About the Author

Alan Potter is a Political Economist working on projects related to the intersection of the private and public sectors. He earned his PhD from New York University in Politics and continues to teach statistics at NYU. His research has appeared in both academic and policy-focused publications. He also consults for the World Bank, the United Nations, the Center for International Private Enterprise, and several other organizations.

The Center for International Private Enterprise (CIPE) strengthens democracy around the globe through private enterprise and market-oriented reform. CIPE is one of the four core institutes of the National Endowment for Democracy. Since 1983, CIPE has worked with business leaders, policymakers, and civil society to build the institutions vital to a democratic society. CIPE’s key program areas include enterprise ecosystems, democratic governance, business advocacy, and anti-corruption and ethics.

www.cipe.org
Copyright © 2017 by the Center for International Private Enterprise.
All rights reserved.
Cost-Benefit Analysis: A Practical Guide for Civil Society Organizations
# Table of Contents

**Introduction** .............................................................................................................. 4

**What is a Cost-Benefit Analysis and Why Should it Be Used to Evaluate Policies?** ................................................................................................................................. 5

**Cost-Benefit Analysis: Steps and Process** .................................................................. 6

  Step 1: Identify the Status Quo .................................................................................... 7

  Step 2: Who are the Winners and Losers under the Status Quo Policy ............... 10

  Step 3: Policy Winners and Policy Losers after Policy Implementation .......... 14

  Step 4: Monetize Benefits to Winners and Costs to Losers if Policy is Implemented .......................................................................................................................... 14

  Step 5: Compare Costs and Benefits to Status Quo and Alternatives ............... 23

  Step 6: Vary Assumptions of the Analysis .................................................................. 25

**Additional Considerations** .......................................................................................... 27

**Conclusion** ...................................................................................................................... 29

**Appendices** ..................................................................................................................... 30

  Appendix I ......................................................................................................................... 30

  Appendix IIa .......................................................................................................................... 31

  Appendix IIb .......................................................................................................................... 31

  Appendix IIc .......................................................................................................................... 32

  Appendix III .......................................................................................................................... 32

  Appendix IV .......................................................................................................................... 33

  Appendix V .......................................................................................................................... 38

  Bibliography ......................................................................................................................... 38
Introduction

Nearly all government policies create costs and benefits; and these costs and benefits are generally spread across society so as to create winners (those who benefit from a given policy) and losers (those who are hurt by a given policy). In order to understand whether a policy is optimal (i.e. better than the status quo and better than alternative policies) we need to identify the winners and losers from a policy proposal, and then calculate the net benefits to the winners and the net costs to the losers. The process of identifying winners and losers from a policy and calculating and comparing costs and benefits is a Cost-Benefit Analysis (CBA).

This guide is intended for business organizations whose members are affected by government economic policies and often civil society organizations that advocate on policy issues, with a focus on organizations in developing countries. The guide develops a framework for understanding CBA concepts and explains the necessary steps to conduct a CBA.

In many countries, the government requires a Cost-Benefit Analysis for any policy proposal. In other countries, there is no such requirement and outside groups must conduct their own analysis. This guide will help organizations conduct their own CBAs when necessary, and also to critique and analyze CBAs conducted by other groups, namely the government.

One of the most important aspects of any CBA is understanding and judging the assumptions underpinning the CBA. This is true for both the analyst who is conducting his or her own CBA, as well as for the analyst judging the value of an existing CBA conducted by another party. This is especially important in contexts where there may be political or sociological reasons that make an existing CBA biased. For example, if the government or an interest group wants a specific policy implemented, their CBA may be biased in favor of the policy. It is essential that business organizations and other civil society groups can both conduct independent CBAs, and judge the value and potential biases of existing CBAs.
What is a Cost-Benefit Analysis and Why Should It Be Used to Evaluate Policies?

A Cost-Benefit Analysis (CBA) is a systematic approach to estimating the outcome of a policy. It is an analytical tool used to estimate the costs and benefits of a policy in monetary terms, and to subsequently answer the question of whether the policy, project or investment has benefits that are larger than the costs, and higher benefits than alternative policy options.

There is no single formula or single template for conducting a CBA. Each policy in each context requires a unique analysis. However, a properly conducted CBA ensures that the costs and benefits of a given policy are estimated in a systematic and justifiable manner. It is important to always clearly explain the method used to conduct a CBA, since different methods may lead to different results. If carefully conducted, a CBA ensures that a policy recommendation is based on sound assumptions, and provides justifiable estimates for the costs and benefits of a given policy.

Because a CBA is based on estimates, it should not be treated as infallible. The policy recommendations that come out of a CBA are only as good as the data and assumptions that go into the analysis. These recommendations can be wrong if they are based on faulty data. In fact, acquiring the appropriate data and developing evidence-based and defensible assumptions about the analysis are generally the most important (and time-consuming) aspects of any CBA. Ultimately, a CBA is only as good as the data used to produce it. If you use poor data, or false assumptions, the analysis will have little value.

The value of a CBA extends beyond estimating the net cost or benefit of a policy. In fact, the most valuable aspect of a CBA is that it provides a clear and replicable methodology for studying and evaluating the outcome of a policy. There are many cases, especially in developing countries, where gathering the evidence and data necessary to estimate costs and benefits is difficult to obtain or not practical. Nonetheless, a CBA is still an extremely valuable tool because it provides a systematic method of moving a policy discussion towards an evidence-based analysis and away from mere anecdotal-based discussions. In particular, as this guide explains, a CBA
involves identifying the winners and losers from a policy, which often provides insight into the future ramifications of a policy even when it is not possible to precisely quantify all costs and all benefits.

**TIP!** The most effective and efficient method of gathering the appropriate data and testing assumptions is to collaborate with a wide range of stakeholders, specialists, and researchers when creating a CBA. Comments should be invited at all stages of the analysis and differing views should be encouraged so as to make the best estimates of both costs and benefits.

Some CBAs are conducted after policy implementation, while others are conducted before policy implementation. This means a CBA can seek to measure the costs and benefits of a policy that was already implemented or to create estimates for a policy that is being proposed. A CBA of an existing policy estimates the costs and benefits based on past outcomes. In contrast, a CBA of a policy that is being proposed must rely on estimates of future costs and benefits.

The focus of this guide is on policies that are in the proposal stage, i.e. policies that have not been implemented. The reason is to help chambers of commerce and business associations in particular use CBA to make recommendations on whether a policy should be adopted based on the impact it will have on local businesses and society at large. Not surprisingly, this makes the estimation of costs and benefits more difficult as the researcher must make assumptions about the future. Thus, special attention must be paid to uncertainty surrounding estimates of both costs and benefits in this type of CBA, as discussed in a later section.

There are other limitations to the CBA method (such as distributional concerns and measurement issues discussed later). Nonetheless, the CBA method is among the most powerful tools for policy analysts and advocates who want to estimate the result of a given policy and determine whether that policy is optimal.

**Cost-Benefit Analysis: Steps and Process**

There is no single universally accepted model for conducting a CBA and each policy scenario requires a unique approach. However, nearly all cost-benefit analyses include similar steps. The focus here is on developing the steps of the analysis in a straightforward manner so as to make the process of conducting a CBA (and later justifying it) comprehensive and systematic:

1) Identify the Status Quo
2) Identify Status Quo Winners and Losers
3) Identify Post-Implementation Policy Winners and Policy Losers
4) Monetize Costs to Losers and Benefits to Winners
5) Compare Costs and Benefits to Status Quo and Alternatives
6) Vary Assumptions of the Analysis

In Step 1 we identify the current policy status quo, i.e. the equilibrium under existing policies. In Step 2 we identify stakeholders who either benefit (winners) or suffer (losers) under the status quo. In Step 3 we identify those who win or lose if the proposed policy is implemented relative to the status quo. In Step 4 we monetize the costs to the losers and the benefits to the winners in present value terms.

