing stakeholders so that the losing stakeholders’ utility would be fully compensated, without much concern as to why that would be the case. A reasonable objection would be that money cannot buy a person’s happiness. In order to explain why this, formally, is still the case, one must define WTP and WTA, which are derived from Hicks’ so-called compensation variation (Garikipati, 2010).

Horowitz and McConnell (2003) define WTP and WTA for an individual that would benefit from a policy as follows:

$$u(w - \text{WTP}, 1) = u(w, 0), \quad (2.4)$$

and

$$u(w + \text{WTA}, 0) = u(w, 1), \quad (2.5)$$

where  $u$  is an individual’s utility function,  $w$  is the individual’s wealth, and the second independent variable in the utility function assumes the value 0 if a specific policy is not adopted and 1 if that same policy is adopted.<sup>1</sup> Hence, for an individual that benefits from a policy, WTP defines the maximum amount of money the individual would be willing

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<sup>1</sup>In place of the second independent variable, Horowitz and McConnell (2003) actually use a continuous variable denoting a generic good to be rationed. To simplify, we present a special case with two discrete possible values.

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to pay for its adoption whereas WTA defines the minimum amount of money the person would settle with in order to accept its rejection.

Analogously, assuming that the policy inflicts a cost on an individual, a change of variable<sup>2</sup> yields the following equations for that individual's WTA and WTP:

$$u(w + \text{WTA}, 1) = u(w, 0), \quad (2.6)$$

and

$$u(w - \text{WTP}, 0) = u(w, 1), \quad (2.7)$$

where the notation is the same as in equations 2.4 and 2.5. Hence, for an individual that experiences a cost due to a policy, WTA defines the minimum amount of money the individual would settle with in order to accept its adoption whereas WTP defines the maximum amount of money the individual would be willing to pay for its rejection.

Consequently, what determines a person's WTP and WTA is (1) the magnitude of the experienced change in utility caused by the adoption of the policy and (2) their individual experienced utility of money. By definition, individuals are indifferent to the adoption of the policy given that they pay their WTP or are compensated with their WTA. Although both WTP and WTA apparently can be used to measure both an individual's experienced cost or benefit, the formal definition of a benefit included in CBA is WTP whereas the formal definition of a cost included in CBA is WTA (as noted in step 5 of section 2.1 above). Given these definitions and equations 2.4 and 2.6, as long as the aggregate WTP for a project is greater than the aggregate WTA for the same project, a redistribution of money could make at least one person better off, and everyone else at least as well off, as before the project was implemented. Hence, the project entails a potential Pareto improvement. The rationale behind WTP and WTA can also be found in a regular supply and demand diagram where WTP is represented by the demand curve and WTA is represented by the supply curve. The aggregate difference between supply and demand curves up until the produced quantity of the good in question, or in other words the area between the two curves, is called the social surplus. Consequently, as long as aggregate WTP is greater than aggregate WTA there is a social surplus. As was stated in step 7 of section 2.1, what CBA is measuring is in fact a discounted net change in social surplus (Boardman et al., 2011).

According to Boardman et al. (2011), among others, there should be little difference between a given person's WTP and WTA attributable to a particular policy. However, Horowitz and McConnell (2003) conducted a meta-study of 45 empirical studies comparing WTA and WTP and found that WTA is on average around 7 times higher than WTP. Conceptually, it is not difficult to realize that the mere fact that WTP is bounded by a person's wealth while WTA is not, inevitably leads to disparity between the two concepts, especially when the person is poor (Garikipati, 2010). Furthermore, assuming a quickly diminishing marginal utility of money and a small personal wealth, the same amount of money produces different changes in experienced utility depending on whether it is subtracted or added to the wealth. Other potential explanations can be found, in

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<sup>2</sup>WTP = -WTA.

e.g. ordinal utility theory, loss aversion, and price flexibilities of income (Ahlheim and Buchholz, 2000), but further discussion is outside the scope of this thesis. This discrepancy calls for a clear distinction between WTP and WTA, especially when the person in question is poor (Garikipati, 2010).

Different techniques for measuring WTP and WTA have been developed over the years. An easy way to estimate WTP and WTA, if there is a perfectly competitive market for the good affected by a specific policy, is to use the good’s market price (Boardman et al., 2011). However, a market is in many cases not readily available. In cases where the good in question is non-marketed or there are significant externalities causing a market failure, there is thus a need for other techniques for estimating people’s WTP and WTA.

One way to approach this problem is to value a project’s impacts from people’s observed behavior, or revealed preferences. The rationale behind such methods is to observe people’s behavior in indirectly demanding or supplying a non-marketed good and to in that way deduce their preferences in monetary terms. Boardman et al. (2011) mention several general methods in this category, e.g. the trade-off method which measures the opportunity cost of a person’s efforts to enjoy or avoid a specific non-marketed good, thereby estimating the person’s WTP. Other methods include the asset valuation method—in which changes in a market value of a good are attributed to a project, e.g. houses close to a proposed dam losing value—and the hedonic pricing method—in which one uses linear regression to determine the part of price variations of a marketed good that is attributable to variations in exposure to a non-marketed good, e.g. how house values vary with proximity to a lake (Boardman et al., 2011). However, these techniques are only effective for measuring WTP. They also demand (1) that there are marketed goods whose prices are clearly affected by the non-marketed good of interest, and (2) that there are sufficient data on prices of the affected marketed goods, and their level of exposure to the non-marketed good of interest.

### 2.3 The Contingent Valuation Method

In order to remedy the shortfalls of revealed preferences methods, economists have developed a method that makes use of people’s stated preferences in trying to elicit their WTP or WTA. This method is called the contingent valuation method (CVM) and uses surveys in which respondents get to directly state what they would be willing to pay or accept for a specific good in a hypothetical scenario (Garikipati, 2010). The name stems from the fact that responses are contingent on the scenario described to survey respondents (Hoyos and Mariel, 2010). CVM has mainly been used in environmental economics, and is the most common technique in eliciting the total value of a non-marketed good, i.e. including its ‘passive-use’ value (Carson and Hanemann, 2005). In practice, in a CVM survey, respondents are often asked to state their WTP in terms of taxes for a policy preventing environmental damages. The method gained widespread approval after 1993 (Hoyos and Mariel, 2010) when Arrow, Solow, Portney, Leamer, Radner, and Schuman (1993), under the authority of the (American) National Oceanic and Atmospheric Administration (NOAA), analyzed all previous works on CVM and concluded that “CV[M] studies can produce estimates reliable enough to be the starting point for a judicial or administrative

determination of natural resource damages including lost passive-use value” Arrow et al. (1993, p. 4610).

There is a range of different elicitation procedures—ways in which respondents are asked to state their preferences—and they can be categorized in various ways. For example, Carson and Louviere (2011, p. 545) state that the two major classes are the matching methods, whereby a dollar value is matched to a good, and the so-called discrete choice experiments that “effectively ask respondents to pick their most preferred alternative from a set of options,” while Boardman et al. (2011) make a distinction between non-referendum and referendum methods. The non-referendum methods include the open-ended WTP method—the earliest method to be used in CVM—which involves asking the respondent an open-ended question about their valuation of a specific good. The method has dropped out of favor since respondents seem to need “initial guidance on valuation” (Boardman et al., 2011, p. 374). Another non-referendum method is the closed-ended iterative bidding method, which involves the interviewer making a hypothetical bid, which the respondent accepts or rejects. The bidding amount is then adjusted until the respondent changes their original answer and in that way reveals their WTP or WTA. The referendum methods include the dichotomous choice method, in which respondents are faced with a take-it-or-leave-it offer. Since this method only elicits information about whether people value a good higher or lower than the offered amount, the sample size needs to be large in order to make inferences about actual WTP or WTA. As a remedy to this impracticality, economists developed the double bounded dichotomous choice method, in which the respondent is faced with two offers, the second of which depends on if the respondent accepted or rejected the first offer (Boardman et al., 2011).

CVM has been subjected to massive criticism upon being adopted as a measurement tool in economic analysis, the main doubt addressing the reliability of a method that simply asks respondents how they value a specific good. Indeed, CVM in general and its above-mentioned incarnations are all subject to several potential issues and biases. The most fundamental issue in asking respondents about a valuation contingent on a hypothetical context is whether they understand the scenario presented to them. The problem of hypotheticality—comprising understanding, meaning, and context—might produce both extensive variance in responses and a biased result (Boardman et al., 2011).

Boardman et al. (2011) make account of a number of further biases that might affect the results of a CVM study, including non-commitment bias (whereby respondents often overstate their valuation because the transaction is not actually going to take place, i.e. they need not commit), order effects (whereby the valuation is affected by the order in which the scenario is presented), embedding effects (whereby the valuation is not sensitive to the magnitude of hypothetical impacts), interviewer bias (whereby interviewers in some way affect the results, i.e. by misleading respondents or reporting false answers), and neutrality issues (whereby respondents are not given the ‘whole picture,’ i.e. the survey instrument is not neutral enough). Another common worry is strategic response, i.e. respondents answering questions strategically in order to influence a policy outcome instead of stating their actual WTP or WTA. Furthermore, CVM inherits general survey problems such as sampling bias: care must be taken as not to distort the statistical sample.

Proponents of CVM have answered the criticism in part by pointing out opponents' seeming misconceptions but also by arguing for methodical improvements that would provide mitigation of the issues and biases. Arrow et al. (1993) include guidelines for how to best conduct a CVM study, answering criticism and presented so as to ensure the quality of results. The guidelines prescribe that "respondents be carefully informed about the particular environmental damage to be valued, and about the full extent of substitutes and undamaged alternatives available. In willingness to pay scenarios, the payment vehicle must be presented fully and clearly, with the relevant budget constraint emphasized. The payment scenario should be convincingly described, preferably in a referendum context, because most respondents will have had experience with referendum ballots with less-than-perfect background information" Arrow et al. (1993, p. 4610). As can be noted, these guidelines only concern valuation of environmental damage and policies aiming to prevent it.

### 2.4 Applied CBA in Cases with Displacement

Urban redevelopment, major international events, and development and infrastructure projects such as dams or highways are all cases where CBA can be applied—and all reasons with which states legitimize large-scale displacement of people from their homes. This phenomenon is called development-induced displacement (DID) and occurrence is widespread and increasing all over the world (Olds et al., 2002). According to an old estimate by the World Bank (1996), around 10 million people are affected by DID yearly: figures adding up to 40–80 million affected by the construction of dams up until 2000 (World Commission on Dams, 2000), or up to 60 million overall in India alone until 2004 (Fernandes, 2010).

