

Annex: Economic and Social Tools for Poverty and Social Impact Analysis

This annex presents information on a series of tools and methods available for the analysis of poverty and social impacts of reforms. This annex presents summary information on the tools, drawing in particular on the *Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies* and the *Social Analysis Sourcebook*, which provide more detailed information¹. Additional guidance is currently under preparation on selected social and economic tools. The World Bank is also developing guidance on issues, challenges, and tools that may be of particular relevance in analyzing specific reforms. A summary matrix and reform-specific notes will be posted on an ongoing basis on the PSIA website.

This annex highlights some of the key tools for such analysis, but does not aim to be comprehensive in its coverage; updates on additional tools and methods will be posted on an ongoing basis on the PSIA website: <http://www.worldbank.org/psia>. These tools are organized following the User's Guide elements, including stakeholder analysis, institutional assessment, impact analysis, risk assessment and monitoring. In practice, the analysis of poverty and social impacts of reforms requires the combination of a variety of complementary tools, both within and across categories. In addition, some tools have evolved to comprise the integrated application of both social and economic methods.

Each tool or method is presented within a summary table. The table contains five components: (1) what the tool/method is, what policy reforms it can

evaluate, what types of questions it can answer, and its complementarity with other tools/methods, (2) its key elements, (3) the requirements in terms of data, time, skills, software, and cost, (4) the limitations of the tool/method, and (5) references and country applications.

Note that some of the tools presented in this annex belong to more than one category. For instance, beneficiary assessment or participatory poverty assessment can also be used as monitoring tools; while public expenditure tracking or quantitative service delivery surveys can also be used to analyze stakeholders and impacts. Also, note that some of the tools to analyze impacts categorized under “social” or “economic” actually use a mix of methods, as is the case for demand analysis. Moreover, some of the techniques presented can be used in carrying out more than one type of analysis. For instance, demand and supply analyses are components of partial equilibrium analysis presented under “Multi-market models”, and both IMMPA and the Augmented CGE model with representative household approach also fall within the “general equilibrium models” category.

Note

1. These are available at <http://www.worldbank.org/psia> and <http://www.worldbank.org/socialanalysis> sourcebook/, respectively.

The tools and methods presented in the annex include the following.

I. Identifying Stakeholders

- Stakeholder analysis

II. Assessing Institutions

- Institutional analysis

III. Analyzing Impacts – Social Tools

- Social impact analysis
- Beneficiary assessment
- Participatory poverty assessment
- Social capital assessment tool
- Demand analysis: Consumer assessment

IV. Analyzing Impacts – Economics Tools

1. Direct impact analysis tools

- Benefit incidence analysis (Average and Marginal)
- Tax incidence analysis
- Poverty mapping

2. Behavioral models.

- Ex-post behavioral marginal incidence analysis of public spending and social programs
- Ex-ante behavioral marginal evaluation of policy reforms
- Ex-post impact evaluation methods for assigned programs
- Demand analysis: Estimating demand functions
- Supply analysis
- Household models

3. Partial equilibrium models

- Partial equilibrium analysis: Multi-market models
- Partial equilibrium analysis: Reduced-form estimation

4. General equilibrium models

- Social Accounting Matrices
- Computable General Equilibrium (CGE) Models

5. Tools linking microeconomic distribution or behavior to macroeconomic frameworks or models

- PovStat
- SimSip Poverty
- 123 PRSP
- Poverty Analysis Macroeconomic Simulator (PAMS)
- Integrated macroeconomic model for poverty analysis (IMMPA)
- Augmented CGE Model with Representative Household Approach

V. Assessing Risks

- Social Risk Assessment
- Scenario Analysis

VI. Monitoring and Evaluation

- Public expenditure Tracking Survey (PETS)
- Quantitative Service Delivery Survey (QSDS)
- Citizen Report Card
- Community Score Card

Tool Name: **Stakeholder Analysis**

What is it?	Stakeholder analysis is a systematic methodology that uses qualitative data to determine the interests and influence of different groups in relation to a reform.	
What can it be used for?	While stakeholder analysis can be carried out for any type of reform, it is particularly amenable to structural and sectoral reforms. Basic stakeholder analysis should precede reform design and should be consistently deepened as reform elements are finalized.	
What does it tell you?	Stakeholder analysis assesses: (i) the extent to which reform may provoke political or social action; (ii) the level of ownership among different groups; (iii) differences in perception of the reform among different ethnic, religious or linguistic groups. Stakeholder analysis can be expanded into fuller political economy analysis that identifies affected groups and looks at: (i) their position vis-à-vis policy; (ii) their influence on government; (iii) the likelihood of their participation in coalitions to support change; (iv) strategies for overcoming opposition such as compensating losers or delaying implementation.	
Complementary tools:	<ul style="list-style-type: none"> • Normally used in conjunction with social impact analysis. • Stakeholder analysis identifies groups to consider as categories for analysis. It is useful for the design of household surveys, microeconomic modeling and micro-macro linked models. 	
Key Elements:	Stakeholder analysis is iterative, and usually proceeds through the following sources of data to reach final conclusions: (i) background information on constraints to effective government policy-making; (ii) key informant interviews that identify specific stakeholders relevant to the sustainability of policy reform. Participants should be drawn from a diverse groups of interests in order to limit bias; (iii) verification of assumptions about stakeholder influence and interest through survey work and quantitative analysis of secondary data	
Requirements	Data/information:	Stakeholder interests are seldom explicitly spelled out in existing sources. The main sources of information are: (i) key informant interviews; (ii) secondary material such as newspaper articles, and social science research.
	Time:	In cases where key informant interviews are already being carried out as part of other qualitative analysis, preparing an analytical piece on stakeholders can take as little as one additional staff week of effort. In cases where there is no significant qualitative work planned, a thorough exercise would likely involve a trip to the field and two to three staff weeks of effort. Analysis that is meant to predict the positions of key stakeholders in different reform scenarios is not a one-off piece of work and should grow out of the findings of other analytic work. Ensuring a complete and updated picture may require that specialists carry out the work over several calendar months.
	Skills:	Sociological or anthropological training is helpful, as is a background in political science. Local knowledge, including contacts with local experts, is crucial. Those carrying out the analysis must also thoroughly understand the reform and the recent history in the sector.
	Supporting software:	N/A
	Financial cost:	When combined with other qualitative work, the incremental cost of stakeholder analysis can be as low as US\$10,000. When no qualitative work is planned, costs can be up to US\$25,000.
Limitations:	Stakeholder analysis relies on qualitative data and perceptions and preferences. The absence of statistical representative places greater onus on careful selection of respondents and interpretation of data.	
References and applications:	<ul style="list-style-type: none"> • Bianchi and Kossoudji. (2001). • Brinkerhoff and Crosby (2002). • World Bank (2002e), Annex VII on Guyana. 	

Tool Name: Institutional Analysis

What is it?	An analytical approach that uses qualitative methods to unpack the “black box” of decision-making and implementation processes	
What can it be used for?	Useful for PSIA regardless of reform type, but particularly important for policy changes involving institutional reforms, such as decentralization of public services, utility reforms, land reforms, social safety net reforms. Useful for policy design and implementation.	
What does it tell you?	Understanding of political economy and governance issues through analysis of the institutions that are involved in the design and implementation of reforms, and identification of dynamic processes, and potential constraints in this respect. Steps include: (i) Identification of government agencies, non-government organizations and firms that carry out the policy reform. (ii) Identification of their characteristics and dynamic relationships. Output: Understanding of the formal “rules of the game” (via static mapping, i.e.: functional organigram), and the informal rules that govern actual behavior in decision-making processes (via process mapping of crucial resource flows, e.g. money, information).	
Complementary tools:	<ul style="list-style-type: none"> Used in conjunction with Stakeholder Analysis, SIA, and demand analysis/customer assessments PETS, Benefit Incidence Analysis 	
Key Elements:	Three types of information: (i) background information on key stakeholders, and organizational structures of relevant agencies; and (ii) in-depth interviews or focus groups with key informants from government agencies, non-government organizations and firms; (iii) triangulation and cross-referencing with other information to validate background information and key informant interviews.	
Requirements	Data/information:	Secondary material, including PERs, DPRs, IGRs, social/ political science research and in-country assessments of organizational structures and institutional settings. Primary data, that illustrates informal practices and identifies the dynamic processes within the policy design and implementation
	Time:	A few weeks (4-5 person weeks) to a few months (2-3 person months for fieldwork, analysis and report): Can be completed quickly in combination with a Stakeholder Analysis to gain a brief overview of the formal and informal rules of the game. Institutional Analysis that aims to identify the dynamic processes within the policy design and implementation requires a more in-depth analysis, and may take a few months.
	Skills:	Sociological, anthropological, and public policy training (incl. qualitative field research skills) are helpful. In depth knowledge of the country-context, reform area, policy design and implementation, and political economy (including interests and influences of key stakeholders) is crucial.
	Supporting software:	IPS Ltd.: http://www.ips-uk.com/ProcessMapping.htm - ProcessMap; Toolpack.com: http://www.toolpack.com/workflow.html ; HPS Inc.: http://www.hps-inc.com/iThinkDemo.htm# ; Triaster http://www.processnavigator.com/english/index.html ; Ash House: http://www.ashhouse.co.uk/process.htm ; Process Mapping: http://www.processmapping.com/ ; TSQ Europe: http://www.tqseurope.com/activemo.htm ; Designtech: http://www.designtech.com/processmap.html ;
Financial cost:	Depending on the depth of analysis, it can be low-cost if used in combination with Stakeholder Analysis, or adapted to SIA (US\$ 25,000), but can be more costly if done more in depth (US\$ 50,000).	
Limitations:	Care should be taken in generalizing findings across different units of analysis and across regions with dissimilar informal institutions even within a country (e.g. panchayat institutions will vary enormously across different states within India). Resource and time requirements vary by the depth of analysis (incl. scope of geographical fieldwork done at local, provincial and/or national level) and reform complexity which may necessitate continuing the analysis during implementation.	
References and applications:	<ul style="list-style-type: none"> Brinkerhoff and Crosby (2002). Hunt (1996). North (1990). Tymons and Jacobs (1997). 	