Step 5 is where the actual decision on the cost-benefit is reached. This step should be relatively straightforward if the previous steps were conducted properly. Essentially, the costs to all stakeholders are subtracted from the benefits to all stakeholders. The net benefits are then compared to the status quo as well as alternative policies where appropriate.

Step 6 is a robustness check of the estimates developed in the prior steps. A CBA makes predictions about the future outcome of a future policy. This necessitates making assumptions about future events and these assumptions need to be clearly stated. Step 6 is where we consider how these assumptions impact our estimates and how the recommendations on the policy change if we vary these assumptions.

The following sections detail how to conduct each of these steps and provide case study examples.

**Step 1: Identify the Status Quo**

The status quo refers to the current policy equilibrium. For example, if the policy proposal being studied in a CBA is a reduction in food subsidies, the status quo is the current policy of higher food subsidies. On the other hand, if the policy in question is creating new food subsidies, then the status quo is having no food subsidies.

While the status quo as a concept is simple, identifying the relevant components may not be a simple process. In addition to identifying the status quo policy that will be changed under the proposal in question, analysts need to also identify the stakeholders under the status quo policy. Stakeholders are all those who have an interest in the policy. Generally, stakeholders are all those who either incur costs or receive benefits from the policy. The implementers, i.e. government agencies and officials responsible for applying the policy, are also important stakeholders who can be for or against the status quo. Their willingness to implement the new policy is often based on whether they benefit from the status quo and should be considered in assessing the feasibility of proposed changes.
When identifying the status quo, consider the following questions:

1) What is the status quo policy that the new policy proposal will replace?
2) Who instituted the status quo policy and what were their motivations?
3) Who is affected by the current policy, including by its unintended consequences (i.e. who are the stakeholders)?
4) How are current prices and costs of relevant goods or services affected by the existing policy?
5) Is there an informal or illicit market operating in response to the existing policy?

In many cases the answers to these questions may not be intuitively obvious. For example, in the case of Question 4, a policy status quo of taxing agricultural goods will likely affect the cost and price of food. On the other hand, a policy that changes the age when children start attending school may not have an obvious price as the government may provide free public schooling. However, it is possible that there are private schools that compete with the public schools. Are prices at the private schools a function of the existing policy? Even if there are no private schools and no obvious prices for schools, it is still important to understand how the existing policy impacts costs. In the case of a policy for when students start attending schools, does the existing policy status quo affect the total costs the state pays (by collecting taxes) for schooling?

It is important to consider indirect costs including transaction costs, compliance costs, and opportunity costs when identifying winners and losers under the status quo (and when monetizing costs and benefits in the next section). Transaction costs may include fees paid to lawyers or agents that manage regulations. Compliance costs may include expenditures paid for a permit or license, or the costs of complying with a regulation. Opportunity costs are the value of benefits that the stakeholder must forgo to comply with the status quo policy, such as the forgone benefits of hiring a new employee due to costly labor regulations. Consider each of these subtler costs for each stakeholder under the status quo. Definitions of these costs can be found in the table below and the template in Appendix I reminds practitioners to consider these costs.

<table>
<thead>
<tr>
<th>Transaction Costs</th>
<th>Compliance Costs</th>
<th>Opportunity Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any increase in costs of participating in the market</td>
<td>Any expenditure of time or money from complying with a</td>
<td>Any benefits that are forgone due to a status quo policy.</td>
</tr>
<tr>
<td>that results from the status quo.</td>
<td>status quo regulation.</td>
<td></td>
</tr>
</tbody>
</table>
Question 5 is particularly important and often overlooked. We need to pay special attention to markets and stakeholders that are a response to an existing policy but may be operating outside of the policy’s provisions. This informal market outside of existing regulation is often referred to as the ‘black market’ or the ‘grey market’ when overregulation forces people and businesses to operate outside of the formal (i.e. regulated) sector. As an example, a status quo policy that imposes high tariffs on imports will often be accompanied by a black market of illegally imported foreign goods at cheaper prices. This black market will be impacted by any changes to tariff policy along with the stakeholders (primarily sellers and buyers of the imported good) under the status quo policy.

**Example of Identifying the Status Quo:**

Consider a policy to allow a new app-based taxi service to operate in a city (e.g., Uber or Lyft). This is a policy question that cities around the world are facing.

In the case of the hypothetical policy to allow app-based taxi operators, we need to first identify the existing policy.

**Are there any regulations on taxis in the city in question?** Even if there is no existing policy, the lack of policy is the status quo and therefore has stakeholders. The lack of a policy could be due to the government not having the resources to develop and implement a policy, or it could be due to pressure from an outside interest.

**Who created the current policy on taxi service and why?** In most cases, a government agency (whether national or subnational, elected or appointed) instituted the policy status quo. These agencies need to be identified. The more difficult question is why the existing policy was created in the first place. What was the motivation for government officials to institute the existing policy, or lack of existing policy if there is none? In the case of taxi regulations, government officials may have been motivated by a desire to increase revenue if the existing policy requires payments to the government for permitting and/or licensing. Government officials may have also been motivated by public demand, for example, if there are public regulations on taxis to improve safety or quality. Pressure from special interests (for example, a taxi driver union) or corruption can also be motivation for the existing status quo. If there is no existing policy that regulates taxis, then it is possible that there is a lack of resources to develop and/or enforce regulations.

**Who is affected by the existing policy?** The status quo policy affects consumers and current taxi drivers, but who else? Consider other...
Step 2: Who are the Winners and Losers under the Status Quo Policy?

Once the status quo is identified, the next step is to identify who the winners and the losers under the existing policy are. The winners under the status quo are those who benefit more than they are hurt by the existing policy. The losers under the status quo are those who have higher costs than benefits under the status quo policy.

Identifying status quo winners and losers should be a relatively straightforward process after the proper research has identified the status quo itself. In fact, the best strategy is to ask very similar questions as were asked when identifying the status quo. However, now we categorize each of the stakeholders revealed in the prior process as either a winner or a loser under the status quo.
Remember that within each group of stakeholders there may be some who are winners and some who are losers. Furthermore, there may be both costs and benefits for the same person/group. As shown in Appendix I, it may be a good idea to put those who have both costs and benefits under the status quo and calculate their total net benefits separately (in the next section).

Are stakeholders winners or losers under status quo?

1) Government officials who created and/or implement the current policy
2) Consumers and businesses directly affected by the existing policy
3) Those who pay prices dictated by the existing policy
4) People or groups operating in an informal or illegal market as a response to the existing policy

For each of these stakeholders, it is extremely important to consider trends and expectations under the status quo policy. There may be groups who are not currently benefitting from a policy but who may expect to benefit in the future. This group would be considered a winner under the status quo. Similarly, those who expect to suffer under the status quo policy in the future should be counted as losers under the status quo. For example, a status quo policy that limits new construction within a given area may mean that, in the long term, individuals who own vacant property in that area are losers whereas those who own developed land are winners under the status quo because developed property becomes scarcer.

In nearly all cases, government officials will be stakeholders. Those who created or oversee a current policy may well pay costs from a policy change. This could be because change is costly for bureaucracies or it could be because they directly benefit in some way from the existing status quo. These government officials are especially important because they may have the power to make any new policy fail. If the government officials in charge of a policy are opposed to a change, they may attempt to make that new policy fail. It is important to note that the costs to the bureaucracy of shifting policies are real and need to be calculated in a CBA. For example, the government may need to hire new staff or may need to train existing staff in order to implement a policy.