CBA is of relevance in all of these contexts: true to its purpose, it can determine whether such projects would cause a net social benefit, despite the costs borne by the displaced. In fact, in the developed world, a vast majority of countries routinely use CBA in decision-making regarding large projects (Boardman et al., 2011). However, this practice is not widespread in developing countries (Livermore and Revesz, 2013, p. xiv).

The economic literature holds some examples of CBA application in cases of displacement in a developing country context. Orapan (2003) performs a CBA on three scenarios of potential displacement of farmers living inside a national park in Thailand. All scenarios are evaluated on changing conditions of production, changing conditions of collection of natural resources, and other economic impacts, as well as environmental damages and preservation benefits.

However, Orapan (2003) does not include posts relating to other non-marketed goods other than those concerning the environment, which, too, are often left out from CBA. Indeed, Mariotti (2012, p. 54) states, "the routine CBA at best includes the material costs of displacement (with typically an inadequate and arbitrary valuation of expropriated assets), with no account of the distributional consequences, no use of risk analysis, and inadequate analysis of income loss and resettlers' income curve over time." In effect, her research identifies costs excluded from applied CBA. Some of the omitted costs are addressed by literature on compensation of displacees.

## 2.5 Compensation for Displacement

Following considerations on equity in displacement, it is common for governments to compensate people affected by DID. As displacement often hits the very poorest, and with a serious blow, assets, cash, or a mixture of the two are often utilized to weaken the individually experienced negative effects of a project. In effect, decision-makers aim to approximate a Pareto improvement.

The exact form and size of compensation varies. However, it is clear from experiences all over the world that global compensation practice has not met desired standards. Indeed, the Asian Development Bank (2007, p. 1) notes that “the history of development projects that result in displacement is characterized by the impoverishment of those displaced.” Michael M. Cernea, a leading voice on issues of displacement puts it in a more severe tone: “such displacements are one of the most perverse social pathologies of induced development” (Cernea, 2003, p. 37).

Flaws in the compensation practice primarily stem from failure to implement existing economic guidelines in cases of displacement. The Asian Development Bank (2007, p. 4) follows a policy of compensation as to ensure that affected people’s “economic and social future will generally be at least as favorable with the government takings as without them” and notes several shortcomings in the valuation of land and other assets—for which, they however demonstrate, elaborate instructions exist. Pearce (1999) notes that the World Bank’s policy, too, operates a no-worse-off criterion and concurs that used methods for asset valuation are inadequate, as well as those for valuation of lost income.

However, Pearce (1999, p. 52) also asserts that current guidelines “fail to capture the full social costs of dislocation,” i.e. that there are problems with even identifying certain costs experienced by displacees. He also states that the full social costs of displacement include “the loss of nonpriced environmental and cultural assets, the loss of social cohesion, the loss of market access, and psychological damage from dislocation” (Pearce, 1999, pp. 52–53). This pinpoints some of the costs that are commonly excluded from regular CBA.

Inadequate compensation, furthermore, is known to present displacees with a number of risks of impoverishment. Cernea (1999, 2000, 2003) presents a nine-part model comprising risks of landlessness, joblessness, homelessness, marginalization, increased morbidity and mortality, educational losses, food insecurity, loss of common property, and social disarticulation. Unaddressed, these risks are realized and become actual costs, whose “cumulative effect [...] is the decapitalisation of resettlers, the rapid onset of multidimensional impoverishment, and the aggravation of poverty for those already poor” (Cernea, 2003, p. 40). These costs seem to pertain to the category of social costs described by Pearce (1999) above, and are thus likely to be omitted from a compensation calculation, as well as from CBA. This observation emphasizes the relevance of ex post examinations of DID, as it might uncover costs that, when previously omitted, caused a significant upward bias of a project’s net benefits.

As can be noted, there is an important analogy between CBA and compensation research. While the latter is often prescriptive rather than normative, it aims to determine what is needed for displacees to be as well off after a project as before. The no-worse-off criterion thus shares important characteristics with the WTA approach of measuring

costs, implying that findings in the compensation literature could have relevance for CBA issues.

### 2.6 Current Research on Compensation Issues

Few economists have set out to find practical means to prevent additional impoverishment caused by insufficient compensation—to our knowledge, the only two are Garikipati (2002, 2005, 2010) and Mariotti (2012). They have both searched for compensation packages that displacees are willing to accept for displacement. If one lets the term WTA include other assets than money, it can be said that Garikipati and Mariotti have in effect determined displacees' WTA.

Garikipati (2005, 2010) was the first to use CVM to measure the (thus defined) WTA of displacees (Mariotti, 2012). Her study, investigating DID in the Narmada Valley, India, tests the propensity to accept different compensation packages consisting of four distinct compositions of assets and cash. She concludes that “the results of the survey suggest that the SSP-resettlement scheme, which offered a standard package to all the affected, would be better replaced by a more tailor-made scheme which catered to the various preferences held by the displaced” (Garikipati, 2005, p. 356). Moreover, regarding her method, she states, “this CVM exercise, however, is just the first step (which by definition is imprecise) toward attaining any workable model of voluntary resettlement” (Garikipati, 2005, p. 357).

Mariotti (2012) elaborates on Garikipati's work but includes political economy and adverse incorporation, together with the existing practice of welfare economics, as a theoretical foundation used to explain displacement and resettlement. Mariotti, too, uses CVM in order to elicit displacees' preferences regarding compensation packages. Her findings are concluded as follows: “participation in decision making, creation of secure and remunerative employment, and periodical cash transfers, would contribute to link resettlement programmes to the broader aims of poverty reduction and equitable distribution, thus turning resettlement into a progressive process” Mariotti (2012, p. 307).

Applying a forward-looking and improvement-focused view, Garikipati's and Mariotti's conclusions are *ex ante* prescriptive—a result of the aim to make displacement *ex ante* voluntary. They conduct their studies by consulting displacees by use of CVM in order to elicit a preferred, viable compensation package.

### 3 Research Design

It is concluded from the previous section that several measurement problems exist within the CBA framework, often resulting in the omission of certain intangible costs of displacement. Moreover, these intangible costs are increased by the impoverishment risks entailing inadequate compensation practice. As presented, the forefront of method development in this field has focused on improving the compensation process, making displacement ex ante voluntary. No ex post empirical measurement of the perceived costs caused by the standard case of displacement appears to have been conducted, leaving a gap in current research that cannot be immediately filled in. In order to help fill this gap, and to thereby meet the main objective of this thesis, we intend to develop, implement, and evaluate a method for measuring displacees' ex post WTA to be used in CBA, applicable in cases commonly seen today.

We intend to develop a CVM-based method, using a WTA approach, aiming to measure all personal costs of displacement apart from loss of income and physical assets. The reasons for this intention are as follows: first, observed preference methods have limited accuracy in the case of DID since opportunity costs are restricted by personal income and no market exists for the comfort of one's home. Hence, CVM is thought to be an appropriate solution, encouraged by the recent applications in similar contexts. Second, as the costs are borne by the displacees, we focus on WTA, which in the previous section was established to be the conceptually correct measure of social costs and must not be confused with WTP when the people in question are poor. Therefore, the WTA approach is deemed to be appropriate. Third, there already exists elaborate theory on best practice in measuring the loss of income, land, and other physical assets. We make no claim to contribute to this field, but focus instead on what has not yet been researched.

Furthermore, although the costs of displacement-induced impoverishment are ongoing, they can preferably, in light of the CBA framework, be accumulated to discrete, yearly spaced points in time, to facilitate subsequent discounting. As the functional form of cost variation over time is not known, we focus on perceived costs borne the first year after displacement.

All these specifications can now be synthesized into a more concrete task: to find a CVM survey method that measures the household mean asset-and-income loss complementary, ex post WTA for the first year of displacement.

#### 3.1 Research Questions

The objective of the thesis being to advance the state of knowledge on methods for determining costs of displacement for CBA use, we first and foremost seek to answer the following question: would a method of the type described above be useful in achieving this goal in the stated context? To specify the question, we draw inspiration from the evaluation literature. In essence, it prescribes evaluating a method on four so-called methodological quality criteria: construct validity, internal validity, statistical conclusion validity, and external validity (Farrington, 2003). To allow for a more intuitive presentation, our evaluation will be divided into three dimensions, including the relevant parts of



these criteria as well as other aspects we find important. The dimensions are discussed below and each one is then specified with a research question.

Broadly speaking, construct validity relates to the adequacy of used proxies for theoretical constructs, whereas internal validity relates to the degree by which systematic error is reduced in conclusions on causality between such constructs (Farrington, 2003). While not immediately applicable to our case, an analogy could be a discussion about whether the number we ask for is in fact an adequate proxy for WTA and whether it is subject to bias. For our purposes, these two criteria are included in a *reliability* dimension. Statistical conclusion validity relates to concepts such as statistical significance and effect size (Farrington, 2003)—i.e. statistical and economic significance. In our case, we conclude that this criterion helps determine the *usability* of the method’s results. External validity relates to the generalizability of conclusions and normally requires several studies for comparison (Farrington, 2003). As this is outside the scale of this thesis, we instead aim to evaluate the method on a *practicability* dimension, in order to establish whether future implementation is feasible.

In summary, we have decided on three evaluation dimensions which can each be specified with a research question, namely, (1) reliability: how well does the scenario question elicit reliable WTA figures?; (2) usability: how readily can the WTA figures be used in CBA?; and (3) practicability: how practicable is implementation of the method? Together, these questions’ answers are intended to meet the objectives of this thesis.

## 3.2 Approach

The chosen approach for answering the research questions can be summarized as follows: first, the new method is to be developed according to the specifications established in the introduction of this section. The development is to be inspired and aided by existing CVM research. Second, the method is to be implemented in a relevant context. This is to be done in Phnom Penh, Cambodia. During the implementation, observations concerning the viability of the method are to be noted for subsequent analysis. Third, the method is to be evaluated based on the observations made during the implementation of the method.

Upon deciding on which approach to take, we examined widely used guidelines for developing, implementing, and analyzing a CVM survey, whose purpose in general is to elicit a statistically significant numerical value of WTP or WTA (Carson and Hanemann, 2005). But since our purpose is rather to evaluate our new method’s viability, only some of these guidelines were found to be applicable.

The first part of the development step is to lay down the components of the scenario question, and its theoretical foundation, guided by the CVM literature. Based on these considerations, we are to develop a CVM survey instrument. Normally, a so-called pilot study, which is small compared to a full CVM study, is carried out at this stage with the purpose to serve as a basis for further development of the survey instrument. However, our objective is not to determine a numerical value—as is usually the case and would require a very large sample and a minutely administered survey—but to analyze the viability of the new method, which rather demands that the implementation reveals the method’s strengths and weaknesses. Hence, our entire implementation step is to consist of a pilot

study, whose required level of administration allows for some margin of error as long as relevant observations are made.