Tool Name: Social Impact Analysis

What is it?	An analytical framework to identify the range of social impacts and responses to reform by people and institutions, including those that are vulnerable or poor. Often undertaken in an iterative manner, and includes relatively detailed information on social context for reform.	
What can it be used for?	Can be used for many types of policy reforms. Has been used extensively for mining sector restructuring, parastatal privatization and agricultural reforms giving rise to significant social impacts.	
What does it tell you?	Social, political context for reform, who is affected by the reform at what point in time, preferences and priorities of those affected by reform, constraints to implementation of reform, how people, institutions are likely to respond to reform including whether assumptions on how they will react or be affected by the reform are correct. Also provides insight into coping mechanisms and social risks, suggestion from stakeholders on most appropriate means to mitigate negative impact of reform and potential effectiveness in local context.	
Complementary tools:	Used in conjunction with stakeholder analysis. Other tools such as institutional analysis and risk analysis complement and draw heavily on SIA. SIA can feed into assumptions for economic modeling.	
Key Elements:	Characterized by use of mixed methods and direct consultation of those potentially affected that can include a wide range of data collection techniques: open-ended community discussion, key informant interviews, focus groups, quantitative survey, observation, ethnographic field research, PRA. Proper structuring of qualitative methods and interpretation of both qualitative and quantitative research requires sufficient knowledge of local customs and cultures and thus normally requires partnership with local consulting, NGO or research firms. Typically, SIA uses purposive surveys to collect quantitative information from a sample representative of a particular region or population groups relevant to a particular reform. This is particularly useful in situations when national household data do not exist or do not contain the specific information needed to assess reform impacts.	
Requirements	Data/information:	(1) The degree of diversity of the groups likely to be affected or to influence a reform (from the stakeholder analysis) based in part on detailed country level contextual information (cultural, ethnic, regulatory and institutional issues relevant to the reform or affected groups), typically from existing studies, press reports, and key informant interviews. This determines the sampling strategy for fieldwork. (2) Direct data on stakeholder perspectives, typically from field research. (3) Quantitative data typically on income, expenditures, behavioral responses, coping mechanisms or other variables relevant to the reform to compare with results from qualitative data. Typically, SIA uses purposive surveys to obtain quantitative information relevant to a particular reform expected to have disproportionate impacts on a specific region or known population groups. The sample will then be representative of that region but not nationally representative. This is particularly useful for situations when national household data do not exist or do not contain the specific information needed.
	Time:	SIAs can vary greatly in length depending on the scale of research and the number of sample areas (which will be in part a function of the diversity or complexity of the groups involved and the size of the population affected). As this is typically combined with stakeholder analysis, a minimal time for both exercises is approximately 3 man months.
	Skills:	Often requires either a team with mixed skills (in qualitative techniques and in quantitative data collection and analysis, and preferably with someone with sector knowledge), or two teams or individuals working together. The coordination, and iterative analysis of both qualitative or participatory data collection methods and quantitative analysis is paramount.
	Supporting software:	N/A
	Financial cost:	Varies according on the depth and purpose of analysis. A complete mixed methods SIA costs US\$80-100,000. When national household survey data exist, a supplementary SIA for a specific reform would cost an average of US\$35,000, excluding supervision time. May cost more where local capacity is low and needs to be supplemented by international consultants.
Limitations:	SIA is not the best instrument to use for broad based reforms where the transmission channels and groups affected are not well known.	
References and applications:	<ul style="list-style-type: none"> • Finterbusch, Ingersoll and Llewellyn (1990). • Goldman (2000); Becker (1997). • World Bank (2002c) http://www.worldbank.org/socialanalysis/sourcebook/socialassess.htm. • Cernea and Kudat (1997) on the application to sectoral policy reforms including tariff issues. • Other applications: http://inweb18.worldbank.org/ESSD/essdext.nsf/61ByDocName/CaseStudies 	

Tool Name: **Beneficiary Assessment**

What is it?	A participatory assessment method and monitoring tool that incorporates direct consultation of those affected by and influencing reform. Similar to PPA, it relies primarily on qualitative research though with less emphasis on the use of visual techniques and on community follow-up to the research process.	
What can it be used for?	Has traditionally been used to evaluate projects or sectoral reforms in the health, education, infrastructure, social protection and agricultural sectors, but can be adapted to assess or monitor the impact of some discrete policy interventions where transmission channels and affected groups are clearly defined. Can be used even for countries with limited capacity as an add-on to other economic tools. Used both to evaluate proposed reforms, to signal constraints to participation faced by target group, as well as to gain beneficiary feedback for ongoing reforms.	
What does it tell you?	What is the beneficiary perspective on the problem being addressed by the reform, their perception of the proposed policy, and of any mitigatory measures being considered. Provides insights into the likely reception the reform will receive, as well as issues that may arise during implementation. Tends to reach down to the community-level, but not focused exclusively on the poor or the community.	
Complementary tools:	<ul style="list-style-type: none"> Used in conjunction with stakeholder analysis, and institutional analysis. Can also complement representative quantitative surveys. Information on how different groups are likely to react to a proposed policy change can influence assumptions in macro and micro models, in terms of behavioral response (particularly where historical data is insufficient or lacking). 	
Key Elements:	Relies primarily on three data collection methods: (1) conversational interviews (2) focus group discussions, which in some cases have been combined with PRA tools; and (3) direct and participant observation. Although information collected may be qualitative in nature, also includes quantitative analysis of this beneficiary feedback.	
Requirements	Data/information:	Background information on stakeholders, on cultural, ethnic, or socioeconomic variations, and on the variables determining whether specific groups would be affected (such as type of access) is required to properly design a BA and its sampling strategy.
	Time:	Generally within three to four months, from design to presentation of the final report.
	Skills:	Sociological or anthropological training are helpful, but good listening skills are paramount. Good knowledge of the program, historical and cultural setting also important.
	Supporting software:	N/A
	Financial cost:	Average of US\$40,000.
Limitations:	Tends to have a narrower focus than SIA or PPA, providing less contextual and historical background information, though also likely less resource intensive.	
References and applications:	<ul style="list-style-type: none"> Salmen (2002). Salmen and Amelga (1998). For summaries of specific country application of both BA and PPAs see: http://www.worldbank.org/participation/beneficiaryassessment/beneficiaryassessment.pdf 	

Tool Name: Participatory Poverty Assessment

What is it?	An instrument for including the poor directly in discussions and debates on policies and priorities, and that relies primarily on qualitative, visual, participatory rural appraisal techniques. Uses data collection techniques similar to BA, though with a greater focus on consultation of the poor, and on a broader set of policy issues affecting the poor.	
What can it be used for?	Can be adapted to the analysis or monitoring of many policy reforms. Has been used extensively in public expenditure reforms that require priority setting, or better understanding the reasons for accountability or low service use, or for institutionally complex reforms (such as land reform, liberalization of markets, labor market reforms) or for better targeting safety nets. Could also be used to monitor the local impact of macroeconomic policies such as devaluation.	
What does it tell you?	In-depth analysis of the views of the poor and their political, social, and institutional context; policy priorities of the poor, multi-dimensional dynamic of poverty and of coping mechanisms; identification of constraints that could be overcome through public action to increase access to reform benefits, with a particular focus on constraints for the poor.	
Complementary tools:	<ul style="list-style-type: none"> • Used in conjunction with stakeholder analysis. • Can also be used to complement institutional analysis, larger representative household surveys, or SOCAT. • Can be used together with poverty mapping, statistical analysis of household surveys, public expenditure tracking surveys, and benefit incidence analysis. 	
Key Elements:	<p>PPAs (i) use a variety of flexible participatory methods that combine visual methods (mapping, matrices, diagrams) and verbal techniques (open-ended interviews, discussion groups) and (ii) emphasize exercises that facilitate information sharing, analysis and action, with a goal of giving communities more control over the research process.</p> <p>By their very nature, PPAs may create opportunities or expectations of follow-up at the community level, such as the development of community action plans, often supported by local government or NGOs.</p>	
Requirements	Data/information:	Selecting the appropriate (purposive) sample areas for PPAs (typically from 40 - 60 sample communities) requires an adequate understanding of social, economic and poverty context of the various regions or areas of a country. PPAs focus on direct field research and therefore do not have other information pre-requisites.
	Time:	From 5 to 9 months for research and analysis, assuming a research team of between 10 and 20 people.
	Skills:	Skilled and experienced facilitators, who are able to listen and record information in as unbiased a manner as possible, and to manage expectations from the PPA at the community level.
	Supporting software:	N/A
	Financial cost:	From US\$15,000 to US\$200,000 depending on scale.
Limitations:	Not statistically representative. May raise expectations for follow-up or service improvements at the community level that local actors and/or the research team may not be able to provide.	
References and applications:	<ul style="list-style-type: none"> • Robb (2002). • Norton et al (2001). • Salmen (1995). • For summaries of specific country application of both BA and PPAs: • http://www.worldbank.org/participation/beneficiaryassessment/beneficiary assessment.pdf 	

Tool Name: **Social Capital Assessment Tool (SOCAT)**

What is it?	A set of integrated quantitative and qualitative measurement tools to investigate institutions, networks and norms that enable collective action. Has to be adapted to a specific research issue. Can be implemented in conjunction with other tools.	
What can it be used for?	Primarily useful for reforms with low/medium indirect impacts. Agricultural reforms (changing subsidies/taxes), liberalizing markets, financial reforms (changing access to credit), labor market reforms (active labor market programs), utility reforms (access to services), decentralization, social safety net programs (changing public/private transfers).	
What does it tell you?	Existence of institutions and networks affected by and/or involved in reform implementation. Which norms and values lead to policy adoption or resistance? The distribution of social assets and their role in income generation and risk management. What are the impacts of reforms on households with low social assets? Which adaptations in policy formulation and / or which mitigation measures are advisable?	
Complementary tools:	Stakeholder analysis, institutional analysis, social impact analysis (SIA), beneficiary assessments (BA).	
Key Elements:	Integrated application and analysis of quantitative and qualitative information (surveys, key informant interviews, focus groups) obtained at the level of households, communities, and organizations. Analysis builds on the understanding of solidarity, trust and cooperation, and conflict resolution (cognitive social capital), as well as organizations and their membership (structural social capital).	
Requirements	Data/information:	Use as standalone tool for social capital analysis, or use in conjunction with other surveys (e.g. LSMS, income/expenditure surveys) for analysis of links between poverty and social capital. Modules for integration in other surveys are available, so are sector specific questionnaires.
	Time:	Typical application requires 3-4 months.
	Skills:	Sociological or anthropological training are helpful, in particular a sound understanding of formal and informal institutions and networks. Good knowledge of the program and its setting is crucial.
	Supporting software:	SOCAT Toolkit including interactive CD-ROM is available.
	Financial cost:	Depends on sample size and local wage and transport costs for field team. Typical range for standalone SOCAT exercise would be US\$50,000 to US\$200,000. Costs can be substantially lower if used in conjunction with other data collection instruments.
Limitations:	Collects social capital data only at micro and meso levels. For analysis of links between social capital and poverty, combination with other survey is necessary.	
References and applications:	<ul style="list-style-type: none"> Grootaert and van Bastelaer (2002). Additional information at: http://poverty.worldbank.org/library/topic.php?topic=4294 or at: http://iris.umd.edu/adass/proj/soccap.asp 	

Tool Name: Demand Analysis: Consumer Assessment

What is it?	The adaptation and expansion of traditional demand analysis to a broader qualitative and quantitative research process that looks at consumer or client demand for different types of services (willingness to pay, ability to pay, preferences), probes qualitative and other factors driving demand and potential substitutes, obtains feedback on likely responses to potential changes tariffs or in service management (such as privatization), and explores ways in which to more effectively help the poor in terms of price and access based on local institutional context and past experience with programs targeted at the poor. (See also Table on Demand Analysis: Estimating Demand Functions)	
What can it be used for?	Has been used in energy sector reforms and water sector reforms including privatization, but can also be applied to changes in cost recovery in other sectors such as health, education, or transport.	
What does it tell you?	To shed light on how price increases affect different groups of consumers including the poor, specifically taking into account institutional factors that affect the transmission of these prices. Also, Consumer Assessment (CA) helps to project more realistic revenue/cost recovery levels, incorporate client perspectives and levels of satisfaction, and rank the service in question in terms of overall development priorities of different groups of clients. In its application in Africa CA has also outlined the viability of various options for reaching the poor given existing institutional and market constraints, and given their preferences.	
Complementary tools:	<ul style="list-style-type: none"> • Can be used in conjunction with stakeholder analysis and institutional analysis. Elements of SOCAT can be integrated into CA. Can also complement nationally representative household surveys. • Feedback from CA can inform assumptions on elasticity or welfare impact on different groups in other economic models. In ECA, CA has been used to build standard demand models as well. 	
Key Elements:	Requires: (1) quantitative household surveys that include, but are not limited, to willingness and ability to pay, indicators of vulnerability or poverty, income, social capital and/or (2) can use existing LSMS or other household surveys and data from other utility or service providers on types of consumers and consumption or service levels; and (3) traditional focus group discussions, or focus group discussions using a variety of PRA (SARAR) visual aids. In some cases CA has also included (4) key informant interviews and (5) observation to triangulate information obtained from the various sources. In Africa CA has also been integrated into utilities' financial models to project realistic cost recovery rates and tariffs.	
Requirements	Data/information:	Data on sources and services for different groups of consumers, coverage levels, consumption levels and tariffs, over time if available, from either utility data or direct research or existing surveys, and income distribution data by service type or customer grouping (though this is often collected during the research). Most effective as a decision tool if actual and projected costs of service provision under different scenarios are used in willingness to pay questions.
	Time:	For CA generally six to eight months, with field work of two to three months total, though more disaggregated demand analysis (within peri-urban areas of a city) has taken longer.
	Skills:	Requires quantitative skills (economist, social economist, or sector economist) in addition to skills in qualitative research (sociologist, anthropologist). Good knowledge of sector structure is essential.
	Supporting software:	N/A
	Financial cost:	For fieldwork from US\$40,000 up to over US\$100,000 excluding supervision of consultants.
Limitations:	Requires skill in triangulating information to provide assessment of client response to changes in tariff levels, and to distinguish potential biases in information provided. Also, effective qualitative work requires skilled facilitators. Willingness to pay questions can raise expectations of service improvements, and need therefore to be carefully linked to sector constraints and likely scenarios.	
References and applications:	<ul style="list-style-type: none"> • Lampietti et al (2001) on utility pricing in Armenia • Sechaba Consultants (2002) on the water sector 	