An example of this comes from Romania where there was a proposal to switch from a flat tax to a progressive taxation system. The staff in the Ministry of Finance opposed this switch because they believed it would complicate their jobs and played a significant role in blocking the policy proposal. In this case, the staff in the Ministry of Finance would be winners under the status quo and losers if the policy were implemented, as the increased work is a cost to the staff.
Again, pay special attention to differences within groups. For example, some government officials who helped create a policy may benefit from the policy, whereas other government officials may be hurt by the policy. This may be because there is competition between different agencies over policy control within the government. Similarly, elected officials from one geographic area may be losers under the status quo while elected officials from other areas may be winners.

There may be individuals/groups that incur both costs and benefits under the status quo. For example, a policy that enforces high tariffs on imported goods may be a benefit to domestic manufacturers in that they may face less competition. However, it may also be a cost if some of the material they use for manufacturing must be imported. Make special note of these individuals/groups as the net change to their costs and benefits must be considered to capture all components of the CBA. Appendix I contains a template for analyzing stakeholders who incur both costs and benefits from the same policy.

Lastly, it is essential to pay special attention to the informal or illegal markets that appeared because of the status quo policy. If there are individuals or groups operating informally or illegally, are they winners or losers under the status quo policy?

**Stakeholder Analysis**

Returning to the example of a policy proposal to allow new taxi operators within a city, we now need to classify the winners and losers under the status quo. Again, the status quo policy we are considering is one in which drivers must pay for permits and where Uber and Lyft type services are prohibited. Those drivers benefit from the existing policy because it restricts queues for new drivers. Here are the additional stakeholder groups that should be considered.

**Government officials who created policy**

Do the officials that created the policy benefit from the policy in any way? As in the earlier example from Romania, it is possible that government officials will oppose any change to existing policy simply because they fear the change will cause more work or even threatens their positions within the bureaucracy. This would mean that government officials are winners in the current scenario, and they are losers if the policy were to change.

It is also possible that government officials who oversee a status quo taxi policy may benefit from bribes from drivers looking for permits. Similarly, if the status quo policy limits the number of new taxis, then the taxi unions may support elected officials who create or

Continues.
maintain the policy with donations or electoral support. It is important to consider these possibilities in any CBA. Despite the possibility for corruption, reform-minded officials will have an interest in improving efficiency. If a policy proposal does this, then these officials may become the best policy advocates as they have the ability and power to ensure the correct implementation of a policy. A well-conducted CBA can become evidence to convince government bureaucrats or enable them to convince others in the government.

**Consumers who are directly affected by the existing policy**

Do consumers who use taxis win or lose from the status quo policy? Does the status quo policy create higher or lower prices for people using taxis? If it decreases competition by limiting the number of available taxis, then it likely increases prices. Does the status quo policy increase the profits of drivers or hurt total profits? Again, be sure to consider all stakeholders affected by the policy. As mentioned previously, policies regulating taxis may affect diverse groups including all people who use roads (if the policy affects traffic), those who use public transit, and those who work in or own businesses related to taxis such as driving schools and vehicle rental services. For example, allowing Uber and Lyft to operate in a city may increase traffic substantially, which is a cost for all drivers.

**Those who pay prices dictated by the existing policy**

This aspect of CBA is very much related to the previous component. However, while in the previous point we analyzed groups directly affected by the policy, now we consider each individual/group that pays for any service affected by the current taxi policy. Does the current status quo require that drivers acquire training and, if so, do driving schools benefit from this policy? Does the current status quo require fees to be paid to the government? This may positively impact government revenue if so.

**People or groups operating in informal or illegal markets as a response to the existing policy**

Does the current policy limit the number of, or the profits of, drivers operating without an official taxi license? Be careful here to consider not just the letter of the law but its actual implementation—or lack thereof. The status quo policy may prohibit driving without a taxi license. However, if the regulation is not enforced then drivers without a taxi license are likely winners under the status quo.

Making a table that lists the winners and losers, and what they win or lose, under the status quo is a good strategy as well. See Appendix IIa for a sample table.
Step 3: Policy Winners and Policy Losers after Policy Implementation

We now need to identify the post-implementation policy winners and losers. Post-implementation winners are those who would benefit from the new policy relative to the status quo and post-implementation losers are those who would lose relative to the status quo. Note that post-implementation winners and losers are defined relative to the status quo. This means that it is possible that a group or individual may make large profits post-implementation, but if their profits are lower than they would have been under the status quo then they are a post-implementation loser. Similarly, a group or individual may have large costs after policy implementation, but if these costs are lower than under the status quo, they are a post-implementation winner.

A straightforward strategy to identify post-implementation winners and losers is to consider each of the status quo winners and losers and how each of these winners and losers would be affected by the policy proposal (a template is provided in Appendix III). Most policy changes will impact some or all the status quo stakeholders. In particular, many policies will cause benefits to status quo losers and costs to status quo winners. Again, there may be stakeholders that are not clearly winners or losers under the post-implementation policy. This may be because these groups are not affected by the new policy or because it is not clear at this stage of the analysis whether they would be winners or losers post-implementation. Be sure to note these groups, as it is important to monetize both the costs and benefits to all stakeholders in the next section.

After we consider each of the status quo winners and losers, we then need to consider any groups that may have not been affected by the status quo, but may be impacted by a policy change. In many cases, if the status quo stakeholders and status quo winners and losers were properly identified then there won’t be any additional groups to identify. Nonetheless, it is important to revisit all potential groups that could be positively or negatively impacted by the proposed policy.

Step 4: Monetize Benefits to Winners and Costs to Losers if the Policy is Implemented

Once we have identified all the stakeholders (both winners and losers) who will be impacted by a policy shift, we now need to monetize the net benefits to post-implementation winners and the net costs to the post-implementation losers.

Some costs and benefits are already monetized. For example, one cost of a proposed policy that will require shop owners to pay a given amount more in taxes is already monetized, i.e. the cost is an amount of extra money shop
owners will have to pay. Other costs and benefits may not be easily monetized though. For example, consider a policy that increases traffic and causes drivers to spend two extra hours per day in traffic on average. We know there is a cost, but the cost is not directly obvious in terms of money. We need to monetize this cost, too, so that it is comparable to other costs and benefits that are the result of the policy (see Box: Incremental Analysis and Sunk Costs for a discussion of how to consider sunk costs when conducting a CBA).

Doing so requires making assumptions. Returning to the example of increased time spent driving, one way to monetize this cost is to estimate the number of commuters impacted and multiplying this number by our estimate of the average pay per hour of people in the city in question. For example, if the policy causes all commuters to spend two extra hours in traffic and the average commuter is paid $10 per hour, then we could monetize the cost of the policy to commuters by multiplying the total number of commuters by the average hourly salary ($10) and by the number of extra hours they spend in traffic per day (2 hours). We would then have an estimate of the cost per day to commuters in the form of increased time spent in traffic from the policy. We of course would need to multiply this value if other costs and benefits are expressed in monthly or yearly amounts.

**Efficiency Gains: Common Mistakes**

Two common mistakes in a CBA are: 1) to consider labor costs (i.e. wages) as a benefit instead of a cost, and 2) to count benefits that already existed under the status quo in a different way.

**The Cost of Labor is a Cost, not a Benefit:** When we consider the costs of a policy, the price of labor is a cost. For example, if constructing a new section of a highway employs ten people who will be paid $1,000 each per week for a year, then the labor cost of the policy is $10,000 per week, or $520,000 for a year. In this case the government—as the payer—is the loser. We may consider the taxpayer as the payer ultimately. The taxpayer will likely receive benefits from the highway as well, but we need to consider the costs and benefits, and labor is a cost. Intuitively, this is because people being employed as a result of the policy should be able to work somewhere else and make the same or similar amounts of money. If the policy pays them more than they would make on the open market, then we would say the benefit to workers is only the part of their wage above what they earn outside of the policy. However, we know that someone is paying the cost.