The implementation requires some choices to be made about how to define what Carson and Hanemann (2005) call the population of interest, from which relevant data could be gathered. Given the time frame and our aim to evaluate the method, we have defined this population as displaced households in one single resettlement site, Damnak Troyung, displaced from one single development site, Boeung Kak. While implementing the method on more sites would have been ideal, we judge this to be sufficient to draw initial conclusions on the viability of the method. Moreover, we have chosen sampling from this population by use of clustering, a “common survey design feature [...] whereby multiple individuals are interviewed in fairly close proximity” (Carson and Hanemann, 2005, p. 904). Given the scale of the thesis, this enables a larger basis for analysis by more efficient interviewing. Interviews are to be conducted with a single person from each household, whereby responses are considered representative for the household in question.

In the final step, the observations and data generated are to be used to answer the research questions. First, the question concerning reliability is to be answered by analyzing the reliability of individual WTA estimates as well as the mean WTA elicited by the method, i.e. by investigating whether the estimates are subject to biases and if the aggregate of these is likely to affect mean WTA in a significant way. For this purpose, we are to assess the influence of biases commonly described in the CVM literature. Furthermore, in order to answer the research question regarding usability, we are to examine whether the elicited mean WTA is statistically and economically significant. While this analysis mainly pertains to this particular study, we assume it could indicate future usability of the method. We are also to address how potential further issues regarding the future use of the method’s results can be resolved. Finally, the research question concerning practicability of the method is to be answered by comparing the feasibility of implementing our method with the feasibility of implementing other similar methods.

## 4 Developing the Method

As stated in the previous section, the number elicited by the new method should be the household mean asset-and-income loss complementary, ex post WTA for the first year of displacement. The overall framework should be CVM. Below, these requirements are incorporated in the development of the new method.

The substantive part of a CVM survey instrument is the scenario question which is to elicit respondents' WTA. Because of this, we commence this section with a discussion of the composition and theoretical foundation of the scenario question. Thereafter, we discuss the production of the CVM survey instrument, sampling, and finally, some general thoughts on the implementation of the method. The final product is presented in the appendix.

### 4.1 Composing the Scenario Question

To ask for one year's WTA is supported and explained by the NOAA report by Arrow et al. (1993). It states that "it is reasonable to assume that interim passive-use values are additive over time" (Arrow et al., 1993, p. 4608) meaning that it is conceptually sound to elicit one year's valuation and later use that value in computing the value of several years. The report further states that "respondents should be asked only their willingness to pay to eliminate [an environmental damage] for a specific period of time, say a year, on the assumption that after that time full restoration is assured" (Arrow et al., 1993, p. 4608). This statement means that the scenario question should, in fact, ask for a respondent's valuation of one year's impairment after which full restoration should be assured. About this elicited WTP the report further states, "the technical information about the state of the resource, together with the respondent's assessments of the flow valuation of the resource, can be used to construct a time series of passive-use losses which can be discounted to the present at an appropriate rate of interest to determine the present value of the damages" (Arrow et al., 1993, p. 4608).

Accepting that there is a valid analogy between environmental passive-use and living in a soon-to-be development site, a natural way to go about eliciting displacees' asset-and-income loss complementary WTA, inspired by the quotes above, would be to first ask them how much money, at a minimum, they would demand in order to agree to be displaced for one year (they would be asked to think back of the first year of their actual displacement) after which they would move back to their old community and keep on living as they have done before (i.e. full restoration of previous state). The strengths of this approach are that it would limit the conceptual time frame to one year, which hopefully would make arriving at an answer easier, and that the received answer would be based on respondents' own experiences, i.e. it would be a rather educated guess.

Since in the previous section, it was asserted that the new method should aim to quantify the asset-and-income loss complementary WTA, the CVM question scenario should include repayment of lost income by the end of the hypothetical year of displacement. Furthermore, as can be noted in the scenario question, respondents' assets would be fully restored after one year, whereby the elicited figure does not include the market value of

e.g. their houses. By constructing the question scenario in such a way, responses would ideally represent respondents' WTA less the perceived worth of their former assets and income.

In order for the WTA estimate to be regarded as ex post, it should be clarified that respondents' hypothetical year of displacement would completely resemble their actual experiences of their first year of displacement at the resettlement site. Furthermore, it should be pointed out to the respondents that the sum of money received in exchange for one year's displacement would be paid out by the end of that year. This avoids respondents thinking that they could hypothetically invest the money and thus alter their level of experienced utility during that year, effectively not answering with their ex post WTA. In conclusion, this would produce an assessment of respondents' first year asset-and-income loss complementary, ex post WTA, hypothetically paid out at the end of the hypothetical year of displacement, i.e. a future value which, if fully included in CBA, would need to be discounted back one year in order to represent a present value.

The above considerations were incorporated in the scenario question in the CVM survey instrument. The question in its entirety can be seen as part of the survey instrument in the appendix.

### 4.2 Theoretical Foundation of the Scenario Question

What is the scenario question really asking for? That is a critical question that needs to be answered before analyzing the data produced by the new method. The answer can be obtained by figuring out what is left, compensation-wise, when both compensation for assets and loss of income is subtracted from the total compensation demanded.

When a person, during a specific time period (in our case, one year), lives with worsened standard of living, a number of personal welfare effects will occur, in turn affecting a persons WTA for displacement. We can categorize these effects as consumption effects and asset effects.

Consumption effects are what happens when an individual's income decreases (and their budget constraint is tightened), and, in effect, consumption with it. The individual's WTP for the goods that they abstain from buying (or cannot buy) can be split into two numbers: first, its market price, and second, the individual's WTP subtracted by the market price, i.e. the individual's consumer surplus. Since the consumer surplus is not comprised by "real money," i.e. is not reflected in the amount of money the individual gives up in order to enjoy the good (the market price), it will not be part of the pure income compensation and certainly not in the asset compensation. Goods, whose consumption is at risk of being compromised during displacement, are food, education, hospital visits etc. As a consequence, our scenario question asks, in part, for the aggregate future value (one year forward) of lost consumer surplus attributable to absent consumption during that year.

In asset effects, we include everything that has to do with an individual's valuation of their perceived assets. In the term asset we include constant, ongoing objects or states that are valued and enjoyed by an individual such as a house, marriage, security etc. The first asset effect that occurs when an individual is displaced is that perhaps one of their

most valuable assets, their house and surrounding environment, is exchanged for a new one. If the individual valued their old home higher than the new one, the net change in total assets is negative. While this is restored after the year has passed, having to do without it during that time is unpreferred to the status quo—an aversion that corresponds, over time, to a value of WTA. Similarly, as the state of displacement goes on, other asset effects occur, such as marital problems, changes in level of security etc. If for the worse, these changes also give rise to intangible costs corresponding to a value of WTA.

In many cases of displacement, people become indebted and in effect increase their assets, at least in the short term. If one were to ask the scenario question to a person not yet displaced and back the offer up with real money, then there would be an incentive for that person to, once displaced, borrow as much money as possible and in that way increase their standard of living since assets are restored and debt paid off after one year. However, since the question is posed *ex post*, respondents have to think about what actually happened in terms of their assets during the first year of displacement. Since the personal assets would be fully restored—the formulation used in the survey instrument is “move back to your old community and continue to live your life as it used to be” (see appendix)—the amount of compensation attributable to asset effects in the scenario question is in fact the future value of all asset effects occurring during the year of displacement. This amount adds to the consumption effects described above, to form the total costs assessed.

### 4.3 Producing the CVM Survey Instrument

Over the years, an extensive literature discussing the production of survey instruments, including CVM survey instruments in particular, has evolved. Carson and Hanemann (2005) mention several books and articles written on the subject. Upon producing the survey instrument for the new method, we have reviewed previous CVM studies (Carson et al., 1992; Garikipati, 2005, 2010; Mariotti, 2012) and guidelines aiming to ensure the reliability of the results (Bradburn et al., 2004; Arrow et al., 1993; Whittington, 2002; Carson and Hanemann, 2005; Boardman et al., 2011). In order for the survey instrument to meet the objectives of this thesis, a number of choices regarding its construction must be considered thoroughly. The entire survey instrument, again, can be seen in the appendix.

We have used the seven sections proposed by Carson and Hanemann (2005, p. 898) as an approximate basis for the disposition of the survey instrument: they are “(a) an introductory section that helps set the general context for the decision to be made; (b) a detailed description of the good to be offered to the respondent; (c) the institutional setting in which the good will be provided; (d) the manner in which the good will be paid for; (e) a method by which the survey elicits the respondent’s preferences with respect to the good; (f) debriefing questions about why respondents answered certain questions the way that they did; and (g) a set of questions regarding respondent characteristics including attitudes and demographic information.” However, for our purposes, the chosen order of these sections is rather: (a), (g), (b) and (c) with (d) included, (e), (f). The reason for this order is that it seems more appropriate to ask all background questions before the scenario question, and in this way prepare respondents for the main part of the

survey. Upon formulating the scenario question, we also kept in mind the Arrow et al. (1993) guidelines as presented earlier.

The question of what type of elicitation procedure to employ deserves minute consideration. Literature on the subject is somewhat ambiguous: e.g. while Boardman et al. (2011, p. 374) describe how the open-ended method has “dropped out of favor” due to the demand it puts on respondents, we have decided it to be the best choice for this survey. Having insufficient time for pretests with varying initial values, we trust respondents to be the best judges for their own valuation—not least given the scenario elicits WTA for a recent experience, so utility levels should be known. However, Bradburn et al. (2004, p. 156) state: “using open-ended questions requires greater interviewer skill in recognizing ambiguities of response and in probing and drawing respondents out, particularly those who are reticent or not highly verbal.” The interviewers and their supervision are considered in the following subsection concerning the planning of the implementation of the new method.

Upon producing the survey instrument, consideration also needs to be given to the fact that it is going to be implemented in a developing country context. Whittington (2002) stresses three problems often entailing CVM studies in developing countries. They are (1) poor survey implementation, (2) poorly crafted contingent valuation scenarios, and (3) failure to test for the effects of the variations in survey design on the results of contingent valuation studies. In (1), interviewer training and skills are included and highly emphasized and as mentioned, these matters will be discussed below. In regard to (2) Whittington (2002, p. 326) states that, when read the scenario question, “the respondent must be (1) sufficiently intrigued by the story to listen closely to the aspects of the deal being described, and (2) able to understand the characteristics of the deal as the CV[M] researcher intends.” These points were kept in mind when formulating the scenario question. When discussing (3), Whittington proposes a split sample test to deduce potential survey construction bias. This is also suggested by the NOAA report by Arrow et al. (1993)—however, because of the resources needed, it is considered outside the scale of this thesis.