Tool Name: **Benefit Incidence Analysis (Average and Marginal)**

What is it?	Benefit incidence analysis estimates the impact of public transfers, taxes, subsidies, or policy changes that affect prices. BIA measures the distributional incidence of benefits for different groups of interest, for instance households at different income levels or in different regions. Average (or simple) BIA measures the incidence of all benefits - i.e. of the aggregate benefit. Marginal BIA estimates the incidence of the last (or the next) unit of benefit. (See also Table on Tax Incidence Analysis)	
What can it be used for?	Benefit incidence analysis is most commonly used to examine the impact of public expenditures and public expenditure reforms. It is also applicable to other policy reforms, including reforms affecting prices that change household income or expenditure and tax reforms. It can be applied to direct transfers as well as to transfers obtained by consuming subsidized goods or services.	
What does it tell you?	Benefit incidence tells us who benefits from services, transfers, or price changes. When estimating the size of benefits received by different groups, average BIA calculates the benefits received on average (i.e. on the basis of average unit costs); marginal BIA tells you who will benefit from a increase or decrease in benefit (i.e. the marginal change). These two might be very different – typically, additional beneficiaries are more likely to belong to groups not yet covered by the system (e.g. remote areas).	
Complementary tools:	Simple or marginal BIA can be combined with information on household or individual behavior – see Tables on Behavioral Benefit Incidence Analysis, Social Impact Analysis and Beneficiary Assessment. These techniques explain distributional changes from a policy reform by taking into account the reactions households or individuals will have to the change.	
Key Elements:	BIA proceeds as follows: (1) estimation of the value of the benefit: typically estimated as the cost of providing the service, transfer or subsidy. This can be quite difficult, with issues related to the inclusion of investment and administrative costs, and the treatment of cost recovery. Estimations are sometimes made at a regional level, to account for cost differences; (2) Identification of the users on the basis of household surveys; (3) Aggregation of users into groups of interest (commonly defined by income levels, region, urban/rural location, poor/non-poor, occupation, ethnicity, etc); (4) Accounting for household spending, in case of out-of-pocket expenditures to access the benefit. In case of financial transfers, the income groups can be defined pre- or post-transfers, which will yield different results.	
Requirements	Data/information:	(1) individual or household-level data from household surveys on welfare and on the use of service and receipt of public spending and (2) information on public expenditure to estimate the value of the benefits. For marginal BIA, panel data is ideal, although methods exist for cross-sectional data.
	Time:	Analyzing household survey data can be time consuming, depending on how clean the data are, and how well managed the data entry process was. BIA can take between 4 to 8 weeks depending on the condition of the household survey data, and the accessibility of the unit cost of providing those services (usually obtained from government data). If a survey has to be undertaken first, then the timeframe extends significantly, to between 1 to 2 years.
	Skills:	Good data handling skills, and experience with analyzing large scale household survey data sets. Experience with related statistical software packages (SPSS, SAS, STATA)
	Supporting software:	SPSS, SAS, STATA.
	Financial cost:	Costs of developing and using the tool can vary enormously, depending on whether a household survey already exists. If it does, the analysis can be done for around US\$10,000.
Limitations:	Benefit incidence analysis does not take behavior into account, i.e. the likely change in demand from households that would result from policy changes. For methods which handle this, see Tables on “Ex-post behavioral marginal incidence analysis of public spending and social programs” and “Social Impact Analysis”.	
References and applications:	<ul style="list-style-type: none"> • For an overview of the technique, see Demery (2003), Chapter 2 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. • Demery (2000) and van der Walle (1998) on the overall technique. • Castro-Leal, Dayton and Demery (1997) on a group of African countries. • Castro-Leal (1996) on South Africa. • Demery et al. (1995) on Ghana. • Devarajan and Hossain (1998) on benefit and tax incidence analysis in the Philippines. • Van der Walle (1992) and Lanjouw et al (2001) on Indonesia. • Van der Walle (2002c) on incidence of public transfers in Yemen. 	

Tool Name: Tax Incidence Analysis

What is it?	Tax incidence analysis evaluates the distributional incidence of taxation – its incidence for various household groups (on the basis of income, geographic location, and other dimensions). The taxes have an effect on real income directly or via prices. (See also Table on Benefit Incidence Analysis).	
What can it be used for?	Tax incidence analysis can be used to analyze the distributional impact of taxes or subsidies. It can also be used to analyze the distributional impact of other exogenous changes in prices, and publicly provided services.	
What does it tell you?	The tool estimates the effect of changes in prices and incomes on the welfare of individuals or households. Most analysis is concerned with the share of taxes paid by different groups. Taxation is understood as a loss in real income.	
Complementary tools:	Tax incidence analysis can be complemented by the analysis of the statutory incidence of taxation (i.e. the analysis of the rules which set who has to pay which taxes) and by the analysis of the functioning of the tax collection processes (see Tables on Institutional Analysis and Quantitative Service Delivery Surveys). As tax incidence analysis, benefit incidence analysis (simple and marginal) assesses the incidence of benefits, and behavioral BIA assesses distributional changes from change in benefits, taking into account reactions to the change. (See Tables on these two techniques).	
Key Elements:	The technique (1) defines the groups of interest, typically in terms of income/consumption, geographic location, gender, ethnicity, age, socio-economic group, etc. and (2) calculates the taxes paid by each household groups. To do so, one needs to recognize that the statutory incidence of taxation (those who have to transfer the tax to the government) is not the same as the economic incidence of taxation (those whose real purchasing power declines because of the tax. The difference results from the fact that different statutory taxes are shifted among agents. Typically, one assumes that indirect taxes on goods are completely shifted to the consumer (i.e. the prices reflect the taxes paid by other categories), and that duty taxes are reflected in prices. Hence, taxation has impacts on various groups of households through the goods, services, transfers and subsidies that they receive. To quantify the tax paid, the technique either (a) estimates the taxes paid as the official tax rate times the pre-tax value of expenditure (if taxes can be assumed to be collected according to the letter of the law) or (b) estimates the “effective” tax rate for different categories of expenditure by dividing the tax base by the actual tax revenues and applies it to these categories.	
Requirements	Data/information:	The analysis requires information on tax/subsidy and their changes, and nationally representative household income or expenditure survey data (e.g. LSMS), including information on specific items to be taxed/subsidized.
	Time:	One month, if the data are clean and include a calculated welfare variable (such as household expenditure, consumption or income).
	Skills:	Familiarity with the tax system and market structure of the country. Econometric skills and expertise in the supporting software (see below).
	Supporting software:	Any statistical software package can calculate point estimates easily (Stata, SPSS, etc.). For variances, a matrix programming language (Gauss, Matlab, SAS IML) is useful. The software package DAD calculates concentration curves and other summary measures of incidence with standard errors.
	Financial cost:	US\$15,000
Limitations:	Simple analysis of the incidence of taxes does not account for behavioral changes and hence only provides a first-order approximation of a tax’s true incidence. Furthermore, inaccuracy can come from the simple assumption of how statutory taxes translate into economic incidence. In addition, many indirect taxes are also levied on intermediate goods, and estimating the incidence of the tax on final consumer would require complex models. Finally, the method only focuses on the incidence of taxes and should be complemented by an analysis of the economic and administrative efficiency of the system.	
References and applications:	<ul style="list-style-type: none"> • For an overview of the technique, see Sahn and Younger (2003), Chapter 1 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. • Alderman and del Ninno (1999) on the targeting of VAT exemptions in South Africa. • Ahmad and Stern (1984, 1987, 1990 and 1991) on alternative forms of taxation in India and Pakistan. • Chen et al. (2001) on Uganda. • Gibson (1998) on Papua New Guinea and the introduction of VAT. • Younger et al. (1999) on Madagascar. • Younger (1993) on Ghana. 	

Tool Name: Poverty Mapping

What is it?	Technique to estimate geographically disaggregated welfare and inequality levels and changes, for small geographic areas, such as districts and sub-districts. This allows to take geographic heterogeneity into account.	
What can it be used for?	The method can inform the targeting of public resources, and can simulating the geographic impact of policy reforms such as changes in trade barriers, decentralization, public expenditure, etc. Information disaggregated for small geographic areas is particularly important in the context of decentralization of public services.	
What does it tell you?	The method provides an estimation of poverty/inequality distribution across a country's sub-regions. It identifies poverty pockets, by giving satisfactorily precise estimates of poverty at levels of disaggregation far below that allowed by typical household surveys. Poverty and inequality estimates can then be represented on maps. These maps, on which other variables of interest can be applied, help assess the spatial impact of policies. Typically, the poverty maps can also include information on education, water, health, public services, agricultural production, etc. depending on the reform of interest.	
Complementary tools:	A poverty map can be merged with other GIS (Geographic Information Systems) containing information on a variety of public actions. Social Impact Analysis and Participatory Poverty Assessments can help explain the geographic trends revealed in a poverty map.	
Key Elements:	The method uses a household survey and a census. It imputes information on poverty and inequality in the census, using estimates from the household survey, through the construction of consumption-based welfare indicators for small geographic areas. In order to do so, (1) the variables common to the survey and the census are identified, (2) the survey is used to estimate a prediction model relating consumption to the variables which the two data sets have in common, (3) the parameter estimates can be applied to the census data to derive poverty statistics for each household in the census, and (4) poverty and inequality estimates can be calculated for small geographic areas and transposed into a GIS system.	
Requirements	Data/information:	A household survey and a population census, ideally from the same year. If different years are used the compatibility of the two sources showed be checked by comparing the estimates with basic poverty/inequality statistics in the sample data. In this case, the welfare estimates refer to the year of the census, whose explanatory variables form the basis of the predicted expenditure distribution
	Time:	Depends on the quality of the survey and census data, minimum of two months; six months on average
	Skills:	Good knowledge of poverty and inequality measurement. Good data handling skills, and experience with analyzing large scale household survey and census data sets. Experience with related statistical software packages (SPSS, SAS, STATA)
	Supporting software:	SPSS, SAS, STATA and GIS software such as ARCView, purpose-written software produced by the World Bank (http://econ.worldbank.org/programs/poverty/topic/14460/).
	Financial cost:	US\$20-100,000 depending on level of specialized consultant, availability of counterpart contributions in terms of computational assistance, etc
Limitations:	Household variables do not capture some unobserved geographic effects (such as climate, quality of local administration etc). Hence, it may be desirable to complement the analysis using such additional data. Also, when using the technique to simulate the impact of reforms, behavioral changes are typically ignored.	
References and applications:	<ul style="list-style-type: none"> • For an overview of the technique, see Lanjouw (2003), Chapter 4 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. • Elbers, Lanjouw and Lanjouw (2002) on the overall approach. • For purpose-written software and manual, as well as other country applications, see http://econ.worldbank.org/programs/poverty/topic/14460/. • Demombynes et al. (2002) on poverty in Ecuador, Madagascar and South Africa. • Elbers, Lanjouw, Mistiaen, Ozler and Simler (2002) on inequality in Ecuador, Madagascar and Mozambique. • Elbers, Lanjouw, Lanjouw and Leite (2002) on Brazil. • Mistiaen (2002) on the analysis of the impact of rice price changes in Madagascar. • Mistiaen et al. (2002) on health spending in Madagascar. 	