Continues.
In the case of highway construction, labor would be a cost to the taxpayer, and we would not count the benefit to the worker unless there was no comparable job for the worker without the highway construction. If the comparable job pays less, than we only count the pay that is above the pay at the comparable job as a benefit.

This is true even in countries with high unemployment. While many economists argue that short-term fiscal stimulus aimed at increasing employment may be beneficial in some economies, it is still important that the fiscal stimulus be on a needed project. For example, the government could use a stimulus to employ people on a project that has higher costs than benefits or they could use the stimulus to employ people to work on a project that has higher benefits than costs. Clearly, the project that has higher net benefits is the better option. In some cases, the government may pay welfare to unemployed people. Here, these welfare payments are a cost of the status quo. If a proposed policy reduces unemployment payments, then this would be a benefit to the government budget relative to the status quo. Nonetheless, the costs of labor would still be a cost.

**Ignore Costs or Benefits that Shift:** Do not count secondary benefits that are just a shift in where or to whom benefits are accruing as compared to the status quo. For example, if a policy to build a new highway section brings commerce (e.g., stores or food stalls) we need to consider whether this new commerce was taken from somewhere else. If commerce simply shifted from one place to another, then there is no net benefit or cost.

Of course, there are a host of assumptions in using the above method of estimating the cost to commuters. To name just a few: 1) we do not know if people who commute by car have higher or lower per hour wages than the average pay per hour, 2) we do not know how many days per week people are working (using 365 days assumes they work every day of the week), 3) and most importantly, we assumed that if workers were not in traffic they could productively use their time to make the average wage. In actuality, this last point is unlikely in most economies, and specifically in most developing economies where individuals may have difficulty finding full employment. Whatever the assumptions going into a CBA, they need to be clearly presented and justified with data.

In all cases, monetizing costs and benefits necessitates estimates and these estimates are based on assumptions. This is particularly true for CBAs conducted prior to policy implementation. This is part of the process, and while our
estimates and assumptions are not going to be perfect, we can improve them by using data to support our estimates and assumptions. The question then is, where do we obtain this data?

The gold standard of any CBA (or any evaluation) is a randomized trial. In an ideal world, we could randomly assign the policy to some individuals or areas and not to others. We could then measure the outcome for those who were subject to the policy and those who were not. However, that is not a feasible option in most cases.

**Marginal Analysis and Sunk Costs**

Marginal analysis (also called incremental analysis) is an analysis of net changes to the balance sheet of a stakeholder. In relation to a policy CBA, marginal analysis looks at how a stakeholder accrues benefits and costs from a policy relative to the status quo. A CBA should only examine the net changes to a stakeholder. Thus, a CBA incorporates aspects of marginal analysis.

The key insight from the concept of Marginal Analysis is that we need to ignore sunk costs. In relation to a policy CBA, a sunk cost is a cost that will exist if a policy is implemented or if it is not. For example, consider a status quo where the government has a large annual deficit due to spending above government revenues. If we are conducting a CBA that will increase the deficit further, we do not count the entire deficit as a cost of the policy in question. Instead, we count the existing deficit as a sunk cost (because it must be paid regardless of the policy) and ignore it. We should only include the marginal change in the deficit as a cost of the policy, i.e. the net change that is a function of the policy (as well as any additional interest payments).

A policy to complete the construction of a road that has already been partially constructed at a large cost, but halted for some reason is another example of a sunk cost. The money spent on the partially completed project is already a sunk cost and should not be considered in the CBA. Instead, only the additional costs to stakeholders needed to complete the project should be considered, and weighed against the benefits the project would provide if completed.

Sunk costs have the potential to cloud decision-making as they may be far larger than either the positive or negative outcomes of a policy being analyzed. However, sunk costs do not affect a CBA because they must be paid regardless of whether the policy in question is adopted or not. Only the marginal costs and benefits should be included in a CBA because these are the only amounts that change as a function of the policy in question.
Even when randomization is not possible, a statistical analysis of a policy’s result can be done for CBAs conducted after implementation. In most cases this is not possible when conducting a CBA of a proposed policy, such as the type of policies addressed in this guide. Therefore, practitioners must rely on alternative methods of estimation based on developing realistic assumptions about the result of a policy. Some methods for this are discussed in the box below.

**Where to Obtain Data for a CBA?**

**Analysis of Existing Data:** When conducting a CBA it may be difficult to collect data for estimates of costs and benefits. This is especially true when the policy has not been implemented yet. First, look to the government for data or existing CBAs relevant to the policy in question. Even if there is no government CBA or if it not valid, there may be additional government data that could be useful such as the census and various national and local statistics, reports, or surveys. If there is insufficient government data, consider two routes to collecting data for CBA estimates of costs and benefits: 1) analyzing similar policies that have already been implemented in other contexts, and 2) conducting original surveys.

**Similar Policy Implementations:** No two policy implementations/proposals in different countries/regions will ever be identical. However, analyzing similar policies that have already been implemented and have available data can help make estimates of policy proposals in data-poor environments. The practitioner would justify estimates of costs and benefits on what occurred when a similar policy was implemented in a similar status quo context. For example, if the CBA is analyzing a policy proposal related to minimum wage in a country in Sub-Sahara Africa, look for wage policies that have already been implemented in other countries in Sub-Saharan Africa. Note that region is not the important variable for purposes of comparing policies across countries/regions. Instead, it is the stakeholder context, status quo, and policy proposal that matter. However, a good place to begin looking for similar cases is within a given region.

Estimates of costs and benefits based on other cases should be weighted by the similarity of the cases to the context where the policy in question is being proposed. For example, the case of privatization policy in Ukraine is likely not a good one for making estimates about a policy proposal in Kenya. Ideally, the cases we...
use to make estimates are similar to the case where the policy is being proposed. As another example, if the policy is being proposed in a city within a country, then we may look for other cities that have implemented that policy in the same country. If the policy is being implemented in a country, then we may look for cases where the same policy was implemented in a country with similar levels of economic development. Ideally, numerous cases can be used and their similarity to the current policy proposal can be used to weight the estimates of costs and benefits in the CBA.

**Conducting Original Surveys:** Surveys can be used to develop estimates based on the expected costs and benefits of stakeholders. For example, consider a policy that mandates increased food inspections of agricultural products. It may be relatively easy to estimate the costs to producers of the regulation. However, measuring the benefit to consumers is not so clear. How do we monetize the improved quality of agricultural produce?

A survey may be able to estimate the amount that consumers are willing to pay (WTP) for the improved produce quality, and be used to generate an estimate of the benefits of the policy to consumers. To do this, the survey would describe the policy benefits to survey respondents and then ask how much they would be willing to pay for the described benefits. In the example of improved agricultural produce quality, the survey would ask how much survey respondents would be willing to pay for the increased quality. The average WTP would then serve as the estimate of the benefit to the consumer. Further discussion of how to create a WTP survey can be found in Appendix IV.

Similarly, consider the case where a new regulation is imposed on business owners. It may be difficult to quantify the cost of some regulations, for example a regulation that requires additional paperwork. A survey aimed at capturing the cost of the regulation could ask a sample of affected business owners how much they would be willing to pay to not have the proposed regulation. It should be noted that measuring willingness to pay is not related to collecting bribes in anyway. Instead it is a regularly used method that aims to capture the economic costs and benefits of a policy that may be hard to quantify.

It should also be noted that for a Willingness to Pay survey to be valid, the sample of respondents must be representative of the affected population (see Appendix IV for more information about what it means for the survey to be representative).