The first part of the survey instrument, i.e. the introduction and background questions, was inspired by previous CVM survey instruments produced by Carson et al. (1992), Garikipati (2005, 2010), and Mariotti (2012). This first part of the survey instrument was written with the purpose of enabling analysis of background variables’ effect on responses to the scenario question, and to induce the personal, internal deliberations needed in order to answer the scenario question.

#### 4.4 Thoughts on Implementation of the Method

When planning for the implementation of the method, the interviewers should be chosen with care. Since the method involves interviewing some of the poorest people in a developing country, respondents are likely to be non-proficient in English. Consequently, either the interviewers need to be able to speak the language or to be assisted by interpreters. Whittington (2002) stresses the importance of interviewer competence in CVM studies in developing countries. He argues that the fact that the economists who conduct a study

seldom are out in the field with the interviewers leads to a principal–agent problem. The same will of course occur even if the economist is present but does not know the language spoken in the interview. However, the principal–agent problem is likely to be mitigated if one knows the interviewers well and is present during the interviews. Whittington further makes recommendations on how to train interviewers and presents a two-week template schedule for this purpose—however, such training is outside the scale of this thesis. Finally, Whittington discusses how cultural institutions could affect the outcome of a survey. Ideally, interviewers should be aware of this fact in order to avoid potential culturally related misunderstandings.

## 5 Implementation

Data for evaluating the method was generated by applying it in a context deemed relevant. We conducted 30 interviews, ranging from 20 to 60 minutes in length, in the Damnak Troyung resettlement site located on the outskirts of Phnom Penh, Cambodia. Displacees formerly lived in the Boeung Kak lake area in the central city, once displaced to make room for a property development project. This section presents both the fashion in which the method was executed and the resulting data, including general observations. WTA values were elicited in US\$, the de facto currency of Cambodia.<sup>3</sup> First, however, some background of the location in which the method was implemented is presented.

### 5.1 Boeung Kak Lake, Phnom Penh, Cambodia

Property rights in Cambodia have been frail for decades. In April 1975, in the beginning of Pol Pot’s Khmer Rouge regime, property rights were abolished, and the capital city Phnom Penh was evacuated, its inhabitants killed or forced to work in the countryside fields. A total of about 1.7 million Cambodians—one fourth of the country’s population—of which many educated urban dwellers, are reported to have been killed during the regime. The surviving former inhabitants could return to the city in 1979, after the regime was toppled by Vietnam. Many settled in whatever house stood empty and many eventually gained possessory rights: including the right to use and sell the land but informal in the sense that no official documentation was issued (Asian Development Bank, 2007). Property rights were not reinstated in Cambodia until 1993 and the current legislation regulating land ownership is deeply flawed in practice (Asian Development Bank, 2007).

This lack of formal titling has facilitated state-backed forced evictions in Phnom Penh: according to a group of Cambodian human-rights advocating NGOs, Land and Housing Working Group (2009), a total of approximately 130,000 or about 10% of Phnom Penh’s population in 2009 were displaced during 1990–2009. The 2001 Land Law was established to mitigate tenure insecurity, but excluding areas defined as problematic, the scheme appears to have worked against the interests of the untitled, handing the state an apparatus to legitimize otherwise illegal land-grabbing activities (Bugalski and Pred, 2010). Today, land-grabbing is considered to be one of Cambodia’s main human-rights issues (Land and Housing Working Group, 2009).

A widely noticed example is the case of the Boeung Kak lake, where more than 3,000 families have been displaced since 2007, following a flawed land registration process. In violation of the 2001 Land Law, the state decided to lease the land to Shukaku, a private company aiming to build a satellite city on the grounds. The leasing contract stretches over a 99-year period and prescribes a payment of \$79 million to be paid to the government (Bugalski and Pred, 2010). Such projects, offering upscale accommodation as well as offices, shopping centers and other amenities, have also been envisioned and commenced on four other sites in Phnom Penh. The projects are part of a trend of similar private urban development particularly popular in Southeast Asia, that has given rise to several cases of displacement (Paling, 2012; Percival and Waley, 2012).

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<sup>3</sup>Henceforth simply denoted by a dollar sign.



As compensation, residents of Boeung Kak were offered either \$8,000 or a house at a new resettlement site, together with about \$500 for transportation to their new home (Sahmakum Teang Tnaut, 2010). While a number of protesters still remain at Boeung Kak (Phorn and Zsombor, 2013), many have accepted the offer, the largest part of which moving to Damnak Troyung some 20 km from Phnom Penh (Sahmakum Teang Tnaut, 2011). Due to its large number of displacees, this site was chosen as the locale for implementing our method.

## 5.2 Execution

The interviews were conducted with the help of two students from Paññāsāstra University, Phnom Penh, who acted as interviewers, interpreters and guides. They were assigned to us by our local supervising professor and were both proficient in English. These two students helped prepare for the interviews by researching the resettlement site, discussing relevant cultural conventions, buying fruit gifts for respondents and one of them by providing his car as a means of transportation to the somewhat remote resettlement site. We had a continuous dialogue about how to best conduct the interviews with the purpose to make respondents understand and in that way provide relevant answers.

The interviews were conducted on three different days, spread over a period of one week. The interviewers were given the complete survey instrument the day before the first day and we discussed its content in detail on the morning of the first day of interviews. The first two interviews were conducted with all four of us present in order to evaluate and improve the interviewing technique by discussing it all of us together.

When deciding on interview subjects, we generally drove around in the resettlement site and agreed on a random street in which we got off to talk to its inhabitants. Except for two of the first interviews the first day and one the second day (when all were present), all interviews were conducted with one thesis author and one interviewer, i.e. we split up into two groups. Using clustering, when we had decided on a street, one group interviewed some three or four people in a row on one side of the street while the other group interviewed on the other side of the street. The choice of sample is in effect affected by geographical availability but also by seeming availability of the potential interviewees.

Upon selecting a house, the interviewers usually approached it by themselves, with us standing a few feet behind, and introduced themselves, our objectives, and us. If the potential respondent agreed to be interviewed, they would usually set up chairs for us to sit on in front of their house or sometimes invite us inside to sit on chairs, a bench, or on the floor. In connection with this initiation, we usually greeted the interviewee in Khmer, which was often appreciated.

Once seated, the interviews could start. They were led by the interviewers with us sitting back and taking notes. During the interviews, the interviewers continually told us the answers of the respondents. If found necessary, we would interrupt and ask the interviewer to rephrase a question or to ask a follow-up question. We deemed it to be practicably impossible to read the exact same formulation of the questions to every respondent if we were to elicit relevant answers, although Whittington (2002) stresses that this should be done. However, especially regarding the scenario question, we agreed

that the most important thing was that respondents seemed to perceive the components of the scenario in the same way as intended, and thus, the scenario was often described interactively with respondents asking clarifying questions continually. On the same note, to elicit respondents' WTA interviewers would sometimes resort to an iterative-bidding type of approach in cases where respondents seemed to be "bargaining," stating a high value, or simply uncertain. The interviewer would thus try with a lower amount, until the respondent said it was too low. This was avoided until the respondent had made a suggestion with the purpose of avoiding starting point bias, but while seemingly helping to arrive at a more accurate answer, this too is against CVM conventions.

Given that the wording did not follow the survey instrument exactly, the version we handed to the interviewers was slightly altered before we included it in the appendix. No major changes were made (rather, changes consisted of e.g. rearranging the order of some background questions), and the included survey instrument is thought to more accurately convey what was said.

### 5.3 Results

Summary statistics of the interview outcomes are presented below. Clarifying comments are given and remarks are made on certain particularities, mistakes and late discoveries in the interview process. In total, 30 people were interviewed and 2 people declined to participate, meaning a response rate of 94%.

The first part of the survey instrument aims, apart from preparing respondents for the scenario question, to establish a profile of the sample. This includes demographic variables, as well as determining respondents' situation pre and post displacement. As seen in table 5.1, a vast majority of respondents were female, over 50 years of age, most of whom styled themselves head of the household. This is likely explained by the fact that the interviews took place during daytime, while many men were at work in the city. While most respondents moved in 2008, a few came before and there was a steady influx the years after. Data on year of displacement was missing from one respondent.

**Table 5.1:** Summary demographic statistics and year of displacement of the 30 respondents

Respondent gender	Female 87%	Male 13%			
Age	20–29 3%	30–39 23%	40–49 10%	50–59 30%	60– 33%
Head of household	Yes 59%	No 41%			
Year of displacement	–2007 3%	2008 52%	2009 17%	2010 17%	2011– 10%

As respondents are asked to include the whole household in the WTA figure of the scenario question, we asked about the size of their families divided on adults and children before and after the move. Changes in household composition mostly derived from

new children, but there were cases where some members had to stay in Phnom Penh in order to work, or where the household was split as parts of the family had moved to the provinces. In addition, as summarized in table 5.2, we asked about household income and occupations. The percentage figures in the table indicate households where at least one member is or was employed, and runs or ran their own business—they add up to more than 100% as many households were represented in both categories. Following the move, the proportion of households including at least one person running their own business had increased. While many kept the same occupation as before the move, several respondents were rendered unable to keep factory employment due to the distance, and instead had become unemployed or ran small shops at the resettlement site. Some overstatements may be present in own business income figures as it initially was unclear if respondents stated revenues or profits—this was understood after one respondent remarked that, although business income is the same, costs are higher at the new site. Indeed, private and business costs may be hard to disentangle and so no adjustments were made. Despite this possible upward bias, the mean household monthly income (in some cases, respondents stated daily income which was then multiplied by 30), had decreased significantly.

**Table 5.2:** Mean family size, occupations represented in household, and monthly income of respondents (in US\$), compared between old and new site

	Old site	New site
Number of adults, mean	3.9	3.7
Number of children, mean	1.9	2.1
Own business	73%	80%
Employed	63%	63%
Household monthly income, mean	\$415	\$219

The respondents' living conditions were further investigated, as summarized in table 5.3. While all respondents claimed to have owned their previous home, that number had decreased following the move. Reasons for renting rather than owning included using parts of the compensation sum for other purposes, as well as realizing the money was insufficient for needed maintenance, or needing to sell after relocation to release money. Aiming to set the stage for the scenario question, we asked for the level of utilities available initially at the new site. As presented in the table, respondents to a large extent did not have access to running water after relocation and many stated that the problems had lasted for several months. In addition, electricity was not immediately available but had to be plugged in—a task for which some people had to hire a professional. By the time of the interview, everybody had access to a majority of the utilities listed in the table.