Tool Name: Ex-post behavioral marginal incidence analysis of public spending and programs

What is it?	This type of analysis combines the analysis of the marginal incidence of benefits with the econometric modeling of household behavior. The analysis is <i>ex-post</i> , since it focuses on past interventions, drawing lessons for future ones. The methods allow to take the <i>behavior</i> of both the recipients of public spending or participants in the programs, and of the agents implementing them. Finally, the analysis is <i>marginal</i> since it focuses on the impact of increases or cuts in public spending and programs.	
What can it be used for?	It can be used to explain distributional impacts of public finance or policy reform on individuals and households, allowing for behavioral responses. This applies to public spending and programs on education, health, and cash transfer programs. It can also be used in the analysis of other reforms, including land reform, pension reform, and micro-finance programs.	
What does it tell you?	The analysis allows to estimate the distributional impacts of changes in public spending or programs, taking the behavioral responses or beneficiaries and implementing agencies into account. By examining actual change <i>ex-post</i> , these methods can also provide a reality check for the results of methods that attempt to approximate or predict changes <i>ex-ante</i> .	
Complementary tools:	Ex-post Social Impact Analysis can complement these efforts, as can adaptations of tools such as the Quantitative Service Delivery Survey and Public Expenditure Tracking Surveys that use historical data (see Tables on these tools and techniques).	
Key Elements:	The technique entails the econometric analysis of household data on welfare indicators and on receipt of the benefit under consideration and the modeling of household responses, such as changes in labor supply.	
Requirements	Data/information:	Behavioral marginal incidence can be done using: 1) single household survey cross-section with sufficient regional disaggregation and variance in participation; 2) two or more comparable household cross-sections; 3) Household level panel data, or 4) geographic level panel data for dynamic marginal incidence
	Time:	A few weeks to a few months depending on the quality of the data.
	Skills:	Econometric skills.
	Supporting software:	EXCEL and STATA (or other micro-econometric and spreadsheet software)
	Financial cost:	Costs of developing and using the tool can vary, depending on whether household surveys exist already. If they do, the analysis can be done for around US\$10,000
Limitations:	Behavioral benefit incidence analysis typically has more onerous data requirements than simple benefit incidence analysis to allow for behavioral modeling.	
References and applications:	<ul style="list-style-type: none"> • For an overview of the technique, see van de Walle (2003), Chapter 3 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. • Lanjouw & Ravallion (1999) • van de Walle (1994) on Indonesia. • van de Walle (2002a) on rural roads. • van de Walle (2002b) on Viet Nam. • Ravallion (1999) 	

Tool Name: Ex-ante behavioral marginal evaluation of policy reforms

What is it?	The techniques allow to estimate the situation that would result from changes in policies. The techniques allow for the analysis <i>ex-ante</i> , i.e. before a reform is implemented, of the distributional impacts of the reform. This analysis is <i>marginal</i> , because it aims at capturing changes from the existing situation (e.g. new policy, expansion, reduction of existing public actions). The analysis is also <i>behavioral</i> since the behaviors of various stakeholders are taken into account when defining the counterfactuals.	
What can it be used for?	This type of analysis can be applied to types of transfer programs with expected impact on some dimension of household behavior (e.g. occupational choices, schooling, demand for various goods or services, etc.). This includes, among others, changes in taxes, expenditure, and targeted programs. It can also be used for any exogenous change in the environment of a household likely to trigger a non-negligible behavioral response (e.g. accessibility of various types of services, conditions on the labor market, producer and consumer prices).	
What does it tell you?	It tells you what would be the likely distributional impacts of policies changes, taking the behaviors of various stakeholders into account.	
Complementary tools:	Tools such as Stakeholder Analysis, Social Impact Analysis, and — in some cases — the Social Capital Assessment Tool can help analysts better understand the variables that are most likely to affect household behavior.	
Key Elements:	The technique proceeds as follows: (1) identification of the policy reform to be analyzed; (2) identification of data set and information sources which contains the necessary information; (3) specification of the economic model which captures the mechanisms likely to affect the individual or household's responses to the policy; (4) estimation of the model; (5) and simulation of the policy reform using the empirical estimate of the model.	
Requirements	Data/information:	Household surveys (+ specific surveys or questions depending on the issue of interest)
	Time:	6 months with experienced microeconomic modeler
	Skills:	Micro-econometric modeling
	Supporting software:	All software used in micro-econometrics - Stata, SAS, etc.
	Financial cost:	Depends on the question being asked and the need for new data. If data is available, the cost can vary from US\$10,000 to US\$30,000.
Limitations:	The estimation of behavioral models that fit the policy to be evaluated or designed can be difficult, but can rely on simpler assumptions (accounting micro-simulation). Second, the approach relies on a structural model, which requires a set of assumptions.	
References and applications:	<ul style="list-style-type: none"> • For an overview of the technique, see Bourguignon and Ferreira (2003), Chapter 6 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. • Atkinson and Bourguignon (1991) on tax-benefit models. • Attanasio, Meghir and Santiago (2002) on education choices in Mexico. • Bourguignon, Ferreira and Leite (2002) on conditional cash transfers in education in Brazil. • Blundell et al (2000) on tax credit in the U.K. • Younger (2002) on marginal benefit incidence and education in Peru. 	

Tool Name: Ex-post impact evaluation methods for assigned programs

What is it?	Methods for assessing the counter-factual to evaluate the poverty impact of assigned programs	
What can it be used for?	Any policy, program or shock that are assigned to some observational units but not others, and the units not assigned are largely unaffected. The units might be people, households, firms, communities, provinces or even countries.	
What does it tell you?	It measures the impact, typically defined as difference between the value of the outcome with the program and its value under the counter-factual (what would have been the value of the indicator in the absence of the program).	
Complementary tools:	The best evaluations often combine multiple methods: randomizing some aspects and using econometric methods to deal with the non-random elements, or by combining matching methods with longitudinal observations to try to eliminate matching errors with imperfect data. Complementary tools include Benefit Incidence Analysis, Social Impact Assessment and Demand Analysis, which can help policymakers track the impact of historical policy changes by combining household survey data with financial or service-provision data .	
Key Elements:	The identification strategy establishes the assumptions under which observed outcomes for participants and non-participants can be used (often in combination with other data) to infer impact. If the program is randomly assigned across the population (every has the same chance, ex-ante, of being in the program) then the observed ex-post differences in outcomes are attributable to the program. This is not often the case, however, since programs tend to be purposively targeted to certain groups. In such cases, methods exist to estimate counterfactuals. Examples include propensity-score matching and “difference-in-difference” methods.	
Requirements	Data/information:	Data on relevant outcome indicators for those units who participate versus those who do not. Survey or census data covering participants and non-participants are essential. The data must include relevant outcome indicators and (depending on the identification strategy) other relevant covariates for either participation or outcomes.
	Time:	Evaluation design should ideally begin even before the policy/program begins; it is often hard to do a good evaluation if one starts late. “Off-the-shelf” data are sometimes feasible, but it is more often the case that special-purpose data collection is needed and this needs advance planning.
	Skills:	Sufficient knowledge of statistics/econometrics and quantitative data skills. Knowledge of microeconomics often helps. Good knowledge of the program and its setting is important.
	Supporting software:	Standard statistical/econometric packages such as STATA are often sufficient. A number of special-purpose STATA routines are available for evaluation
	Financial cost:	Varies enormously, mainly depending on current data availability. The marginal cost of the evaluation can be low in “data rich” settings and high in “data poor” settings where a lot of primary data collection is called for. Even in data rich settings, supplementary data collection is often required.
Limitations:		
References and applications:	<ul style="list-style-type: none"> • For an overview of the technique, see Ravallion (2003), Chapter 5 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. • Galasso et al. (2001) and Angrist et al. (2001) on randomized programs. • Van de Walle (2002a), Jalan and Ravallion (2003a and 2003b) on propensity-score matching. • Ravallion et al. (2001) on double-differences techniques. 	

Tool Name: Demand Analysis: Estimating demand functions

What is it?	Partial equilibrium model that focuses on the level of demand for the commodities an individual, household or producer demands given the structure of relative prices faced, real income, and a set of individual characteristics. (See also Table on Demand Analysis: Consumer Assessment)	
What can it be used for?	Can be used with a broad range of reforms for which the knowledge of consumer behavior is important. This simple technique, which focuses on a single good can be particularly useful for the analysis of changes in prices in which the good or service in question has few, if any, substitutes. This can include changes in tariffs, subsidies, and other prices.	
What does it tell you?	How changes in income or in the price of a given good affect the demand of a particular group of consumers or producers.	
Complementary tools:	Can be used in conjunction with stakeholder analysis. The analysis of a complete demand system is often used as the basis for more complex multi-market and computable general equilibrium models (see Tables on these two techniques). The most common complete demand systems are: Linear Expenditure System (LES); the Almost Ideal Demand System (AIDS) and the Generalized Almost Ideal Demand System (GAIDS) Demand analysis is also used to build household models, in combination with supply analysis.	
Key Elements:	Methodologically there are two main approaches to estimate the parameters of a demand equation. One consists of specifying estimable single equation demand functions in a pragmatic fashion without recourse to economic theory, using reduced-form estimation. Alternatively one may wish to use the theory of demand to derive an estimable structural model which should provide guidance for the choice of variables to be included, functional forms, and restrictions on the parameters. This model, although usually difficult to estimate due to its typical high nonlinear nature, provides straightforward interpretations of the transmission channels. When demand analysis is used for complete models (see for instance Table on multi-market analysis or CGEs), complete systems of demand equations must be specified and estimated, which are able to take into account the mutual interdependence of large numbers of commodities in the choices made by consumers.	
Requirements	Data/information:	Requires household level consumption and income data, with sufficient variation in prices, either geographically or preferably over time.
	Time:	1 to 3 months.
	Skills:	For reduced-form models, basic econometric skills may suffice. For structural models, advanced econometric and typically programming skills.
	Supporting software:	Software for the analysis of household level data.
	Financial cost:	US\$5,000 for simple reduced form models; US\$35,000 for detailed of especially complex models
Limitations:	Reduced form demand equations are simple to estimate, but the results depend on the choice of functional form and variables included in the equation. It also requires constancy in elasticities over all values of exogenous variables. Structural models, on the other hand, are affected by the theoretical underpinnings used to derive the estimable model, and can be extremely complex to estimate.	
References and applications:	For the estimation of demand systems: <ul style="list-style-type: none"> • Stone (1954) on the Linear Expenditure System, • Deaton and Muellbauer (1986) on the Almost Ideal Demand System • Christensen et al. (1975) on the Transcendental Logarithmic System 	