*Continues.*
In addition to these methods, one of the best avenues for beginning to generate estimates of costs and benefits is to request the explicit rationale for the policy from the government. Government officials should have available material such as figures and assumptions for why they are enacting a given policy and they should be able to make this information public. Analyzing the government’s assumptions of costs and benefits is a good place to begin a CBA. If the government is not able to provide such information, then it is all the more important that a rigorous CBA be conducted by business organizations and policy advocates.

Again, it should also be noted that in many countries, CBAs are required for any policy the government proposes or intends to implement. However, these CBAs are often more of a formality than a properly conducted analysis of potential costs and benefits. In these cases, the practitioner must analyze each component of the government CBA and request material justifying every component of the estimate.

In many cases, there may simply be no existing data that relates to the policy in question. This could be because the government does not collect data, because the data is inaccurate, or because the data is not made public. In these cases, a CBA is still essential, and the practitioner must work with the information available. Finding comparable data from another country or context, conducting independent surveys or even making plausible estimates based on logical assumptions may all be appropriate methods for conducting CBAs in contexts with little available data (see Box Where to Obtain Data for a CBA?).

The key is to be able to justify how estimates were made and how they may be flawed, and the key to doing this is to clearly outline all assumptions and their justifications within the CBA. Appendix IV provides more information on how this can be done in practice as well as templates.

Each of these strategies has advantages and disadvantages and requires assumptions of some kind. It is essential to understand what these assumptions are and how they may impact estimates of costs and benefits. In a later section, we vary these assumptions.
to test the degree to which they impact the CBA. It is crucial to understand that different assumptions can lead to different outcomes of the analysis.

There are two additional points to pay special attention to in the monetizing stage of an evaluation: *Present Value and Expected Value.*

**Present Value:**

When monetizing costs and benefits, it is essential to consider costs in terms of present value. Putting costs and benefits in present value terms makes them comparable across time periods.

The simple logic behind present value is that a benefit in the future is worth less than that benefit in the present. As an example, consider a country where money can be invested in bonds or in savings accounts without any risk and with a return of 5%. If we are comparing two policies, Policy A and Policy B, and Policy A provides total benefits of 1 million dollars immediately, whereas Policy B provides 1.2 million dollars after 5 years we need to compare the benefits in present value to understand which policy is optimal. Intuitively, we know that 1 million immediately is better than 1 million in 5 years because we can invest the 1 million and earn interest over 5 years. In this hypothetical case where the interest rate is 5%, we need to put the benefits of Policy B into present value by using the interest rate (sometimes called the discount rate when calculating present value). We then divide the future value by 1 plus the interest rate raised to the power of the number of years in the future that the benefit will be received.

The formula for present value is:

\[
\text{Present Value} = \frac{\text{Future Value}}{(1 + i)^n}
\]

Where \(i\) is the interest rate and \(n\) is the number of years in the future that the future value will be earned.

In the example above, the formula is:

\[
\text{Present Value} = \frac{\$1,200,000}{(1.05)^5 \text{ years}} = \$940,231.40
\]

Therefore, Policy A is preferred to Policy B once we consider the present value of its benefit. It is essential to put all costs and benefits in present value so that they are comparable across time periods.

Calculating the present value of a cost is the same as calculating the present value of a benefit, i.e. we use the exact same formula. Intuitively, though, remember that a cost of 1 dollar in the future is better than a cost of 1 dollar now because we can earn interest on the 1 dollar between now and when the cost must be paid.
It should be noted that there are many of online present value calculators\(^1\) (as well as a calculator in Excel\(^2\)) in which the future value, the interest rate and the number of years in the future are entered and the present value is returned. In some online formulas the interest rate is referred to as the discount rate. For a CBA of a government policy, we should use the rate at which the government is able to borrow money as the interest rate in the present value formula.

In some cases, the organization interested in conducting the CBA may choose to hire a consultant with experience conducting CBAs and present value calculations specifically. An expert may improve the accuracy of the CBA, or help the organization in conducting future CBAs. Regardless of whether an outside consultant is used, it is essential that the organization can understand and evaluate the CBA they have paid to have conducted as well as CBAs created by other parties such as the government.

**Using ‘Expected Value’ to Manage Uncertainty of Future Costs and Benefits**

When conducting a CBA on a policy proposal there will always be uncertainty around estimates of costs and benefits. In many cases, we may be able to also estimate the uncertainty around our estimates. For example, we may estimate that the costs to a stakeholder from Policy X will be $100 with a probability of 50%, $0.00 with a probability of 25%, and $500 with a probability of 25%.

The best way to translate this uncertainty is to base the estimate on the expected value of the policy. In the case above, the expected value is:

\[
\text{Expected cost} = 0.25(0) + 0.5(100) + 0.25(500) = 175
\]

So, based on the probabilities, our estimate of the cost to this hypothetical stakeholder is $175. Of course, the probabilities are only estimates themselves and based on assumptions. However, using expected value in cases where there is substantial uncertainty makes the analysis more transparent and easy to test in the next step where we vary assumptions around our estimates.

\(^1\) One of the most straightforward online calculators can be found at: http://www.investopedia.com/calculator/pvcal.aspx.

\(^2\) The Excel formula is \(PV(rate, nper, fv)\) where ‘rate’ is the interest rate, ‘nper’ is the number of future payments (if the benefit is paid periodically) and ‘fv’ is the future value that we are trying to find the current value of. There are additional arguments in the formula that can be added but are not likely needed for most calculations.
Step 5: Compare Costs and Benefits to Status Quo and Alternatives

Once all costs and benefits have been monetized and put in present value terms, the process of comparing the proposed policy to the status quo or to other policies is straightforward. We simply subtract the total costs from the total benefits to create an estimated outcome of the policy relative to the status quo. If the number is negative, then the policy will be worse than the status quo. If the number is positive, then the policy will be an improvement over the status quo. If we want to compare two policies for which we have conducted separate Cost-Benefit Analyses, we simply compare the numbers, with the larger one being the preferred policy.

We, again, must consider the value of costs and benefits overtime. In the previous section, we monetized all costs and benefits in present value. Figure 1 is a sample graph showing the present value of the costs and benefits of the proposed policy overtime. We see that the proposed policy has higher costs than benefits in early time periods. This is often the case due to high initial costs for policy changes (e.g., due to new training of bureaucrats as discussed previously, or high capital expenditure). However, overtime, the present value of benefits of the policy may be substantially higher than the status quo (as in this example).

![Figure 1: Present Value of Costs and Benefits Overtime](image)
In Figure 2, the area under the costs curve and the area under the benefits curve from Figure 1 are aggregated. We then subtract the total costs from the total benefits to obtain the total outcome of the policy. In this example, we can easily see that the total benefits are larger than the total costs, which indicates that the policy is superior to the status quo.

While we do not actually compare total costs and benefits in each period separately, it is wise to verify your estimates for each stakeholder using figures such as the ones above. Instead of graphing the costs and benefits of the entire proposed policy across all stakeholders (as in Figures 1 and 2), make a separate graph for each individual stakeholder. This should help ensure that you are comparing the present value of the total benefits of the proposed policy to the present value of the total costs for each stakeholder.

For the comparison of costs and benefits generated from a CBA to be valid, we need to have quantified all costs and all benefits. Again, this must include more qualitative costs and benefits as well. For example, a policy that promotes entrepreneurship among young people may have straightforward benefits that include future economic growth and/or employment. We can quantify these benefits in some way. It also may have additional societal benefits because young people will be more likely to be proud of themselves and may become better members of society. While this additional social benefit may seem purely qualitative, for a valid CBA we must quantify it. This means that we must make an estimate of what this benefit is to society, justify our reasoning, and include it in our analysis. Of course, this will be just an estimate. However, by quantifying the benefit we are able to compare it to the overall costs and benefits.
Step 6: Vary Assumptions of the Analysis

At this stage, we have an estimate for the outcome of the policy. Yet, we know the estimate is based on a host of assumptions. We used the best available data or even gathered new data to make these assumptions. Nonetheless, we know that they are not perfect. Therefore, we need to vary the assumptions to determine whether they change the outcome of the CBA.