Next, the process of displacement and relocation was determined. All respondents had been approached by the authorities, presented with the offer of \$500 and either \$8,000 or a house at the resettlement site—30% chose the former and 70% the latter, not least because houses reportedly gained in value after people started to move in. All displacements were voluntary in the sense that the compensation was accepted and that the move was not directly forced, but nearly all respondents claimed not to have had a choice, meaning

**Table 5.3:** Former and current ownership situation and percentage of sample with functioning utilities, old site and initially at new site

	Old site	New site
Owned house	100%	77%
Rented house	0%	23%
Electricity	100%	93%
Running water	97%	53%
Toilet	83%	83%
Waste management	73%	93%

they feared that the move would occur in any case—and if they were to turn down the authorities’ offer, possibly with less or no compensation. Many stated that they had been threatened repeatedly by the authorities, and had feared that their house would be burnt down. On the same notice, a large part stated that when the lake was filled with sand, many houses collapsed due to flooding. Feeling unable to prevent that from happening to their houses, they had no choice but to accept the offer and move.

When asked what had become different from before apart from changes in housing and income, respondents shared many, but not all, views. Two respondents found the new site to be more agreeable, all-in-all, due to more calm and space. Most, however, expressed that life had become harder. With fewer customers and greater distance to a marketplace, business had become less viable. One respondent stated that there were virtually no public services at the new site, agreed by the many stating that the local healthcare clinic was more expensive and of low quality, and that the school was worse (one person preferred the new school but lamented the fact that it goes only to grade 9). Increased time and money spent on traveling was also frequently mentioned, and also induced anxiety about the security of spouses and children traveling far to work and school. The new area was also in general seen as more unsafe, and people said they worried about robbers and burglars at night. As noted above, many people that chose a house as compensation found they had inadequate utilities, and thus money was needed for repairs and installations. For this reason, among others, several households had become indebted as a consequence of the move. Since moving to the resettlement site, however, many respondents stated that things had steadily become better, especially in terms of utilities and security.

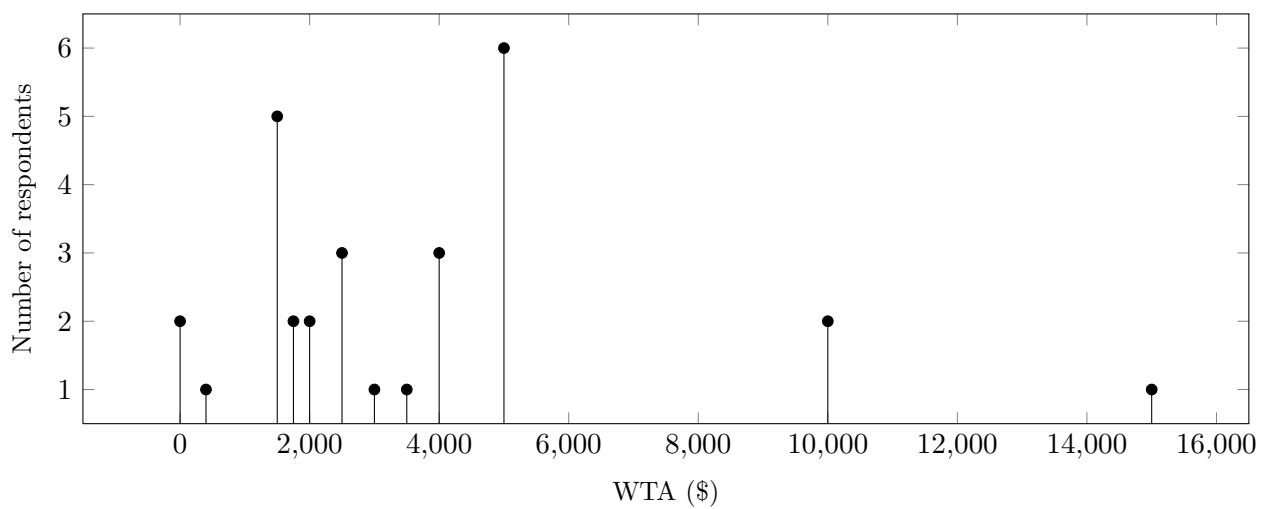
Respondents were told to keep these changes in mind when we reached the scenario question. Summary statistics are presented in table 5.4, and the sample distribution is shown in figure 5.1. For comparison purposes, the distribution of stated WTA divided by current yearly household income is shown in figure 5.2.

When read the scenario, many respondents started calculating their income loss due to the move. As this was not going to lead to a relevant answer, the interviewers rephrased the question, emphasizing ‘emotional’ costs rather than ‘financial’ costs, in order for respondents to understand better. It is possible that this mindset in some cases was hard to get by even after emphasizing the fact that financial losses would be compensated.

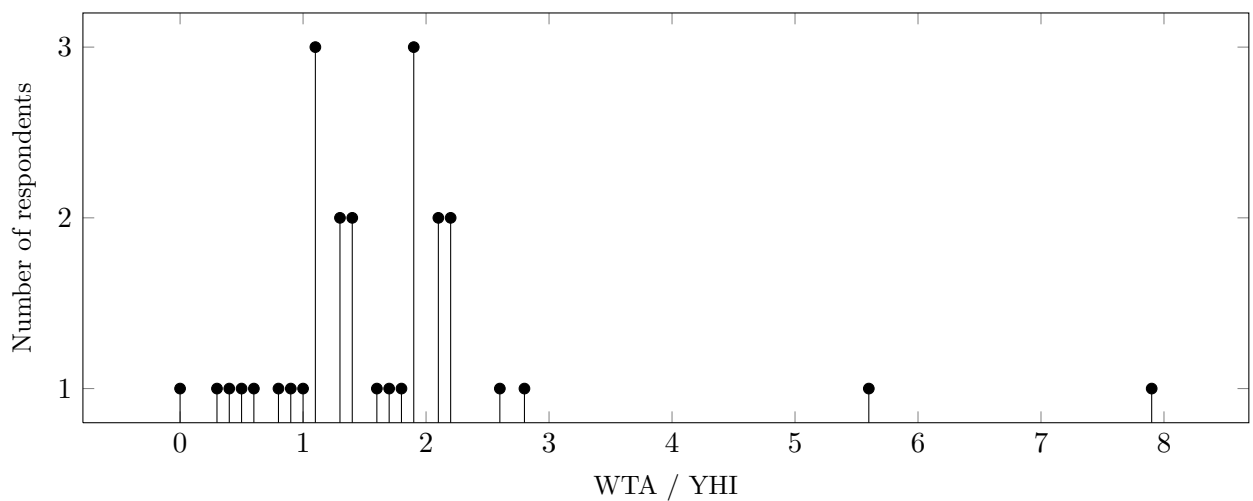
**Table 5.4:** Summary statistics of the 30 answers noted in the CVM survey on asset-and-income loss complementary willingness-to-accept (WTA) for one year of displacement (in US\$)

Stated WTA	
Min	\$0
Max	\$15,000
Mean	\$3,647
Median	\$2,750
Standard deviation	\$3,209
Confidence interval (95%)	\$2,448–\$4,845

**Figure 5.1:** Distribution of the 30 answers noted in the CVM survey on asset-and-income loss complementary willingness-to-accept (WTA) for one year of displacement (in US\$)



**Figure 5.2:** Distribution of the 30 answers noted in the CVM survey on asset-and-income loss complementary willingness-to-accept (WTA), divided by yearly household income (YHI). Data on YHI was missing from one respondent



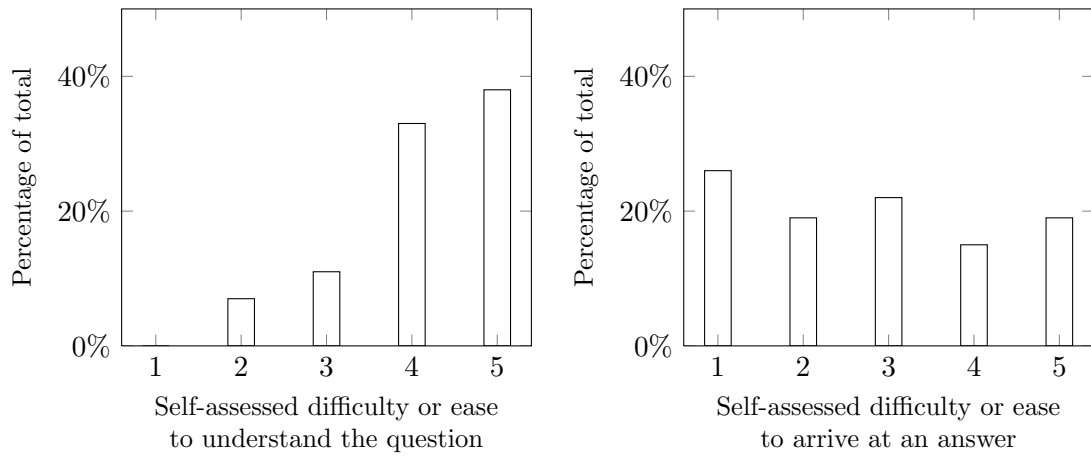
Furthermore, many made comments such as “that is never going to happen,” and interviewers had to reiterate that it was a hypothetical scenario. Others said they did not want to seem greedy, or they declared that they were “not ambitious,” i.e. not demanding. Often in connection with announcing that they did not want to seem greedy, several respondents expressed a belief that we were working undercover for an NGO and that we were there to help them or to give them additional compensation. They were told that this was not the case but we have reason to believe that a few respondents still were of that impression by the end of the interview.

Eventually, though, all respondents gave an answer, save the two who all-in-all felt better off. Even though their evaluations of the situation would be relevant for an unbiased estimate of mean WTA, we had neglected the possibility of this situation to arise, so we had no ready-to-use question for that purpose and could thus not elicit their WTP for displacement. However, to avoid bias to some extent, they are included in the sample with WTA \$0.