Tool Name:**Supply analysis**

What is it?	System of input and output equations used to determine supply responses to changing circumstances by producers (including households). Supply analysis takes into account changes in both output supply and input/factor demand.	
What can it be used for?	Supply analysis can be used to determine the impact of changes in product and factor prices, in technology, and in access on factor demands (including labor), production, marketed output, aggregate supply, and incomes. For instance, it could be used to estimate the change in agricultural household production that could result from the liberalization of some markets (inputs, credit, outputs...). More generally, can be used to analyze the impact on production of the removal of barriers to access or other changes in markets.	
What does it tell you?	Supply analysis is central to policy decisions in that it helps us understand the impact that alternative policy packages may have on the producers themselves. Through the changes it induces in commodity supply and in factor demand, the analysis of production response is an essential component of models that seek to explain market prices, wages and employment, external trade and government fiscal revenues.	
Complementary tools:	Supply analysis can be combined with demand analysis to build household models. Institutional analysis and stakeholder analysis can help inform assumptions about constraints to changes in supplier behavior and the incentive structures within a market. PPA/BA techniques help understand inter-household relationships and how households are likely to respond.	
Key Elements:	In studying supply response, it is important to distinguish between specific goods and broad sector aggregates, and between short-run and long-run responses. The basic theory of production is based on profit maximization with respect to output and input quantities. Maximization techniques will yield a set of input demand and output supply functions that are then used to solve for quantities. The impact of price changes on producers can be estimated for a single commodity, or for a system of commodities in the case where the firms/households produce multiple outputs. It is also important to distinguish between short-run and long-run outcomes. It is usually assumed that certain productive factors are fixed in the short run. In agriculture, for instance, the amount of land and the level of technology do not change within a cropping cycle. Labor, too, may be relatively slow to adjust. For this reason, it can be argued that the supply elasticity of agriculture is close to zero in the short run. In the medium- and long-term, fixed investments in productive technology come on-line, and supply can increase.	
Requirements	Data/information:	In the case of producing households, this requires household-level production data. For firm-level analysis, firm survey data is needed.
	Time:	Between 1 and 3 months if the data is available
	Skills:	Advance econometric techniques
	Supporting software:	Advanced econometric software, such as SAS, STATA, etc
	Financial cost:	US\$10,000 to US\$30,000
Limitations:	Despite its different focus on short-run and long-run effects, supply analysis is a static tool. In addition, at the firm level many decisions are based on expectations that are difficult to model.	
References and applications:	<ul style="list-style-type: none"> López et al. (1995) on Mexico. 	

Tool Name: **Household Models**

What is it?	Micro-econometric models that integrate producer, consumer and worker decisions into a household problem. These models reflect the fact that many households, especially in rural areas, are simultaneously units of production and consumption.	
What can it be used for?	In the context of farm households, when markets are perfect the only link between production and consumption decisions is through the level of farm income from production. If there are market imperfections, policies that affect the prices of goods (factors) both produced (used) and consumed (sold) thus have complex implications for production and welfare. These models have been used to examine a wide range of policy reforms, such as price and marketing changes, market failures, and taxation. In addition, separate models can be constructed for different groups to examine structural differences in the impact policies have on these different groups.	
What does it tell you?	The models allow to estimate the response of households to changes, in terms of their consumption, production, labor supply, and more generally any allocation of resources within the household.	
Complementary tools:	<ul style="list-style-type: none"> • When production (labor) exceeds consumption (production needs), the household will be a net supplier of products (labor), and vice versa. In those circumstance, demand and supply analysis can be a complement to household models. • Also, if there are no market failures the household behaves as if production and consumption decisions were taken sequentially, in which case theory of production (i.e. supply analysis) and consumption (i.e. demand analysis) applies. • Social impact analysis and beneficiary assessment, which looks at household-level determinants of behavior, can provide information on household preferences and likely switching behavior in the event of a reform. 	
Key Elements:	If the household model is separable (i.e. production and consumption decisions can be assumed to be taken sequentially), the problem can be divided into two parts (demand and supply). If the model is not separable, the estimation of production and consumption must be done simultaneously. One possibility is proceeding with a reduced form approach. A second possibility is the calibration and simulation of a structural household model.	
Requirements	Data/information:	These models require integrated household surveys. Information is needed both on the demand side and the supply side. Ideally, the models would also account for the allocation of time within the household, which requires data on factors that do not usually appear on consumption or production surveys, such as allocation of time to child care, or other unremunerated work (e.g. time spent fetching water).
	Time:	If an integrated household survey exists, a few months
	Skills:	Advanced experience with household surveys and econometric skills.
	Supporting software:	Statistical packages for the analysis of household data, including Stata, SPSS, and other software.
	Financial cost:	US\$10,000 - US\$30,0000
Limitations:		
References and applications:	<ul style="list-style-type: none"> • For an extensive review of these models see Sadoulet and de Janvry (1995). • Singh, Squire and Strauss (1986) on impact of price changes. • De Janvry et al. (1991) on household models for agricultural households. 	

Tool Name: Partial Equilibrium Analysis: Multi-Market Models

What is it?	Multi-market models belong to the class of partial equilibrium models. They use partial equilibrium analysis of the impact of changes in prices and quantities in selected markets on household income and expenditure. They specify a system of demand and supply relationships for a few sectors of the economy, so that the impact of policies on one sector can be seen on other sectors in the economy.	
What can it be used for?	Multi-market models are useful to analyze the poverty and distributional impact of policies that affect the prices and quantities of a small group of commodities. For example they can be used in estimating distributional impacts of the imposition or change in taxes, subsidies, quotas, tariffs on specific commodities; rise or fall in the price of imported or exported commodity.	
What does it tell you?	Multi-market models allow the estimation of the impact of a policy or external shock on prices and output in a few sectors, and on household well-being.	
Complementary tools:	<ul style="list-style-type: none"> Stakeholder analysis can be useful to identify different groups of interest. Multi-market models are not general equilibrium models, since they are not necessarily fully specified. If the policy reform is likely to have general equilibrium impacts, the analysis should be complemented by a CGE model. 	
Key Elements:	A multi-market model expands the traditional benefit incidence analysis to capture the induced substitution effects across selected goods in response to policy reform. The first step with this approach would be the identification of the market or markets where the policy reform under analysis is expected to have a direct effect. Household survey information would then be used to derive estimates of income, own-price and cross price elasticities of demand for the entire set of interlinked markets. Market closure (either price or quantity clearing) is imposed for each good in the system of equations. In short, multi-market models involve a system of equations, representing actors (producers, consumers, government), production or profit functions, factor and product markets, income accruing to the owners of productive inputs (including labor), and final consumption.	
Requirements	Data/information:	Multi-market models require (1) a disaggregated set of data on income or consumption distribution across households, (2) a complete parameterization for supply and demand functions in the market(s) directly affected by the policy reform, (3) a determination of the closures of the market(s) being modeled, (4) software to solve a system of potentially non-linear equations for the endogenous prices and quantities, and (5) a quantitative mapping of these endogenous variables into the income and consumption of households.
	Time:	The required time to perform an analysis based on partial equilibrium models depends to a large extent on data availability and degree of sophistication of the econometric model. It could vary from about one week for a simple model to three months for very detailed models
	Skills:	Familiarity with basic partial equilibrium modeling and micro-econometric estimation techniques
	Supporting software:	Stata, SAS, GAMS
	Financial cost:	US\$5,000 for simple models; US\$25,000 for detailed or especially complex models
Limitations:	These models are limited to selected markets, and hence ignore other interlinked markets by design. It is also prudent for the analysis to conduct sensitivity analysis of the results for different values of the parameters used in the model.	
References and applications:	<ul style="list-style-type: none"> For an overview of the technique, see Arulpragasam and Conway (2003), Chapter 12 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. Binswanger and Quizon (1984, 1986) on agriculture in India. Dorosh, del Ninno and Sahn (1995) on food aid in Mozambique. Minot and Goletti (1998) on rice reform in Vietnam. 	

Tool Name: **Partial Equilibrium Analysis: reduced-form estimation**

What is it?	Partial equilibrium model focusing on the effects of policy changes (including interest rate changes, taxes, etc.) or exogenous shocks (a change in import tariffs in another country, or a terms of trade shock) on a variable of interest, such as aggregate consumption or income.	
What can it be used for?	Analysis of partial equilibrium on the basis of reduced-form estimation is one of the most common applications of econometric analysis, and can be used to examine a myriad of different outcomes. It can be applied to most policy changes or exogenous shocks. It is most useful for PSIA of policy reforms which have significant indirect effects. For example, simple tax incidence analysis (see Table on this method) can analyze the direct distributional impacts of tax changes, but does not capture the impact of tax changes on the overall economy and growth, thereby only providing a partial answer to the question of impact. Partial equilibrium analysis with reduced-form estimation can capture this indirect impact and provide a first approximation of the expected impact on aggregate incomes.	
What does it tell you?	It can provide a good estimation of the impact that changes in a given policy or exogenous shocks have on a particular variable of interest. Once a model containing the policy variable and the variable of interest has been estimated, reduced-form models can be used to simulate the impact of policy alternatives.	
Complementary tools:	Reduced-form estimation can be useful to understand the macroeconomic impact of a policy intervention on a selected variable of interest. There is often a need to complement the analysis by the use of household surveys to map these impacts into distributional changes. Stakeholder analysis can be useful to identify different groups of interest for the analysis.	
Key Elements:	Reduced-form estimation assumes an underlying system of demand and supply equations but the model itself does not fully specify the whole array of economic and social interactions. Rather, the model is solved to derive a single estimating equation: an econometric model that relates the outcome and the policy variables or shock of interest. This can be done on the basis of two observations separated over time by a policy change. When using a single cross-sectional dataset, there must be significant variation across the sample population to estimate the equation. Analysis on aggregate units, such as cross-country regressions, should ideally be conducted on panels of cross-sectional and time-series data.	
Requirements	Data/information:	Reduced-form models require information on the variable of interest, and its hypothesized determinants. The specific data requirements depend on the unit of analysis, from household or individual level to country level.
	Time:	The required time to perform analysis based on partial equilibrium model and reduced-form estimation depends to a large extent on the data availability and the degree of sophistication of the econometric model. It could vary from a week for a simple model to three months for very detailed models.
	Skills:	Econometric skills
	Supporting software:	Eviews, STATA, Gauss, etc.
	Financial cost:	US\$5,000 for simple models, US\$25,000 for detailed, complex models.
Limitations:	The elasticities of the policy variable to the variable of interest are often based on cross-country regressions, and may differ from the elasticity in the country itself.	
References and applications:	<ul style="list-style-type: none"> • Barro (1997) • Quah and Durlauf (1999) • Dollar and Kraay (2002) 	

Tool Name: Social Accounting Matrices

What is it?	A social accounting matrix (SAM) is a technique related to national income accounting, providing a conceptual basis for examining growth and distributional issues within a single analytical framework. It can be seen as a tool for the organization of information in a single matrix of the interaction between production, income, consumption and capital accumulation.	
What can it be used for?	SAMs can be used for some simple policy simulations	
What does it tell you?	SAMs can be applied to the analysis of the interrelationships between structural features of an economy and the distribution of income and expenditure among household groups.	
Complementary tools:	SAMS would complement and be complemented by the use of household surveys to map impacts into distributional changes. Stakeholder analysis can be useful to identify different groups of interest.	
Key Elements:	A typical SAM contains entries for productive activities, commodities, factors, institutions, the capital account, and the “rest of the world.” An activity produces (and receives income from) commodities, buys commodities as production inputs, pays wages to labor, rents to capital, and taxes to the government. Factor income accrues to households as owners of the factors. The SAM can be constructed to distinguish household groups by, for example, sources of income. SAM techniques select some accounts as exogenous, and leave the remaining accounts endogenous. In part, this selection can be made with a sound theoretical basis, but it is often arbitrary. For example, if the SAM contains an account for agricultural production and one for transportation, an experiment can be run by imposing some exogenous change (a “shock”) to agriculture while leaving the transport sector fixed, or while allowing the transport sector to adjust endogenously as a result of the shock	
Requirements	Data/information:	The data sources for a SAM come from input-output tables, national income statistics, and a household survey with a labor module.
	Time:	About three months for a moderately detailed SAM.
	Skills:	Working with household datasets; strong knowledge of national accounts; use of Excel and maybe GAMS (for using dedicated software)
	Supporting software:	Excel and GAMS-based dedicated software; STATA, SAS or SPSS for working with household datasets
	Financial cost:	US\$25,000 when the data is available. This does not include the cost of developing a new household survey.
Limitations:	SAM models have at least two major drawbacks. First, prices are fixed, and do not adjust to reflect changes in, say, real activity. As a result, supply is either perfectly elastic (if chosen to be endogenous) and entirely demand driven, or perfectly inelastic – that is, supply is constant. Second, the results of the simulations vary greatly depending on the assumptions made about which accounts are exogenous and which endogenous.	
References and applications:	<ul style="list-style-type: none"> • For an overview of the technique, see Round (2003), Chapter 14 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. • Pyatt and Round (1985). • Powell and Round (2000). • Reinert and Roland-Holst (1997). • Sadoulet and de Janry (1995). • Tarp, Roland-Holst and Rand (2002). 	