In practice, this means going back to each estimate of costs and benefits for each stakeholder and addressing uncertainty around the estimates. There is no one-size-fits-all method of doing this. However, one relatively simple approach is to make a high estimate of costs or benefits for all stakeholders and a low estimate of costs or benefits for the same stakeholders (see the box for suggestions on developing high and low estimates). We can then recalculate the results of the CBA based on these varying estimates to determine how much the CBA is affected by specific assumptions.

Returning to the example of estimating the cost of a policy that increases the average time consumers spend in a car by two hours, we need to vary every aspect of the assumptions that went into the monetized estimate of this cost. What happens if the policy only causes one extra hour spent in traffic per commuter? What if commuters make a higher average hourly wage than we used in our estimate? There are of course many other assumptions involved in this process and we need to vary all of these.

How do we make a low and a high estimate of policy result?

Developing reasonable low and high estimates can be done in a number of ways. The main point is that the low and high estimates should have some real probability of occurring.

For example, imagine that we estimate the expected value of benefits for a certain stakeholder to be 1,000 dollars. How do we make a high and low estimate around this main estimate?

The most efficient method of doing this is to collaborate with other researchers. Ask these researchers to make their own estimates. Then use their highest estimate as your high estimate and their lowest estimate as your low estimate. If there are enough researchers providing input, then the actual estimate used in the CBA (estimate before varying) could even be the average of these researchers’ estimates.

Continues.
If other researchers are not available, then a good general rule is that the high and low estimate should have at least a 10 percent probability of occurring based on your own knowledge of the policy and the local context.

Another method of considering high and low estimates is to return to the Expected Value formula. High and low estimates are used for costs and/or benefits that involve substantial uncertainty. As discussed previously, we can generate estimates of costs and benefits when there is substantial uncertainty using Expected Value. Developing high and low estimates can be done by varying the assumed probabilities used in our Expected Value estimates.

The earlier example used the following probabilities and values:

$$\text{Expected cost} = 0.25(\$0) + 0.5(\$100) + 0.25(\$500) = \$175$$

A high estimate of this cost would be $500. A low estimate would be $0. Conducting the CBA using these high and low estimates allows us to see how much our assumptions about the probabilities of certain costs and benefits impact our overall CBA estimates.

By varying these assumptions, we can develop a low estimate and a high estimate of the total cost to commuters as a result of the policy. We then use the high and low estimates in the CBA to determine whether the outcome changes.

If the outcome does change when we use either the low or the high estimates, then we need to do two things. First, we should revisit the assumptions of the estimate and be sure that they are reasonable. Second, we should note that the results of the CBA are dependent on this assumption. A good CBA will address the assumptions that affect the outcome and discuss why these assumptions are valid.

If the outcome does not change when we use either the low or the high estimate for a specific cost or benefit, then there is no need to revisit this result in the conclusion. This is because the CBA is robust to varying this estimate and its underlying assumptions.
Additional Considerations

**Distributional Concerns**—In the simplest sense, a practitioner should recommend a policy if the CBA shows that benefits of the policy are larger than costs and should not recommend the policy if costs are larger than benefits. However, the distribution of costs and benefits needs to be considered as well. For example, consider a hypothetical policy that has total benefits of 2 million dollars and costs of 1 million dollars. In this case, at the first glance, the practitioner should recommend the policy because the benefits are larger than the costs.

But what if all the benefits go to a wealthy minority (e.g., politicians or large business owners)? Should we still recommend the policy? This is a difficult question to answer (See the box for a fuller discussion). Researchers conducting the CBA must therefore always consider distributional issues and whether they are significant in the case of a specific policy scenario.

**Risk Concerns**—As discussed throughout this guidebook, CBAs are based on estimates that are based on assumptions. This is a necessary part of a CBA process but practitioners must do their best to ensure their assumptions are reasonable and their estimates are robust.

There are cases where an estimate makes complete sense given the available data but the researcher knows there is some possibility of an extreme case occurring once the policy is implemented. For example, imagine that we estimate the costs to a specific stakeholder to be 1,000 dollars, but we know there is a 5 percent chance that the costs are actually 10 million dollars? We will have considered this when developing our estimates (especially if expected value was used to develop the estimates), and discussed it as a caveat in the CBA conclusion as it almost certainly changes the outcome of the CBA.

We also need to consider whether the risk of the extremely negative event occurring is outweighed by our positive estimates of the policy. Consider the case where we estimate that the expected benefits of a policy are larger than the expected costs but that there is a 5% chance the policy has enormous costs that greatly outweigh the benefits (e.g., causes irreversible environmental damage).

In this case, the policy may not be optimal even though the benefits outweigh the costs. This is something that needs to be considered by the researcher. There are clearly cases where the risk outweighs the average expected benefit and that needs to be discussed in the CBA.
Pareto Improvement vs. Potential Pareto Improvement

One way of considering the distributional issues surrounding the costs and benefits of a proposed policy relates to whether the costs and benefits will be redistributed if the policy is implemented.

Economic theory frequently considers whether a given policy is optimal. One common measure of optimal is whether the policy makes at least one person better off, and no one worse off. This is called a Pareto improvement—and tends to be very uncommon. Nearly every policy creates winners and losers as discussed in this guide.

Therefore, a better measure of optimal in the case of a CBA is a Potential Pareto Improvement. A proposed policy that is a Potential Pareto Improvement over an existing policy is one where the total benefits to all stakeholders are greater than the total costs to all stakeholders and there is some potential that the benefits and costs could be spread across stakeholders to make everyone at least as well off as they were under the status quo.

For example, consider a policy that has total benefits greater than total costs but all benefits go to a small group, and the costs are incurred by the rest of society. This policy would not be a Pareto Improvement over the status quo because it makes those who have to pay the costs less well off. However, if the government could tax the small group and use the tax revenue to help the rest of the population who paid the costs, then the policy would be a Potential Pareto Improvement over the status quo.

Classic examples of this are economic reform policies such as privatization, where the privatization is a benefit to society but some people lose their jobs (such as workers in industries that are privatized). In this case, it is a small minority who pays the costs and the rest of society that benefits. The government could compensate those who lose their jobs to make everyone at least as well off as they were if the policy had not been implemented. This would make the policy a Pareto Improvement, and even if the compensation does not occur, the policy would be a Potential Pareto Improvement.

The conclusion of a CBA could discuss the likelihood and implications of potential redistribution for a policy that is a Potential Pareto Improvement. If the redistribution is unlikely to occur, then the practitioner must consider equity issues related to the policy that go beyond the basic net benefits approach of a CBA.
Conclusion

All policies should be subject to a cost-benefit analysis prior to implementation. Ideally, the government implementing the policy would conduct the CBA and make it public for verification and feedback. However, in many countries or localities this will not be the norm. Therefore, it is essential that business associations and other civil society organizations are able to conduct their own CBAs of policies that have the potential to impact their members’ interests.

What is more, even if the government conducts a CBA, these organizations need to be able to rigorously analyze and evaluate the government’s CBA methodology and conclusions, and particularly the assumptions underpinning its results.

This guide aims to provide the information necessary to both evaluate existing CBAs and conduct original ones. For those who want to pursue more in-depth CBAs or alternative approaches, many additional materials exist. For example, the Society for Benefit-Cost Analysis (SBCA), benefitcostanalysis.org, provides a wealth of information and a resource for practitioners to exchange ideas and methods for conducting CBAs on particular policy types.