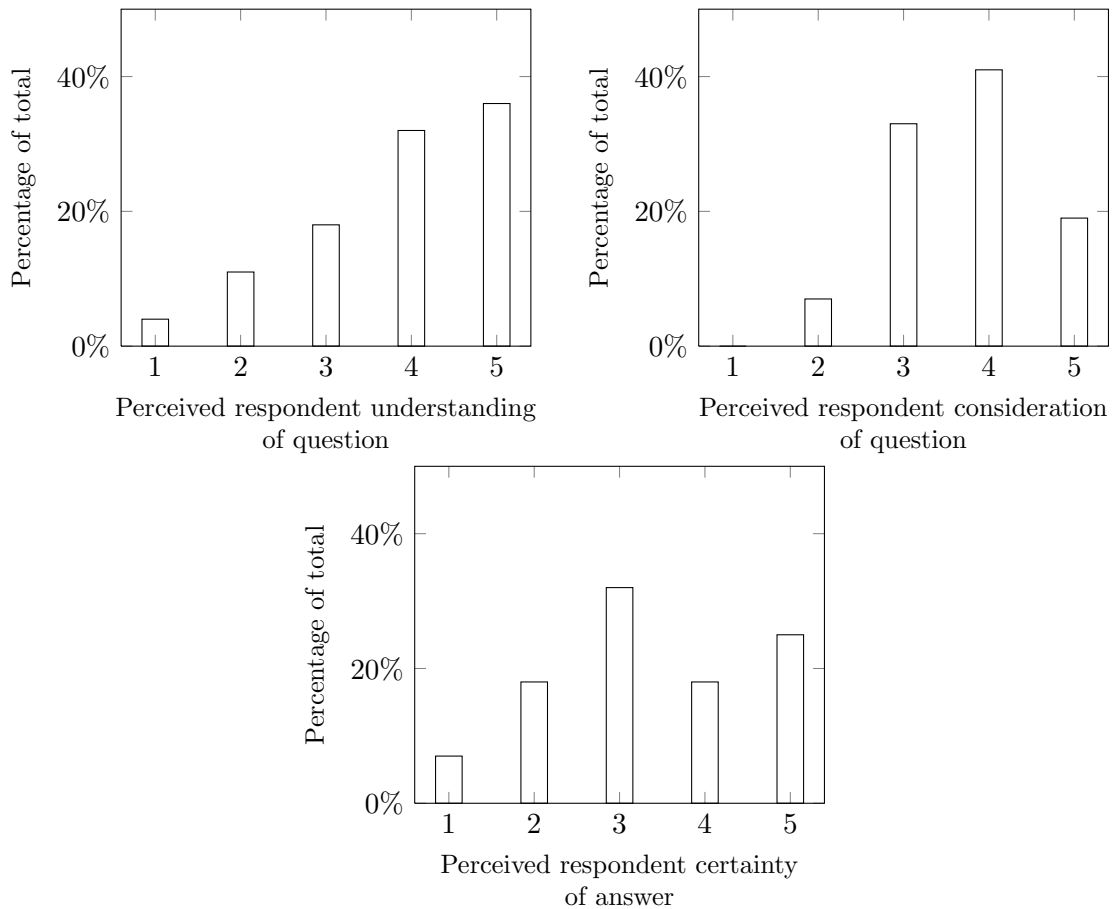
Under the central limit theorem, statistical inference can be made regarding the mean of identically distributed random variables when the sample is large enough, a rule of thumb being over 30 respondents (Brase and Brase, 2011). With this assumption (omitting further detail), we have also inferred a 95% confidence interval for the mean household WTA in the population relocated from Boeung Kak to Damnak Troyung, which ranges from \$2,448 to \$4,845. This means that given that there is no sample bias and that WTA estimates are similarly distributed across the population, the elicited result of the method will end up in the interval 95% of the times it is implemented. As we do not know with certainty if this is the case for this sample, some sensibility and care must be applied when analyzing its reliability.

When asked about their understanding of the scenario, as seen in figure 5.3, respondents appeared rather confident, gravitating toward the “very easy” side of the scale. The perceived difficulty to determine an amount of money varies more: responses are distributed over the entire scale. This can be compared with the interviewers’ assessments, shown in figure 5.4, which in general appear to be optimistic about respondent understanding, amount of consideration given to the question, and certainty. It should be noted that these assessments were often made by the interviewers alone, since unfortunately we were unable to understand the vast majority of discussions and answers from the respondents.

**Figure 5.3:** Respondents’ own assessments on the difficulty or ease of understanding the question and arriving at an answer. Both answered on a scale from 1, “very hard” to 5, “very easy”



**Figure 5.4:** Interviewers’ perceptions of respondent understanding, consideration, and certainty. Answered on scales from 1, “very little/low/uncertain” to 5, “very much/high/certain”



## 6 Analysis and Evaluation of Method

In this section, we seek to answer the research questions previously posed, using observations made during the research process and data from the interviews. First, we address questions on the reliability of the method’s results by discussing bias risks in responses. Second, we assess the usability of generated results within CBA by discussing economic and statistical significance. Third, we adopt a forward-looking view, discussing practicality of the method in the view of potential future use. Finally, we present the conclusions of our findings.

### 6.1 Reliability

The first research question, concerning reliability, reads as follows: how well does the scenario question elicit reliable WTA figures? The question is in effect asking for the reliability of each WTA estimate but also for the reliability of the mean WTA elicited by the method. In order to reach a conclusion on the matter, we segment the analysis into three main parts describing the steps in which responders arrive at an answer. The parts are: respondent understanding of the scenario, respondent deliberations subject to potential bias, and how final answers are affected by these concerns. After this, the issue of sampling bias is addressed.

Understanding of the scenario can be discussed by use of answers to the follow-up questions posed to respondents and interviewers. As stated in the previous section, respondents were asked two questions addressing scenario understanding and the ease with which an answer could be reached. 93% of respondents answered with a rating 3 or more to the first question and 56% to the second. These responses indicate that respondents found the described scenario to be clear but found the deliberations needed in order to make an estimate of their WTA to be more difficult. We see these statistics as rather promising since a well-conveyed scenario does not make any promise of an easy answer. However, the results are contingent on respondents’ own perceptions and are subject to potential bias.

As also stated in the previous section, questions about respondent understanding of the scenario, amount of consideration given to the question, and certainty of their answer were directed toward the interviewers and ourselves. 86%, 75%, and 93% of respondents were rated with a 3 or more in the respective areas. Since our estimation of respondent comprehension should—at least in theory—be more objective than their own, these results are encouraging. However, the scale with which respondents were rated is still rather subjective and, in addition, relative to expectations. Thus, if respondents exceed the interviewers’ and our initial expectations, their ratings are likely to be found toward the higher end of the scale, even with non-perfect absolute understanding.

The primary issue affecting respondent deliberations is the level of hypotheticality in the scenario. This potential hypothetical bias, as occurs to a varying degree in most CVM studies, is at risk of being present in our sample, considering many respondents seemed to perceive the scenario as highly unrealistic. As previously mentioned, respondents saw no actual chance of being compensated or moving back to their old home, leading to



difficulties in coming up with a WTA estimate and in some cases disinterest in answering at all. This bias is inherent in the scenario itself, and another approach would be needed to avoid it completely.

Another potential bias is the non-commitment bias whereby respondents overstate their WTA because they are not faced with a real-life scenario in which they have to commit to their claim. In reality, they might well agree to less money than they claimed when asked the scenario question if faced with actual money. Were this the case, they might suddenly feel that even with, say, \$500 less than their first claim, the offer would still be pretty acceptable as they would be able to use the money in many desirable ways. This bias risk is a fact in all non-transaction contexts, including our pilot study, and is never completely avoidable when asking strictly hypothetical scenario questions. In order to make a judgement on whether our results are subject to non-commitment bias, we examine the stated WTA–yearly income ratio as presented the previous section. The stated WTA estimates were mostly up to 2 times the yearly household income, which could be considered plausible.

When respondents perceive that they can affect the outcome of a policy decision—the opposite scenario compared to the case of hypothetical and non-commitment bias—there is a risk of strategic response by respondents who try to induce their desirable outcome. As mentioned in the previous section, some respondents remained unconvinced that we were students conducting a survey rather than NGO representatives. In connection with the expression of this belief, many people asserted that they did not “want to appear greedy,” while many others stated that they were “not ambitious.” Such answers indicate that there may be a question of strategic response in our data: these respondents have likely understated their WTA, bargaining in order not to risk being left out of an anticipated compensation scheme—however, overstatement is also a feasible result for people not perceiving such risks. The net result is thus ambiguous. This bias could possibly be avoided by further convincing of the purpose of the study—in our experience, though, suspicion is not always easily avoided. It should be noted that such statements could also in some cases be explained by a misapprehension of the scenario: some people may have difficulties seeing themselves in the position of making such demands as the scenario stipulates. This explanation, too, indicates a downward bias.

The fact that the scenario question was conveyed interactively makes analysis of its formulation more difficult. However, because of our continuous dialogue with the interviewers, we broadly know what was said in the interactive dialogues and are consequently able to discuss some potential problems with the formulation below.

First, neutrality might be an issue. The wording in the survey instrument, involving negatively charged words such as discomfort, was also used by interviewers, by their own account. If true experienced discomfort was relatively low, then these negative formulations would be likely to lead to an upward bias in WTA estimates. Indeed, even talking about costs and compensation might lead to bias. A solution to these problems would be just to exclude the strong, negative wording in the scenario question as to convey a more neutral tone and perhaps even ask everyone something in the lines of “how much would you pay or demand in order to be able or agree to move?” Such a formulation would also remedy the problem with our two content respondents, whose WTA we have now set

to \$0. However, our initial decision of formulation was made to increase clarity of what should be evaluated, as most DID victims would indeed be expected to have negative experiences of their displacement. This decision, possibly mitigating hypotheticality issues as discussed above, should thus perhaps not be disregarded altogether.

Furthermore, the lack of strict wording of the scenario question leads to one of the greatest bias risks, namely interviewer bias. Since the interactive interviews required the interviewers to convey their own understanding of the scenario to respondents, the quality of responses is highly dependent on the interviewers' perception of the scenario. Before implementation, we did discuss the scenario minutely and we judged that the interviewers quickly reached an understanding of the scenario as we intended it to be understood. However, even with full understanding of the scenario itself, the interviewers' chosen wording affects respondents' answers. In our case, we have no means to control for this, but upon future implementation the problem could be remedied with instructions on exact formulation of the question, as well as impartial transcription of tape recordings of interviews or presence of a supervisor proficient in the local language.

We will now turn to analyze the nature of the WTA distribution presented in the previous section, in regard to the described potential biases. Given our experiences in the field and the analysis of data, we can, roughly and on qualitative grounds, divide respondents into four major groups. First, we have the two respondents that felt better off, i.e. outliers whose answers were set to \$0. Second, we have the ones that did not want to seem greedy, whose answers mostly lay in the proximity of \$1,000–\$2,000. As discussed above, we have reason to believe that there is a downward bias in their answers. The third group consists of those who the interviewers deemed to have both the greatest understanding of the scenario and to have given the question the most thought. This group is assumed to have given the most unbiased answers. The answers were mostly in the proximity of \$4,000–\$5,000. The final group is comprised by the three outliers answering \$10,000 or \$15,000. Since their perceived understanding was mixed, no general conclusion about potential bias can be drawn. Overall, the net result of the potential biases is ambiguous but given the above analysis, the mean WTA seems reasonable. Furthermore, the relatively large variance does not necessarily indicate diverse levels of understanding and responses subject to different biases but could also be explained by respondents' unique life stories and valuations. Hence, the confidence interval seems plausible as well.