Tool Name:

CGE models

What is it?	CGE models are completely-specified models of an economy, or a region, including all production activities, factors and institutions. The models therefore include the modeling of all markets (in which agents' decisions are price responsive and markets reconcile supply and demand decisions) and macroeconomic components, such as investment and savings, balance of payments, and government budget.	
What can it be used for?	CGEs can be used to analyze the poverty and social impacts of a wide range of policies, including exogenous shocks (exchange rate, international prices, etc.), changes in taxation, subsidies and public expenditure (including changes in trade policies), and changes in the domestic economic and social structure (including technological changes, asset redistribution, human capital formation).	
What does it tell you?	CGE models are best chosen for policy analysis when the socioeconomic structure, prices, and macroeconomic phenomena all prove important for the analysis. CGEs allow to take into account all the sectors of the economy as well as the macro-economy, and hence permit the explicit examination of both direct and indirect consequences of policies. This is particularly important for those policy reforms that are likely to play a large role in the economy and might have important impacts on other sectors and/or on the flow of foreign exchange or capital.	
Complementary tools:	Other tools described here belong to this class of models, with an additional model to take distribution into account: the 1-2-3 PRSP, IMMPA and the Augmented CGE Model with Representative Household Approach. See their respective Tables.	
Key Elements:	A CGE can be described by specifying the agents and their behavior, the rules that bring the different markets in equilibrium, and the macroeconomic characteristics. CGEs are based on SAMs (see Table on Social Accounting Matrices), and can be distinguished by the complexity and level of disaggregation of productive activities, factors and institutions, including households.	
Requirements	Data/information:	CGE models are data-intensive. They are constructed from combined national accounts and survey data. These are first compiled into a SAM, which is then used as the foundation of the CGE.
	Time:	A few months to a year, depending on the existence of a SAM, or of another CGE model built to address a different question. Even these simple CGEs can be complex and time consuming. An alternative is to use a previously constructed CGE. For example, Ianchovichina et al. (2001) use a CGE model constructed by the Global Trade and Analysis Project (GTAP) to examine the impact of NAFTA on household welfare in Mexico. However, the use of a previously constructed simple CGE can limit the number of policy changes that can be simulated (in the previous example, the model was constructed to examine trade policy, and did not contained domestic taxes or public expenditure).
	Skills:	Experienced modelers with substantial prior exposure to Computable General Equilibrium models are required
	Supporting software:	Excel, Eviews, Gauss
	Financial cost:	US\$25-75,000 depending on existing data
Limitations:	The results of CGE simulations depend at least partly on the assumptions made in the model, such as the "closure" rules. These ensure that macroeconomic accounts (fiscal, trade, savings-investment) balance. Whether they are fixed exogenously or allowed to balance endogenously, and how they balance, can have a significant impact on the outcomes. In addition, the production accounts specified in most available CGEs are too aggregated to identify the impact of policy changes in one component of one account. Many CGEs have at most two agricultural activities, one each for tradable and non-tradable crops, or food crops and cash crops.	
References and applications:	<ul style="list-style-type: none"> Dervis et al. (1982) and Shoven and Whalley (1992) for summaries of CGE models use. Ianchovichina, Nicita and Soloaga (2001). GTAP models at http://www.gtap.agecon.purdue.edu. 	

Tool Name:**PovStat**

What is it?	An Excel based software program which simulates the changes in poverty and inequality over time resulting from changes in output and employment growth.	
What can it be used for?	PovStat may be used to simulate the poverty and inequality impact of policies affecting sector-level output and employment growth rates.	
What does it tell you?	PovStat simulates poverty and inequality measures under alternative growth scenarios. Forecasts of varying levels of complexity may be computed depending on the availability of reliable data and the extent to which factors influencing poverty levels are incorporated. The simulations vary according to optional projection parameters.	
Complementary tools:	Other software programs that provide poverty and inequality forecasts include SimSIP Poverty (see Table on SimSIP), and DAD (a software for distributive analysis). Social impact analysis and institutional analysis could complement this analysis by identifying constraints to market participation by certain groups which can affect poverty and inequality estimates.	
Key Elements:	On the basis of household-level data, the software translates differential output and employment growth across sectors into differential growth in per capita income or consumption of households across those sectors. The tool simulates the impact of policies affecting output on poverty using the fact that poverty changes can be decomposed into two parts: a component related to the uniform growth of income, and a component due to changes in relative income. The simulations are made under the assumption either that the policy analyzed will be distribution neutral, or conversely assuming a specific quantifiable form for the distributional change. Changes in occupational distribution are accommodated through reweighing of sample households.	
Requirements	Data/information:	This program requires unit record household survey data. Also, a poverty line, survey year, and forecast horizon are parameters that must be provided by the user. Macroeconomic variables at the nationally aggregated or sectorally disaggregated level and growth rates of income, employment and population are also required. In addition, the user can input change in CPI and GDP deflator, change in relative price of food and shares of food in CPI, and changes in poverty line consumption bundle. This allows to generate different types of forecasts optional projection parameters such as employment shifts across sectors. The software can also be adapted for grouped data.
	Time:	1-2 days to format the household survey data, collate and check exogenous economic variables and enter everything into PovStat.
	Skills:	Familiarity with Excel and appropriate household data handling software (such as Stata). Also, with PovCal if synthetic data from a grouped distribution are to be used
	Supporting software:	Excel
	Financial cost:	
Limitations:	PovStat does not capture second round effects. These may be captured by CGE models.	
References and applications:	<ul style="list-style-type: none"> For an overview of the technique, see Datt, Ramadas, van der Mensrugge, Walker and Wodon (2003), Chapter 10 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. Datt and Walker (2002). Software available at http://www.worldbank.org/psia, section on Tools and Methods. 	

Tool Name: **SimSIP Poverty**

What is it?	SimSIP Poverty is a generic Excel based simulator, which allows to estimate the changes in poverty and inequality over time resulting from changes in output and employment growth.	
What can it be used for?	This tool may be used to simulate the poverty and inequality impact of policies affecting sector-level output and employment growth.	
What does it tell you?	It simulates poverty and inequality measures nationally and within sectors (urban and rural; agriculture, manufacturing and services). It may simulate the impact of various sectoral patterns of growth and population shifts between sectors on future poverty and inequality.	
Complementary tools:	Other tools for poverty forecasts include PovStat (see Table on PovStat), and DAD (a software for distributive analysis) Social impact analysis and institutional analysis could complement this analysis by identifying constraints to market participation by certain groups which can affect poverty and inequality estimates.	
Key Elements:	On the basis of existing information on group level household survey data (typically by deciles or quintiles), the software translates differential output and employment growth across sectors into differential growth in per capita income or consumption of households across those sectors. The tool simulates the impact of policies affecting output on poverty using the fact that poverty changes can be decomposed into two parts: a component related to the uniform growth of income, and a component due to changes in relative income. The simulations are made under the assumption either that the policy analyzed will be distribution neutral, or conversely assuming a specific quantifiable form for the distributional change. Changes in occupational distribution are accommodated through reweighing of sample households.	
Requirements	Data/information:	SimSIP Poverty uses grouped household data, typically groups by income: the mean income or consumption by group and the share of these groups are required. In addition, SimSIP Poverty requires macroeconomic data at a nationally aggregated or sectorally disaggregated level. This includes for example past or expected growth rates of output, employment and population by sector. Finally, the population size and growth, and a poverty line are necessary for calculating poverty incidence.
	Time:	1 day to gather the data on population shares and mean income/consumption by group, check the realism of scenarios, and enter the data into the software.
	Skills:	Familiarity with Excel
	Supporting software:	Excel
	Financial cost:	
Limitations:	SimSIP does not capture second round effects. These may be captured by CGE models.	
References and applications:	<ul style="list-style-type: none"> • For an overview of the technique, see Datt, Ramadas, van der Mensrughe, Walker and Wodon (2003), Chapter 10 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. • Wodon et al. (2003). • Ramadas et al. (2002). • Software available at www.worldbank.org/simsip. 	

Tool Name:

123 PRSP

What is it?	123PRSP (one country, two sector, and three goods) is a static computable general equilibrium (CGE) model.	
What can it be used for?	123PRSP can be used to analyze the impact of macroeconomic policy and external shocks on income distribution, employment and poverty.	
What does it tell you?	It allows for a forecast of welfare measures and poverty outcomes consistent with a set of macroeconomic policies in the context of a very simple general equilibrium model. For a given set of macroeconomic policies, 123PRSP generates a set of wages, sector specific profits and relative prices that are mutually consistent. The projected changes in prices, wages and profits are then inputted into household data on wages, profits and commodity demand for representative groups, or segments of the distribution. In principle, 123PRSP can calculate the policy impact on each household in the sample so as to capture the effect on the entire distribution of income. For a given poverty line, 123PRSP can also compute the effect of different poverty measures.	
Complementary tools:	Analysis of impacts on income distribution could be complemented by social impact analysis and institutional analysis, which look at variables that would affect household participation in growth. Scenario analysis, which helps policymakers assess the effects of major discontinuities on economic projections, could complement CGE models operating on a long time horizon.	
Key Elements:	123PRSP can be viewed as a middle ground between consistency models (such as RMSM-X), and more sophisticated approaches such as disaggregated computable general equilibrium models. The former are simple to estimate and use, but take the two most important determinants of poverty -economic growth and relative prices- as exogenous. The latter are useful to capture the poverty impacts of policies but are too data-intensive and difficult to master. One salient feature of 123PRSP is its modular approach; by linking several existing models together it can make use of individual modules which already exist. Further, if for data or other reasons a particular module is not available the rest of the framework can be implemented without it.	
Requirements	Data/information:	The 123PRSP model requires national accounts, a social accounting matrix (SAM), and some basic distributional data or a household survey. The model builds on an existing static aggregate model, such as the IMF's Financial Programming Model (containing a consistent set of national accounts which are linked with fiscal balance of payments and monetary accounts). Macroeconomic policies are then fed into the "Get Real Module" or an alternative country specific model of long-run growth determination and into a trivariate VAR module of short run fluctuations. This trivariate module would require historical national account data. Both long-run and short-run projections would then feed into the 123 model to generate projections on changes in wages, profits and the prices of the three goods, which in turn are fed in a household data module to capture the effects of macroeconomic policies on poverty.
	Time:	About three months if a household survey and the macro model are available
	Skills:	Experienced modelers with expertise in financial programming and advanced time series econometrics.
	Supporting software:	Eviews, Excel
	Financial cost:	Without the cost of developing the macro model or the Household survey, about US\$25,000 to set a new model.
Limitations:	As noted above, 123PRSP adopts several strategic simplifications in order to make the model user friendly. The cost of adopting this approach is that the causal chain from macroeconomic policies to poverty is in one direction only. The model in this regard does not capture the feedback effect of changes in the composition of demand (due to shifts in the distribution of income) on macroeconomic balances.	
References and applications:	<ul style="list-style-type: none"> For an overview of the technique, see Devarajan and Go (2003), Chapter 13 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. 	