There also several excellent CBA examples from developing countries that may facilitate the process of conducting original CBAs. These can be found in the Appendices. Appendix I also includes a sample template for a CBA. As stated in the introduction, there is no one universal formula or template for conducting a CBA. However, this template can be adjusted to fit many policy-focused CBAs. There are also links to two guides for policy advocacy available in the Appendix as a well-conducted CBA is an extremely valuable tool to convince stakeholders (such as government officials) of a policy position.

One point that bears repeating is that no CBA is perfect. This is particularly true for CBAs done before a policy is implemented. What a CBA, even an imperfect CBA, can do is provide a method for understanding the effect of a policy on the key stakeholders. In many cases, simply identifying the winners and losers from a change to the status quo policy will reveal key insights into the ramifications of a policy proposal. Quantifying the costs and benefits to the stakeholders is the much harder step in a CBA, but again, even when done imperfectly, quantifying allows for an evidence-based policy discussion instead of an anecdotal one.
Appendices

Appendix I

CBA Templates

As discussed in the main text, there is no one-size-fits-all template for conducting a Cost-Benefit Analysis. Instead, a unique CBA must be developed for a given policy. However, there are specific steps that can facilitate the analysis regardless of policy type.

The chart below provides a template for one method of implementing and presenting a CBA. While the table itself is compact, every estimate in the table should be referenced (for example with indexed notes such as those used in the explanation of the table below) with detailed explanations of how the estimates were created. Thus, while the table may be relatively small once it is filled out (depending on how many status quo winners and losers are identified), the referencing that explains and justifies the estimates will be far longer and more detailed. In fact, it is the explanation and justification of the assumptions used to generate the estimates in a CBA that makes it such a valuable tool.

In the list below the table you will find several additional templates that provide the detailed information and justification for how the estimates were generated. If the CBA were done using Excel, then the first template would be the first sheet in the workbook, and the justification templates would appear on additional sheets of the same workbook.

<table>
<thead>
<tr>
<th>Name of Status Quo Winners and Losers(a)</th>
<th>Expected Value of Costs if Policy is Implemented(b)</th>
<th>Expected Value of Benefits if Policy is Implemented(c)</th>
<th>Net Change if Policy is Implemented <a href="d">Main Estimate</a></th>
<th>Net Change if Policy is Implemented <a href="e">High Estimate</a></th>
<th>Net Change if Policy is Implemented <a href="f">Low Estimate</a></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>(g)</td>
<td>(h)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix IIa

(a) Every status quo winner and loser should be indexed to an explanation of how they are affected by the status quo policy. This may be a largely qualitative discussion. Note that the estimates above are the net difference between costs and benefits from the policy proposal for the same stakeholder. One way of justifying the estimates in the table, is to create a separate table for justifying the assumptions for each individual or group that is a stakeholder in the existing policy or the proposed policy. Remember that a single stakeholder could have both costs and benefits from the same policy, and these should both be estimated and justified, even though we are ultimately only interested in the net benefit or cost for each stakeholder. This table would include both qualitative information on the stakeholder as well as the justification for the estimates of costs and benefits from the status quo. The table could then be referenced by anyone seeking to understand how estimates were created and what assumptions were made:

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Relation to Existing Policy</th>
<th>Relation to Proposed Policy</th>
<th>Justification and Estimate of Net Costs from Existing Policy</th>
<th>Justification and Estimate of Net Benefits from Existing Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appendix IIb

(b) Be sure to consider transaction costs, compliance costs, and opportunity costs for each stakeholder. Furthermore, for each status quo winner and loser there should be an actual formula for the expected value of costs. Having the formula will allow us to more easily vary the estimates. Furthermore, every expected value estimate should be indexed to an explanation the assumptions underlying the estimate and any sources or research that helped develop this estimate. The formula and justification for the formula should be referenced in a separate table such as the one below:

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Status Quo Winner or Loser?</th>
<th>Expected value Formula for if Policy is Implemented</th>
<th>Justification for Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix IIc

(c) The same method as above applies for benefits. Note that some groups will have an expected value of zero for either benefits or costs. This should still be noted and justified in the indexing.

(d) This is simply the expected value of the benefits minus the expected value of the costs for each status quo winner and loser. There is no indexing needed for this column.

(e) In this column, we vary the estimates of the costs and benefits for each status quo winner and loser to understand how the results of the CBA analysis may be impacted if the assumptions in our expected value formulas are not correct.

(f) This is the same as previous column but with low estimates.

(g) Summing this column gives us the main CBA estimate of the outcome of the policy

(h) The simple sum of this column (and the next column) provides one estimate of how the results of the CBA change if our assumptions vary. However, the real goal of this column is to understand how the assumptions underpinning each expected value estimate have the potential to change the overall CBA results. In particular, this column should show us which assumptions may be problematic if incorrect. Each estimate in each cell of this column should be indexed with an explanation that justifies how the estimate was created and what assumptions were made.

Appendix III

Identifying Post-Implementation Winners and Losers

As discussed in the text, a straightforward method for identifying post-implementation winners and losers is to consider the status quo winners and losers and how their position would change if the policy in question were implemented. A simple template for this is provided below:

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Status Quo Winner or Loser?</th>
<th>Benefits to Stakeholder if policy is implemented</th>
<th>Costs to Stakeholder if policy is implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Using the above template will ensure that all status quo stakeholders are considered.

**Appendix IV**

**Willingness-to-Pay Surveys**

In the context of a policy-focused CBA, a Willingness to Pay (WTP) survey is used to estimate either the costs or benefits of a policy that does not exist yet. If the policy were already implemented, we may be able to observe the costs and benefits. However, for policies that are in the proposal stage, WTP surveys can be a valuable method of generating data-driven estimates of a policy result. WTP surveys require some expertise on administering surveys. In many cases, organizations may choose to hire an external consultant to conduct the survey. However, just as in the case of the CBA in general, it is still essential to understand the survey even if an external consultant is hired.

There are a number of assumptions underpinning a WTP survey. There is also research that shows that WTP surveys may not always provide a good estimate of a respondent’s true value of a policy. Nonetheless, a WTP survey is among the most valuable methods for estimating the result of a policy that has not yet been implemented.

Ideally, a WTP survey would be conducted using a random sample. In practice, collecting a truly random sample is often not feasible. What is more important is that the sample be approximately *representative* of the population that the research wants to survey and that there is no obvious bias in the sample.

In regards to representativeness: Consider an example of a policy that will affect street vendors in a city. If we want to survey street vendors across a city about their willingness to pay for a given policy benefit (or to avoid a cost from the policy), our sample of vendors for the WTP survey needs to be sufficiently large and sufficiently representative of the true population of street vendors. This means for every important subgroup (e.g., different types of street vendors in different parts of the city) within our population (in this case street vendors), we need to have a large enough sample to create an estimate of that subgroup’s WTP. In general, a good general rule is that we should have a sample of at least 50 respondents for each important subgroup within the larger population of interest. When using the term “subgroups” we mean each group that we have a reason to believe might have a different WTP than the other parts of the group. For example, if we believe our street vendor policy will have a differential impact on vendors in one part of the city, then we need a sample of approximately from each part of the city that we think may be impacted differently.
In regards to bias: Consider again the example of a policy that affects street vendors in a city. We need to ensure that our sample is not biased in such a way that it is notably different from the population (in this case street vendors) we are trying to study. A classic way in which a WTP survey sample might be biased is if we only surveyed people who actively expressed opposition to the policy proposal, such as a group of street vendors actively protesting the policy. This sample of protestors would be biased because it is likely that the people who choose to participate in a protest are also the people who are most negatively affected by a policy. Ideally, the best way of ensuring that a survey sample is not biased is to collect a random sample for the survey. In practice, this is very often not feasible in the case of a CBA. A more feasible way of fighting against a biased sample is for the researcher to actively recruit responses from a representative sample of the population. Returning to the street vendor example, if we know that 40% of street vendors are female, then we should actively recruit a sample that is 40% female. By actively recruiting a representative sample we can avoid the most obvious forms of sample bias for a WTP survey.