Finally, we will discuss sampling bias, since much of the analysis is based on our sample from the implementation. As stated earlier, sampling was done by use of clustering on streets chosen essentially randomly, but in part due to accessibility. While completely random picks, e.g. drawn from a ballot of street addresses, would be desirable, our choice of sampling method and execution was mainly a question of convenience. As such, the ideal scenario conflicts with questions of practicability, as will be discussed further below. It is difficult to conclude whether this has caused a systematic bias in the mean. Possibly, people living on the same street may to a greater degree than completely randomly picked people share experiences and standard of living, which would imply that answers cannot be expected to be as diverse as otherwise expected from a sample of 30 respondents. Furthermore, they might have shared misconceptions such as that of

us being NGO representatives, reinforcing already discussed biases. However, such an occurrence was not explicitly noted. Finally, on a positive note, we acknowledge that clustering might have contributed to the high response rate, as people may feel assured when their neighbors have already been interviewed.

A potential problem of understanding and several bias risks are thus acknowledged, of which the most grave are probably the hypothetical bias and interviewer bias. However, this is hardly a unique problem for our CVM application and in summary, seeing this as a pilot test, we broadly regard the results as encouraging. Furthermore, since the potential biases were at times conflicting, the direction of the net translation of the mean is ambiguous. Given the above analysis we see no reason to believe that the sample mean has undergone a significant, systematic shift in either direction of the true, i.e. unbiased, population mean.

## 6.2 Usability

The research question regarding usability asks: how readily can the WTA figures be used in CBA? In order to answer this rather technical question, we have to examine whether the elicited mean WTA has a narrow enough confidence interval (with an appropriate confidence level), whether the elicited number is economically significant enough to include in CBA, and what can be done on the matter of functional form of the yearly WTA costs. It should be noted that this analysis formally pertains only to our specific sample. However, we argue that our results can still be held indicative of the method's usability in a more general case.

A 95% confidence interval, computed from this sample, ranges between \$2,448 and \$4,845, which we deem to be narrow enough for making inferences about the magnitude of the mean WTA, given that the issues discussed in the previous subsection are not too severe. Since the confidence interval is determined by the individual variable variance and the sample size, the straightforward way to narrow it down is to increase the sample size, ideally including the entire population. However, since an increase in sample size is both costly and time-consuming, it impairs practicability which is to be discussed in the next subsection.

Since we find reason to believe that the true population mean is located in or around the confidence interval, the question of whether the figure is economically significant can now be established. To do this, we must compare our WTA estimate with another significant impact of the Boeung Kak development project. As mentioned in the previous section, 3,000 families have been displaced from the Boeung Kak area. This number, multiplied with the elicited sample mean WTA of \$3,647, equals \$10.9 million. If one accepts this number as an indicator of the order of magnitude of the true yearly WTA costs, then it would be reasonable to compare it with the yearly leasing cost paid by Shukaku to the Cambodian government. Since the company received a 99-year lease contract in exchange for a payment of \$79 million, it could be relevant to translate this payment into an annuity and compare to the previously computed yearly WTA cost. Assuming an discount rate of 10%, the annuity becomes around \$8 million. While based on somewhat weak assumptions, the above example clearly indicates that the order of

magnitude of the yearly WTA cost is economically significant in comparison to this other significant impact of the project.

A final issue that needs to be resolved if the method's elicited mean WTA estimate is to be used in CBA is, as mentioned in the section on research design, the functional form of the yearly WTA cost. As the exclusion of this discussion from our thesis is a deliberate delimitation, we will refrain from making any unfounded suggestions. However, as respondents expressed that things are steadily becoming better at the resettlement site, it is reasonable to believe that the yearly WTA costs are diminishing. From a technical standpoint, this is seemingly the last issue to be resolved before full inclusion in CBA is possible.

### 6.3 Practicability

The final point of analysis examines the practicability of the method. The corresponding research question states: how practicable is implementation of the method? After implementing the method during our pilot study, we can conclude that there are no unique issues pertaining to our method compared to other CVM surveys conducted in developing countries. As with most versions of CVM the method is time consuming and costly—we were lucky to have had the volunteered help of two students.

As previously hinted, there also exist trade-offs between practicability and sampling quality and scale. While clustering, as practiced in our implementation, improves efficiency, it might entail sample bias. Likewise, a small number of interviews means less time spent gathering data while decreasing the possibility to make statistical inferences. Thus, a balance must be struck in order to guarantee sufficient levels of both sampling quality and scale—as with every other survey.

Finally, Whittington (2002) raises an implementation issue especially pertinent in developing countries, which was previously mentioned in the section on the developing of the method. It is the question of interviewer skills and possibility of training—both severely limited in developing country contexts. We consider ourselves lucky to have been assigned two very bright students, whom we had got to know prior to the implementation and whose interviewing skills were very satisfactory. However, since future implementation of the method would require the employment of more interviewers on a professional basis, probably native to the developing country in question, these issues become more pressing. The remedy is the administration of costly and time-consuming interviewer training, which Whittington (2002) discusses extensively. However, neither this issue is unique to our implementation.

### 6.4 Conclusions

The main objective of this thesis being to contribute to the development of a more complete method for measuring costs of displacement, we decided to develop, implement and evaluate a CVM based method aiming to elicit ex post WTA for displacement. To reach the objective, our proposed method has been evaluated by answering our research questions. Having addressed these, we now aim to answer the main question: would a method of the type described be useful in achieving this goal, in the described context?

To reach an answer, we summarize the three areas of analysis. First, we argue that, based on respondents' and interviewers' assessments, scenario understanding was high, not least due to the interactive interview process. Accuracy of answers remain hard to judge but fairly positive assessments of certainty and similarity of answers are encouraging. We note, however, that bias risks remain, with uncertain size and sign. Second, statistically significant results can be reached through sufficient sample size and quality and given that our results can be held indicative of the order of magnitude of this measure of WTA, results are economically significant. However, before full inclusion in CBA, a hurdle remains in determining the functional form of costs over time. Third, the same issues of practicability exists as with other CVM surveys in developing countries: implementation is costly and time-consuming, and extensive interviewer training is required.

It appears that results are encouraging and that the identified issues would not be infeasible to mitigate. We therefore conclude that, while not perfect, the method might well be useful in reaching the stated goal, in the stated context, and deserves due attention, trial, and improvement. Although there remains a gap in existing knowledge on evaluating the costs of DID, we consider this a modest advance toward closing it. Our contribution is mainly the concept and design of this type of survey, and the demonstration of its feasibility.

Upon meeting the main objective of this thesis, there was a hope to create a basis for future, more effective CBA. While we see potential, the method is not yet ready for implementation in CBA. Since we see no impairing, inherent problem with the scenario used in our method, the one technical problem that remains is the matter of functional form of the yearly WTA costs. Therefore, after solving this problem and after further examination of potential biases has been conducted, no large hurdles remain. We thus encourage further research regarding functional form of costs as well as further trials and improvements.

Finally, we stated earlier the desire to contribute to compensation practice. After visiting Damnak Troyung, our lasting impression is that if seeking to minimize social costs borne by displacees, initial equitable handling and compensation appear preferable. Our findings go to show that this is in fact so, providing a case for observers demanding improved compensation practice. Improvement may come in the form of a higher degree of internalization of these costs, having developers compensate displacees for their ongoing hardships. In this case, compensation sums could possibly be estimated by methods such as the one in this study, given that the apparent risk of strategic response is sufficiently mitigated. Likely effects of such practice include achieving a more efficient equilibrium in the number—and nature—of development projects accepted. However, it can be concluded after review of current research on the subject, that monetary compensation alone seldom does the trick. Hence, improvement may better come in the form recommended by compensation research and us alike: compensation, non-monetary if needed, that is determined early through dialogue with displacees and that aims to maintain their standard of living on a permanent and self-sufficient basis.

## 7 Summary

Following the main objective of contributing to the development of a more complete method for measuring costs of development-induced displacement (DID), to be used in the cost-benefit analysis (CBA) framework, this thesis set out to reduce the gap in existing knowledge on the subject. The current state of knowledge provided us with the framework in which the methodological development were to take place. The new method was decided to be a contingent valuation method (CVM) survey for eliciting displacees' asset-and-income loss complementary, ex post willingness-to-accept (WTA) for the first year of displacement.

The research questions, whose answers aimed to meet the objectives of the thesis, addressed three dimensions of the method's viability, namely, (1) reliability: how well does the scenario question elicit reliable WTA figures?; (2) usability: how readily can the WTA figures be used in CBA?; and (3) practicability: how practicable is implementation of the method?

The approach of the thesis was divided into three parts: (1) development of method, in which we developed the new method given the specifications stated earlier; (2) implementation, in which we applied the method in the Damnak Troyung resettlement site on the outskirts of Phnom Penh, Cambodia; and (3) evaluation, in which we analyzed the data gathered during the implementation in order to answer the research questions.

The creating of the substantive part of the CVM survey, i.e. the scenario question which was to elicit respondents' WTA, was inspired by earlier CVM research in the field of environmental economics. The rest of the survey instrument was produced by use of general guidelines and inspiration from previous CVM research in a DID context. The survey was implemented by conducting 30 interviews with displacees in Damnak Troyung.

Analysis of the method was performed using the data from the implementation. We argue that, based on respondents' and interviewers' assessments, scenario understanding was high, not least due to the interactive interview process. Accuracy of answers remains hard to judge but assessments of certainty and similarity of answers are encouraging. We note, however, that bias risks remain, with uncertain size and sign. Moreover, statistically significant results can be reached through sufficient sample size and quality and given that our results can be held indicative of the order of magnitude of this measure of WTA, results are economically significant. However, before full inclusion in CBA, a hurdle remains in determining the functional form of costs over time. Finally, the same issues of practicability exists as with other CVM surveys in developing countries: implementation is costly and time-consuming, and extensive interviewer training is required.

In conclusion, although the method needs further testing and improvement, it represents an advance toward determining all costs of DID. It is our hope that our research could help guide coming attempts to determine the full costs of displacement but also that it could inspire other applications of our findings.