Tool Name: Poverty Analysis Macroeconomic Simulator (PAMS)

What is it?	PAMS is an econometric model that links a macro-consistency model or macroeconomic framework to a labor-poverty module.	
What can it be used for?	PAMS can be used to address the impact of macroeconomic policies and exogenous shocks (such as an exogenous rise or fall in output growth, or a change in the sectoral composition of output) on individual households.	
What does it tell you?	PAMS can produce historical or counterfactual simulations of: (i) alternative growth scenarios with different assumptions for inflation, fiscal, and current account balances. These simulations allow for testing tradeoffs within a macro stabilization program. (ii) Different combinations of sectoral growth (agricultural or industrial, tradable or nontradable goods sectors) within a given aggregate GDP growth rate (iii) tax and budgetary transfer policies	
Complementary tools:	Stakeholder analysis can be useful to identify groups to inform the selection process of micro categories. Social impact analysis and institutional analysis could help analysts identify constraints to market participation by certain groups which would affect poverty and inequality estimates.	
Key Elements:	PAMS has three main components: (i) a standard aggregate macro-framework that can be taken from any macro-consistency model (for example, RMSM-X, 123) to project GDP, national accounts, the national budget, the balance of payments, price levels, etc. in aggregate consistent accounts; (ii) a labor market model breaking down labor categories by skill level and economic sectors whose production total is consistent with that of the macro framework. Individuals from the household surveys are grouped in representative groups of households defined by the labor category of the head of the household. For each labor category, labor demand depends on sectoral output and real wages. Wage income levels by economic sector and labor category can thus be determined. In addition, different income tax rates and different levels of budgetary transfers across labor categories can be added to wage income; and (iii) a model that uses the labor model results for each labor category to simulate the income growth for each individual inside its own group, assumed to be the average of its group. After projecting individual incomes, PAMS calculates the incidence of poverty and the inter-group inequality	
Requirements	Data/information:	The model requires national accounts (with a breakdown by sector) and household survey data with income/expenditure data by unit, and a wage and employment breakdown by sectors
	Time:	With a macro model the time needed to build a PAMS would be about three months: (i) One month to select/extract categories of households from the household survey and match the economic sectors from the macro model. (ii) One month to link the macro model to the household survey data, and (iii) One month to run the macro and household module together and adjust.
	Skills:	Knowledge of (i) National Accounts based macroeconomic models, (ii) of basic labor demand models and (iii) of the structure of household surveys is required
	Supporting software:	Eviews, Excel
	Financial cost:	US\$25,000 when the data is available. This does not include the cost of developing a macro model or a new household survey
Limitations:	The main limitation is the lack of feedback of the micro model into the macro model.	
References and applications:	<ul style="list-style-type: none"> For an overview, see Pereira da Silva, Essama-Nssah and Samake (2003), Chapter 11 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. Pereira da Silva, Essama-Nssah and Samake (2002). 	

Tool Name: Integrated macroeconomic model for poverty analysis (IMMPA)

What is it?	IMMPA is a dynamic computable general equilibrium (CGE) model.	
What can it be used for?	IMMPA can be used to analyze the impact of macroeconomic policy and external shocks on income distribution, employment, and poverty.	
What does it tell you?	One of the main features of IMMPA is that it integrates the real and financial side of the economy; in this regard, IMMPA is useful to analyze both the impact of structural reforms (such as changes in tariffs or the composition of public expenditure) and the effects of short term stabilization policies (such as a cut in domestic credit or a rise in deposit interest rates). The detailed treatment of the labor market is key for the assessment of the poverty reduction impact of macroeconomic policies. Also it is useful to make the distinction between rural and urban sectors by completing separate projections on output and employment fluctuations for both areas, and therefore to study poverty in different geographical areas	
Complementary tools:	IMMPA would complement and be complemented by the use of household surveys to map impacts into distributional changes. Stakeholder analysis can be useful to identify different groups of interest. Social impact analysis and institutional analysis could help analysts identify constraints to market participation by certain groups which would affect poverty and inequality estimates.	
Key Elements:	The main distinguishing features of IMMPA from other CGE models are the following. First, IMMPA has a very detailed specification of the labor market, which is the main transmission channel of macroeconomic shocks and adjustment policies to economic activity, employment and relative prices. The labor market specification allows for a disaggregation at the urban and rural levels and in turn, for each of these areas, in the formal and informal sectors. Second, IMMPA links real and financial sectors through an explicit treatment of the financial system. Third, the model emphasizes the negative effect of external debt on private investment and therefore incorporates the possibility of debt overhang. Finally, IMMPA accounts explicitly for the channels through which various types of public investment outlays affect the economy.	
Requirements	Data/information:	The greatest drawback of any fully specified CGE model is the time and data required to construct it. The model must be constructed from combined national accounts and survey data. These are first compiled into a SAM, which is then used as the foundation of the model. IMMPA for example consists of 131 equations, more than 30 exogenous variables and more than 200 endogenous variables.
	Time:	The process can take more than a year, and rarely less than a few months.
	Skills:	Experienced modelers with substantial prior exposure to Computable General Equilibrium Models are required
	Supporting software:	Eviews, Excel
	Financial cost:	US\$75,000 to develop the IMMPA general equilibrium model
Limitations:	CGE simulations depend to a large extent on the assumptions made in the model, especially those that are required to close the model. They are also data-intensive and difficult to master, something that could limit its usefulness under tight deadlines or capacity constraints.	
References and applications:	<ul style="list-style-type: none"> • Agenor, Izquierdo, Fofack (2003). 	

Tool Name: **Augmented CGE Model with Representative Household Approach**

What is it?	This technique is based on a computable general equilibrium model with representative households that are linked to a household module.	
What can it be used for?	Representative Household Models can be used to analyze the impact of macroeconomic policy and external shocks on income distribution, employment, and poverty	
What does it tell you?	Representative household models allow for a forecast of welfare measures and poverty outcomes consistent with a set of macroeconomic policies in the context of a general equilibrium model	
Complementary tools:		
Key Elements:	The key features of the Representative Household Approach are (i) a Computable General Equilibrium (CGE) model that incorporates markets for factors and commodities and their links to the rest of the economy, which generates equilibrium values for employment, wages and commodity prices as well as its "extended" functional distribution (i.e. labor differentiated by skill, education, gender, region, and sector of employment); and (ii) a mapping from the extended functional distribution into the "size" distribution (the distribution of income across different households). In this approach, the Representative Households that appear in the CGE (corresponding to aggregates or averages of groups of households) play a crucial role: the "size" distribution is generated by feeding data on the simulated outcomes for the Representative Household into a separate module that contains additional information about each household.	
Requirements	Data/information:	Representative Household Models require a social accounting matrix (SAM) and distributional data describing the Representative Household groups or, more specifically, a household survey
	Time:	Only a few days to generate a base solution if data and skills are available. Between six months and a year to collect data and work with the simulations
	Skills:	Experienced modelers with substantial prior exposure to Computable General Equilibrium models are required.
	Supporting software:	Excel, Eviews, Gauss
	Financial cost:	US\$25-75,000 depending on the data that exists
Limitations:	In the absence of a CGE model to feed in the Representative Household module, it is data-intensive and difficult to master	
References and applications:	<ul style="list-style-type: none"> • For an overview, see Logfren, Robinson and El-Said (2003), Chapter 15 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. • Robillard, Bourguignon and Robinson (2001) on Indonesia. • Coady and Harris (2001) on Mexico. • Logfren et al. (2002). 	

Tool Name: Social Risk Assessment

What is it?	Analytical approach that uses qualitative methods to identify and assess risks to, and from the policy reform, and to inform risk management strategies	
What can it be used for?	Risk assessment is relevant to all reforms that have significant poverty and social impacts. Particularly useful for decentralization reforms; civil service retrenchment; land reform; financial sector reform (e.g. regulatory reform, privatization of SOE); labor market reform (e.g. minimum wage legislation); social safety nets; pension reforms; and agricultural reform (e.g. changing domestic subsidies and taxes, eliminating marketing boards). Social Risk Assessment follows an analysis of stakeholders, institutions, and social impacts, and feeds into M&E systems by establishing a baseline of objective risk indicators for country- and sector-level risk assessments	
What does it tell you?	Helps to (a) identify risks that could undermine policy reform objectives; (b) inform analysis of alternatives in policy design, and inform design of complementary measures when it appears that a reform will have adverse impacts; (c) develop risk management strategies for the identified risks to, and from the policy reform. Risk assessment involves the following steps: (i) identification of assumptions – implicit or explicit – about what should (or should not) happen in order to for a policy to achieve its goals; (ii) assessing the likelihood that these assumptions will hold, and their importance to policy; (iii) assessing the impact of policy change should the assumptions prove invalid; (iv) informing risk management strategies to address important risks that are unavoidable.	
Complementary tools:	Normally conducted after Stakeholder Analysis and Institutional Analysis, as a complement to impact analysis. Provides crucial insights for Scenario Analysis, and M&E systems	
Key Elements:	(1) Identification of risks, (2) Assessment of the likelihood of occurrence and importance of each risk to the reform, and (3) Elaboration of adequate risk management strategies. Risks are identified from assumptions about transmission channels and likely impacts. This should cover country risks (e.g. conflict and violence, political instability, ethnic or religious tension); institutional risks (e.g.: weak governance or capacity, design complexity); political economy risks (e.g. capture of benefits, opposition or distortion by influential stakeholders); and exogenous risks (e.g. terms of trade, climate effects). Information about risks is gathered from (i) secondary literature, (ii) discussions with Bank staff and other partners; (iii) existing agencies that assess country risks; and (iv) questionnaires, in-depth interviews or focus groups with key informants from government agencies, non-government organizations and firms. This information is validated through triangulation and crosschecking among information obtained from these different sources.	
Requirements	Data/information:	Secondary material, including objective risk indicators, and risk assessments available from country databases, international risk rating agencies (e.g. EIU risk rating, ICRG, TI), and social science research, as well as from implementing agencies and partners. Primary data, that identifies the spectrum of risks to, and from the reform, illustrates their likelihood of occurrence and importance to the policy, and helps develop adequate risks management strategies.
	Time:	Can be undertaken rapidly (2-4 person weeks) in country, depending on reform complexity.
	Skills:	Sociological and anthropological training are helpful. It is crucial to have an in-depth knowledge of the country-context, reform area, country- and sector-level assessment of key assumptions regarding the reform, and objective country-level risk indicators.
	Supporting software:	N/A
	Financial cost:	Can be undertaken at relatively low-cost (US\$16-25,000)
Limitations:	If poorly facilitated or done with contentious stakeholders, assessment can easily produce skewed perceptions of risks that are based, for instance, on dogma or political calculation, rather than reflection and deliberation. As findings are necessarily based on stakeholder understanding of complex issues, it is key to validate results through reiteration exercises.	
References and applications:	<ul style="list-style-type: none"> • Beck et al (2002). • Kaufman and Kray (2000). • World Bank (2002c). • Economist Intelligence Unit Country Risks Ratings (http://www.eiu.com) • Transparency International Corruption Perception Index (http://www.transparency.org) • International Country Risk Guide ratings (http://www.prsgroup.com) 	