The next task is to create the CBA survey questionnaire. One of the main criticisms of WTP surveys is that responses are not reflective of real WTP because respondents do not actually have to pay. For example, a survey respondent may report on a WTP survey that they are willing to pay $100 for the benefits of a policy. However, they may not understand exactly what the policy entails. Furthermore, they report a value that is not grounded in reality because they are only being surveyed and not actually having to pay anything. In order to get around the potential lack of knowledge about the policy, the survey questionnaire often includes a brief description of the policy. It is essential that this description not be biased or leading. Furthermore, limiting each question to a specific component of the costs and/or benefits of the proposed policy as opposed to the entire policy is always a good idea. For example, ask respondents how much they are willing to pay for a specific benefit or to avoid a specific cost as opposed to asking about the policy as a whole.

In order to get around the issue that respondents may provide WTP responses that are not based on reality because they do not have to pay anything, we can phrase the questions to be more reflective of real world costs. For instance, instead of asking about the WTP for a given benefit, ask how much they would be willing to pay while mentioning that “the money could be spent on another product or government service or even to lower taxes.”

Returning to the example of a WTP survey of street vendors, again, there should not just be a single question regarding the WTP for the entire policy. Instead we should break the outcome of the policy down into separate questions.
Furthermore, each WTP question should be framed in such a way as to reference real world costs. For example, if the new policy would make street vendors register with the city, we could ask respondents their WTP in a number of different ways:

1) How much would you be willing to pay to not have the new policy?
2) How much would you be willing to pay to not have to register?
3) How much would you be willing to pay someone else to register you so that you could save the time and effort of doing it yourself?

Some of these questions are far more effective than others.

The first question framing is the least useful for the CBA because it does not describe the policy in a way that provides information on the specific cost or benefit of the policy of interest. The second framing provides information on the specific cost (registering), but still does not frame the cost in real world terms. The third framing is the best because it focuses on a specific cost and frames that cost in a real-world setting.

The third way of framing the question also separates the cost (registering) from the larger policy as a whole to focus only on the more specific and relevant WTP value. Furthermore, by framing the question in terms of paying to have someone else do the work of registering, we are putting the cost in a real-world setting which should help elicit a more accurate WTP value.

Note that a WTP survey should include individual-specific questions that are not directly related to WTP. We likely want to know the basic demographics of the respondents (age, gender, employment, income level, address, race or ethnicity if relevant) to understand if our sample appears to be representative of the underlying population. We also may want to survey people’s general opinion on the government that is implementing the policy, as it is possible that individual opinions on the government impact WTP responses.

Creating a WTP survey is not a simple task. If questions are not posed correctly, then the results of the survey may be biased or even meaningless. Because of this, all surveys should be piloted with a small group of respondents before a larger sample receives the survey. In fact, the best method is to pilot the survey with a group of advisors and/or colleagues. After comments from the advisors have been addressed, the survey can be piloted again with a small number of respondents before launching the survey to the entire sample. This will allow the practitioner to adjust the survey for any biases that appear in the initial pilot.
The chart below summarizes different methods and tools that can be used to estimate willingness to pay or, alternatively, willingness to accept (WTA) compensation, i.e. the minimum amount of money required for an individual to forgo some good or bear some harm.

<table>
<thead>
<tr>
<th>Method Type</th>
<th>Description</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Data</td>
<td>Market data is used to directly estimate costs.</td>
<td>Easily observable. Best adapted to productivity analyses.</td>
<td>Fails to measure non-market factors (e.g., quality of life).</td>
</tr>
<tr>
<td>Hedonic Wage Method</td>
<td>The value of a surrogate good or service (e.g., wages offered, cost of a house, travel costs) is used to measure the estimated price of a non-market or intangible good (e.g., environment, safety or enjoyment of something). Use regression analysis to estimate.</td>
<td>Often used for valuing safety of workplaces.</td>
<td>Wages do not always measure risk reliably.</td>
</tr>
<tr>
<td>Hedonic Property Prices</td>
<td>Used for a variety of factors associated with housing or property prices.</td>
<td>Used for a variety of factors associated with housing or property prices.</td>
<td>Requires extensive data for accurate analyses and estimates.</td>
</tr>
<tr>
<td>Travel Cost Analysis</td>
<td>Viewed as reliable in estimating how far one will travel for a benefit.</td>
<td>Viewed as reliable in estimating how far one will travel for a benefit.</td>
<td>Can be complicated if trips have multiple purposes.</td>
</tr>
<tr>
<td>Defensive Expenditure</td>
<td>The value of the costs incurred in attempting to mitigate or prevent the effects of a negative non-market intangible good (e.g., noise or ill-health).</td>
<td>Useful to identify the lowest cost of estimates.</td>
<td>Some expenditures may have multiple benefits besides the one of concern.</td>
</tr>
<tr>
<td>Replacement Cost</td>
<td>Estimates the amount saved by the replacement cost of the asset being protected.</td>
<td>Easy to estimate</td>
<td>Challenging to convince others that the risk being prevented is likely.</td>
</tr>
</tbody>
</table>
### Survey Data: “Stated Preference” or Estimated Data—Asks People Questions About Costs

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contingent Valuation</td>
<td>Using a random sample survey, people are asked to directly report their willingness to pay to obtain a specified good, or willingness to accept to give up a good. The average answer is then extrapolated to the larger population.</td>
<td>Can often be included in surveys with the ability to generalize to a population.</td>
<td>Answers may be biased, particularly if respondents are unable to attach a monetary value to certain results or costs.</td>
</tr>
<tr>
<td>Choice Modeling</td>
<td>Using random sample surveys or a series of experiments, people are asked to react to different policies with different choices and various levels of certainty about outcomes. The answers are weighted by using advanced regression techniques.</td>
<td>Responses since they are based upon different levels of provided information may be more accurate than directly asking respondents.</td>
<td>Requires advanced professional skills and resources to conduct.</td>
</tr>
<tr>
<td>Delphi Method</td>
<td>Uses experts who come to consensus on the value of costs or benefits. They infer and independently estimate values and then are offered the opportunity to view the responses of the other experts. After successive rounds, consensus is achieved.</td>
<td>Less costly than a survey as it uses individuals with knowledge of the area.</td>
<td>Experts must be knowledgeable. This can take time to achieve consensus.</td>
</tr>
</tbody>
</table>
Appendix V

CBA Examples in Developing Countries

There is extensive academic literature on conducting a CBA in the context of a developing country. This is because in many cases gathering the necessary information to make estimates about the costs and benefits of a policy will be far more difficult in a less developed country. However, there are some excellent examples of CBAs in developing countries that provide insight into how a CBA can be conducted in a practical manner. Again, as emphasized throughout this guide, even when it is not practical to gather the ideal level of data and evidence needed to quantify costs and benefits, a CBA still provides a valuable tool for understanding the future outcomes of a policy.

It should also be noted that these CBAs do not necessarily follow the exact steps outlined here because specific research approaches may differ depending on the analyzed policy. However, the examples cited below provide cases where the CBA methodology was used to gain insight in highly complicated policy environments.

Bibliography


**Guides to Policy Advocacy**

A well-conducted CBA is a valuable advocacy tool. Key stakeholders, especially government officials, may be persuaded by a CBA in cases where they lacked information about a policy. The guides below provide valuable information on how business groups can become effective policy advocates.


**Other Resources**


Notes
Cost-Benefit Analysis: A Practical Guide for Civil Society Organizations