## Bibliography

- Ahlheim, M. and W. Buchholz (2000). WTP or WTA - is that the question? Reflections on the difference between “Willingness to Pay” and “Willingness to Accept.” *Zeitschrift für Umweltpolitik und Umweltrecht* 2, 253–271.
- Arrow, K., R. Solow, P. R. Portney, E. E. Leamer, R. Radner, and H. Schuman (1993). Report of the NOAA panel on contingent valuation. *Federal Register* 58(10), 4601–4614.
- Asian Development Bank (2007). Compensation and Valuation in Resettlement: Cambodia, People’s Republic of China, and India. Manila: Asian Development Bank, Rural Development Institute.
- Boardman, A. E., D. H. Greenberg, A. R. Vining, and D. L. Weimer (2011). *Cost Benefit Analysis: Concepts and Practice: International Edition* (4th ed.). Upper Saddle River, New Jersey: Prentice Hall.
- Bradburn, N., S. Sudman, and B. Wansink (2004). *Asking Questions: The Definitive Guide to Questionnaire Design—For Market Research, Political Polls, and Social and Health Questionnaires, Revised Edition*. San Francisco: Jossey-Bass.
- Brase, C. H. and C. P. Brase (2011). *Understandable Statistics: Concepts and Methods* (10th ed.). Boston: Brooks/Cole.
- Bugalski, N. and D. Pred (2010). Land titling in Cambodia: Formalizing inequality. Phnom Penh: Bridges Across Borders Cambodia.
- Carson, R. T. and W. M. Hanemann (2005). Contingent valuation. In K.-G. Mäler and J. R. Vincent (Eds.), *Handbook of Environmental Economics, Volume 2*, pp. 821–936. Amsterdam: Elsevier B.V.
- Carson, R. T. and J. J. Louviere (2011). A common nomenclature for stated preference elicitation approaches. *Environmental and Resource Economics* 49(4), 539–559.
- Carson, R. T., R. C. Mitchell, W. M. Hanemann, R. J. Kopp, S. Presser, and P. A. Ruutl (1992, November). A contingent valuation study of lost passive use values resulting from the Exxon Valdez oil spill. A report to the Attorney General of the State of Alaska.
- Cernea, M. M. (1999). Why economic analysis is essential to resettlement: A sociologist’s view. In M. M. Cernea (Ed.), *The Economics of Involuntary Resettlement: Questions and Challenges*, Directions in Development Series, pp. 5–49. Washington, D.C.: World Bank Publications.
- Cernea, M. M. (2000). Risks, safeguards and reconstruction: a model for population displacement and resettlement. *Economic and Political Weekly* 35(41), 3659–3678.

## BIBLIOGRAPHY

- Cernea, M. M. (2003). For a new economics of resettlement: A sociological critique of the compensation principle. *International Social Science Journal* 55(175), 37–45.
- Farrington, D. P. (2003). Methodological quality standards for evaluation research. *The Annals of the American Academy of Political and Social Science* 587(1), 49–68.
- Fernandes, W. (2010). Development-induced displacement in the era of privatisation. In H. M. Mathur (Ed.), *Resettling Displaced People: Policy and Practice in India*, pp. 301–316. New Delhi: Routledge.
- Garikipati, S. (2002). Resettlement sites of Narmada Valley project: Some revealing insights. *Economic and Political Weekly* 37(23), 2257–2266.
- Garikipati, S. (2005). Consulting the development-displaced regarding their resettlement: Is there a way? *Journal of Refugee Studies* 18(3), 340–361.
- Garikipati, S. (2010). Misunderstood and misused: Re-examining the compensation criterion in resettlement. In H. M. Mathur (Ed.), *Resettling Displaced People: Policy and Practice in India*, pp. 181–220. New Delhi: Routledge.
- Horowitz, J. K. and K. McConnell (2003). Willingness to accept, willingness to pay and the income effect. *Journal of Economic Behavior & Organization* 51(4), 537–545.
- Hoyos, D. and P. Mariel (2010). Contingent valuation: Past, present and future. *Prague Economic Papers* (4), 329–343.
- Kanbur, R. (2003). Development economics and the compensation principle. *International Social Science Journal* 55(175), 27–35.
- Land and Housing Working Group (2009). Land and housing rights in Cambodia. Submitted to the United Nations Committee on Economic, Social and Cultural Rights concerning Article 11 (1) Right to Adequate Housing of the Covenant on Economic, Social and Cultural Rights, for consideration at its 42nd session, 4-22 May 2009. Phnom Penh.
- Livermore, M. A. and R. L. Revesz (2013). *The Globalization of Cost-Benefit Analysis in Environmental Policy*. New York: Oxford University Press.
- Mariotti, C. (2012). *Displacement, Resettlement and Adverse Incorporation in Andhra Pradesh: The Case of the Polavaram Dam*. Ph. D. thesis, SOAS, University of London.
- Olds, K., T. Bunnell, and S. Leckie (2002). Forced evictions in tropical cities: An introduction. *Singapore Journal of Tropical Geography* 23(3), 247–251.
- Orapan, N. (2003). A cost-benefit analysis of resettlement policy: A case study of Ob Luang national park, Northern Thailand. Research Report no. 2003-RR10, Economy and Environment Program for Southeast Asia. Singapore.
- Paling, W. (2012). Planning a future for Phnom Penh: Mega projects, aid dependence and disjointed governance. *Urban Studies* 49(13), 2889–2912.



## BIBLIOGRAPHY

- Pearce, D. W. (1999). Methodological issues in the economic analysis for involuntary resettlement operations. In M. M. Cernea (Ed.), *The Economics of Involuntary Resettlement: Questions and Challenges*, Directions in Development Series, pp. 50–82. Washington, D.C.: World Bank Publications.
- Percival, T. and P. Waley (2012). Articulating intra-Asian urbanism: The production of satellite cities in Phnom Penh. *Urban Studies* 49(13), 2873–2888.
- Phorn, B. and P. Zsombor (2013, March 1). Boeng Kak evictees ask city hall for better compensation. *The Cambodia Daily*.
- Sahmakum Teang Tnaut (2010). A home no more: Stories from Boeung Kok lake. Facts and Figures n. 18: a publication on urban issues. Phnom Penh.
- Sahmakum Teang Tnaut (2011). Displaced families: Phnom Penh 1990-2011. Facts and Figures n. 19: a publication on urban issues. Phnom Penh.
- Whittington, D. (2002). Improving the performance of contingent valuation studies in developing countries. *Environmental and Resource Economics* 22(1–2), 323–367.
- World Bank (1996). Resettlement and development: The bankwide review of projects involving involuntary resettlement 1986-1993. The World Bank Resettlement Series. Washington, D.C.
- World Commission on Dams (2000). Dams and development: A new framework for decision-making. The Report of the World Commission on Dams. Cape Town.

## Appendix: Survey Instrument

**Contingent Valuation Survey for Determining Willingness-to-Accept Money for Discomfort Caused by Development-Induced Displacement**

**Introduction**

The respondents are to be told that we are students from Sweden conducting a study on how people have experienced being displaced. They will be asked a few questions about their situation and presented with a hypothetical scenario to assess. Respondents should be made aware that this is merely a survey and that no actual compensation will be paid out.

Questions in Part I should be completed as quickly as possible, with focus on making respondents mentally prepared for answering the scenario question, to the best of their ability, in Part II.

Everything labeled as “old” below, refers to conditions pre-displacement.

## APPENDIX: SURVEY INSTRUMENT

### Part I

1. Gender  
Male ☐                  Female ☐
2. Age  
\_\_\_\_\_
3. Head of household?  
Yes ☐                  No ☐
4. Year of displacement?  
\_\_\_\_\_
5. Number of people in old household?  
\_\_\_\_\_ adults    \_\_\_\_\_ children
6. Number of people in new household?  
\_\_\_\_\_ adults    \_\_\_\_\_ children
7. What source of income did you have?  
Employed ☐      Own business ☐      Unemployed ☐
8. What source of income do you have now?  
Employed ☐      Own business ☐      Unemployed ☐
9. How much, on average, did your household earn per month?  
\_\_\_\_\_
10. How much, on average, do your household currently earn per month?  
\_\_\_\_\_
11. Did you rent or own your old house?  
Rent ☐                  Own ☐
12. Do you currently rent or own your house?  
Rent ☐                  Own ☐
13. What types of utilities did you have access to?  
Electricity ☐      Water in or nearby house ☐    Toilet in or nearby house ☐  
Waste management ☐

## APPENDIX: SURVEY INSTRUMENT

14. What types of utilities do you have access to now?

Electricity ☐      Water in or nearby house ☐      Toilet in or nearby house ☐

Waste management ☐

15. Please describe the manner in which you were displaced.

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16. What compensation did you receive?

House ☐      \$8,000 ☐

Other: 

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17. Please describe how your situation is different from before, except house and income.

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## Part II

We will now describe a hypothetical scenario. Although it will only be hypothetical, try to consider its implications thoroughly.

Consider a scenario where things turned out differently than they did. In this scenario, you and your household are still living in your old community and no development project or eviction is planned. Things are exactly the way they were before you had to move.

Now, a company representative approaches you and offers you a sum of money, in cash, which is to be paid out in exactly one year. In return, he wants you and your household to move to this resettlement site and live here for exactly one year after which you will move back to your old community and continue to live your life as it used to be. Included in the deal is the fact that you will go through the exact same experience that you have had upon being forced to move here: moving to this site in the exact same way as you had to move in reality and living here in the exact same way as you did during your first year here. Upon returning to your old community, you would be compensated for potential loss of income.

Do you have any questions regarding the scenario?

Our question is now: what is the minimum amount of money that you would accept, in excess of the compensation for loss of income, in order for you to agree to this deal?

Since you would be back in your old community, getting your old house back, and also getting compensation for potential loss of income, what you need to consider is what the move has caused you in terms of discomfort, inconvenience, and/or suffering, i.e. how much money would you demand in order to agree to endure the feelings you had during the first year of living here.

Some people might think that they are better or as well off here as before and would not demand a lot of money, if any at all, while others might feel that this resettlement has caused them great discomfort and would therefore demand rather much money. Think back on your own experience of having been displaced.

Think about it for a while.

(Let respondent think for a while.)

Have you arrived at an approximate answer?

Answer: \_\_\_\_\_

(If no answer: Why did you fail to arrive at an answer?)

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### Part III

Thank you very much for your answer. Now, we would just like to ask you a few questions about what you thought about the interview.

1. How easy or hard did you think it was to understand the scenario on a scale from 1 to 5?

	1	2	3	4	5	
Very hard						Very easy

2. How easy or hard did you think it was to decide on an amount of money on a scale from 1 to 5?

	1	2	3	4	5	
Very hard						Very easy

3. Any other comments?

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### Part IV

(The following questions are to be answered by the interviewers.)

1. How well did the respondent seem to understand the scenario?

	1	2	3	4	5	
Very badly						Very well

2. How much consideration did the respondent give to the question?

	1	2	3	4	5	
Very little						Very much

3. How certain did the respondent seem of the answer?

	1	2	3	4	5	
Very uncertain						Very certain

4. Any other comments?

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