Tool Name: Scenario Analysis

What is it?	Scenario analysis is a participatory exercise based on a facilitated process of brainstorming, rigorous data gathering to explore the issues raised in brainstorming and the creation of three to four plausible future situations (scenarios) in which a reform will play out. These scenarios are differentiated by plausible discontinuities (such as a change in government, a currency devaluation or a major shift in commodity or input prices), but take into account significant predictable factors (such as demographic trends).	
What can it be used for?	Scenario analysis is forward-looking and is generally used to analyze “lumpy” investments or major changes in strategic direction. The process is particularly adapted to bringing the perspectives of different stakeholders together around contentious decisions. “Civic scenarios” have been used to bring leaders from different political groups together to lie out alternative paths during government transition in South Africa and the transition away from violence in Colombia and Guatemala. Scenarios have also been used to bring community leaders, environmentalists, politicians and transport specialists together to make long-term strategic plans for state-level transport investment in the United States.	
What does it tell you?	Scenario analysis lets policy-makers: (i) “pre-test” the performance of a policy reform in different plausible situations, allowing for the creation of alternate plans; (ii) assess the level of ownership for a reform agenda among key stakeholders; (iii) get support for a reform agenda by including relevant stakeholders in discussions around scenarios to build a shared understanding of key issues in a reform.	
Complementary tools:	Normally used in conjunction with economic models, which can serve as inputs to the scenario-building process, and stakeholder analysis, which helps determine key groups to consider in different scenarios.	
Key Elements:	The elements of a complete scenario analysis are: (i) preliminary scenario workshop which brings together relevant stakeholders to brainstorm the key issues around a reform agenda; (ii) data collection wherein a researcher assembles relevant information around the issues identified in a workshop; (iii) scenario-building workshop where relevant stakeholders build alternate scenarios; (iv) dissemination process where scenarios are shortened to one-page briefing notes and shared with the public via newspapers, television and radio	
Requirements	Data/information:	Scenario analysis requires: (i) economic information, including standard economic projections; (ii) demographic information; (iii) sector-specific information relevant to the issues at hand; (iv) a basic profile of a country's political economy and of ethnic, linguistic and religious divisions within a country.
	Time:	When used to challenge analytic assumptions rather than to build support among stakeholders, the scenario exercise itself could be completed in three to four staff weeks. A participatory scenario exercise is usually carried out in two to three workshops lasting several days each. These workshops are usually spread over several calendar months in order to allow time for data collection and to accommodate the schedules of participants.
	Skills:	An individual with strong facilitation skills and specific experience running scenario exercises. Research skills, including familiarity with economic and demographic trends.
	Supporting software:	N/A
	Financial cost:	A small exercise intended to ensure that the assumptions of policymakers are challenged would cost approximately US\$10,000. A full exercise with participatory workshops designed to build support among stakeholders could cost as much as US\$30,000.
Limitations:	Successful scenario analysis is based on the skill of facilitators and the choice of participants. Because the process is participatory and based on subjective understanding, it is best for strategic rather than tactical questions.	
References and applications:	<ul style="list-style-type: none"> • Maack (2001). • Pruitt (2000). • Civic Scenarios: Kahane (1996) on South Africa, Kahane (1998) on Colombia. • Planning Scenarios: see experience of Utah at http://www.envisionutah.org/ 	

Tool Name: Public Expenditure Tracking Survey (PETS)

What is it?	A technique to survey service-providers to assess the efficiency of public spending and the quality and quantity of services.	
What can it be used for?	PETS can be used for the analysis of public expenditure management reforms, reforms to improve the efficiency of public expenditure, cross-cutting public sector reforms, anti-corruption, and service delivery reforms.	
What does it tell you?	A PETS tracks the flow of resources through the various layers of government bureaucracy, down to the service facilities in order to determine how much of the originally allocated resources reach each level, and how long they take to get there. It can help identify the location and extent of impediments to resource flows (financial, staff, equipment). It can therefore evaluate the mechanisms and incentives responsible for public expenditure leakages, capture and deployment impediments. A PETS focuses on service provider behavior, incentives, and relationship between providers, policy-makers and users.	
Complementary tools:	<ul style="list-style-type: none"> • A PETS can be cross-validated by a Quantitative Service Delivery Survey (QSIDS) which assesses the efficiency of public spending at the level of service provider. • A PETS analysis can be linked upstream to public administration surveys, and downstream to household surveys. • Linking a PETS with household surveys would allow to include the demand for services or outcomes. • Benefit incidence analysis can be enhanced by using filter coefficients obtained from PETS/QSIDS to deflate cost per user to take into account leakage or capture of funds. • Institutional and stakeholder analysis can help define the parameters of PETS surveys. • Citizen Report Cards can serve as a monitoring tool to verify the perceived effectiveness of public services for stakeholders. 	
Key Elements:	A PETS is typically implemented with the following steps: (1) Consultations with key stakeholders, including government agencies, donors and civil society organizations are carried out to: define the objectives of the survey, identify the key issues, determine the structure of resource flows and the institutional setup, review data availability, outline hypotheses and choose the appropriate survey tool. (2) Survey instruments are then constructed and implemented. The PETS deals with the fact that agents may have strong incentives to misreport data by using a multi-angular data collection strategy and carefully considering which sources and respondents have incentives to misreport, and identifying sources that are the least contaminated by these incentives.	
Requirements	Data/information:	In addition to the PETS itself, uses public accounts sample data, preferably panel data, on government spending and information on outputs of service providers at ministerial, regional, local and service provider levels. Field testing of the survey is key to ensuring high quality results
	Time:	Consultations, design, and pre-testing take several months. The survey itself takes 1-2 months, depending on sample size and data accessibility.
	Skills:	Some prior experience of micro survey work and STATA required, and a detailed knowledge of the relevant institutional context. Microeconomics of provider behavior (incentives and organization theory).
	Supporting software:	STATA
	Financial cost:	US\$60-100,000 plus design
Limitations:	Results suffer from data limitations, i.e. where service provision is not well recorded, or is in-kind. Respondents may have incentives to misreport information	
References and applications:	<ul style="list-style-type: none"> • For an overview, see Dehn, Reinikka and Svensson (2003), Chapter 9 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. • Reinikka and Svensson (2002a) for an overview of the approach. • Reinikka (2001), Reinikka and Svensson (2003), Republic of Uganda (2000 and 2001) on Uganda. • Government of Tanzania (1999 and 2001) on education and health care in Tanzania. • Xiao and Canagarajah (2002) on Ghana. • Das et al. (2002) on Zambia. • World Bank (2001b) on Honduras. • See www.publicspending.org and http://econ.worldbank.org/programs/public_services/topic/tools/ for some of the tools available and their applications. 	

Tool Name: Quantitative Service Delivery Survey (QSDS)

What is it?	A technique to survey the efficiency of service provision	
What can it be used for?	A QSDS can be used for the analysis of public expenditure management reforms, service-delivery reforms, reforms to improve the efficiency of public expenditure, as well as cross-cutting public sector reforms.	
What does it tell you?	A QSDS examines the efficiency of public spending and incentives, and various dimensions of services delivery in provider organizations, especially at the level of the service facility. It quantifies the factors affecting quality of service such as incentives, accountability mechanisms, and the relationship between agents and principals.	
Complementary tools:	<ul style="list-style-type: none"> • A QSDS can be cross-validated by a Public Expenditure Tracking Survey (PETS) which tracks the flow of resources from the central level to the level of service provider. A QSDS analysis can also be linked upstream to public administration surveys, and downstream to household surveys • A QSDS analysis can also be linked upstream to public administration surveys, and downstream to household surveys. • Linking a QSDS with household surveys would allow to include the demand for services or outcomes. • Benefit incidence analysis can be enhanced by using filter coefficients obtained from PETS/QSDS to deflate cost per user to take into account leakage or capture of funds. • Institutional and stakeholder analysis can help define the parameters of PETS surveys. • Citizen Report Cards can serve as a monitoring tools to verify the perceived effectiveness of public services for stakeholders. 	
Key Elements:	The QSDS is typically implemented with the following steps: (1) Consultations with key stakeholders, including government agencies, donors and civil society organizations are carried out to: define the objectives of the survey, identify the key issues, determine the structure of resource flows and the institutional setup, review data availability, outline hypotheses and chose the appropriate survey tool. (2) Survey instruments are then constructed and implemented. The QSDS deals with the fact that agents may have strong incentives to misreport data by using a multi-angular data collection strategy and carefully considering which sources and respondents have incentives to misreport, and identifying sources that tare the least contaminated by these incentives.	
Requirements	Data/information:	In addition to the QSDS itself, uses public accounts sample data, preferably panel data, on government spending and information on outputs of service providers at ministerial, regional, local and service provider levels. Field testing of the survey is key to ensuring high quality results.
	Time:	Consultations, design, and pre-testing take several months. The survey itself takes 1-2 months, depending on sample size and data accessibility.
	Skills:	Some prior experience of micro survey work and STATA required, and a detailed knowledge of the relevant institutional context. Microeconomics of provider behavior (incentives and organization theory).
	Supporting software:	STATA or other similar software
	Financial cost:	US\$60-100,000 plus design
Limitations:	Results suffer from data limitations, i.e. where service provision is not well recorded, or is in-kind. Respondents may have incentives to misreport information	
References and applications:	<ul style="list-style-type: none"> • For an overview, see Dehn, Reinikka and Svensson (2003), Chapter 9 of the <i>Toolkit for Evaluating the Poverty and Distributional Impact of Economic Policies</i>. • Chaudhury and Hammer (2003) on Bangladesh. • Lindelow et al. (2003) on Uganda • See www.publicspending.org and http://econ.worldbank.org/programs/public_services/topic/tools/ for some of the tools available and their applications. 	

Tool Name: Citizen Report Card

What is it?	A participatory survey that solicits client feedback on the performance of public services. It combines qualitative and quantitative methods to collect useful demand side data that can help improve the performance of public services. Extensive media coverage and civil society advocacy allows the tool to be used for public accountability.	
What can it be used for?	Citizen Report Cards are used in situations where demand side data, such as user perceptions on quality and satisfaction with public services, are absent. By collecting and aggregating user feedback they provide an avenue for citizens to signal public agencies and politicians on key reform areas, and also to create competition among state-owned monopolies.	
What does it tell you?	Citizen Report Cards provide feedback from actual users of services regarding issues such as: (a) Availability of services, (b) Satisfaction with services, (c) Reliability/Quality of services and the indicators to measure these, (d) Responsiveness of service providers, (e) Hidden costs - corruption and support systems, (f) Willingness to pay, and (g) Quality of life.	
Complementary tools:	<ul style="list-style-type: none"> • Can be used in conjunction with national service delivery and other household surveys. It is also being supported by the more qualitative community scorecard process. • Needs to be complemented with effective communications and publicity strategy to put information in the public domain and increase effectiveness. The data from citizen report cards can also be used in conjunction with Public Expenditure Tracking Surveys (example Sierra Leone) and Benefit Incidence Analysis. 	
Key Elements:	User-determined assessment criteria; quantitative feedback on service delivery quality; media involvement and broad public debate on process and survey results.	
Requirements	Data/information:	Being a survey itself, the only data/information required is for developing the sampling frame for the execution of the survey. For this basic demographic, economic and social data from recent household surveys would be needed to decide on the stratification.
	Time:	Between 3-6 months from the initial scoping to the dissemination stage. In most countries an initial orientation workshop for different stakeholders is included.
	Skills:	Usually the citizen report card is managed by a different agency from the one that actually executes the survey. For the latter, the norm has been to out source to a market research agency such as ORG-MARG (India) or the Social Weather Station (Philippines), which has adequate market research and statistical survey analysis skills. The managing organization is either an independent CSO with solid advocacy skills, networks and reputation (India), an international donor like the World Bank (Philippines), or a Government Department in charge of monitoring and independent review/oversight of public services.
	Supporting software:	N/A
	Financial cost:	Varies according to the depth and purpose of analysis. A full national survey in a moderately sized country would cost in the range of US\$100,000.
Limitations:	The limitations include: (i) requires an agency with market research and data collection skills to conduct the survey, (ii) requires support of media, (iii) role of expectations in user perceptions needs to be factored, (iv) limitations in comparability across services, (v) cost considerations, (vi) large sample required for heterogeneous population and lesser used services, (vii) effort & time to stimulate action by service agencies & civil society, (viii) lack of predictability in how different players respond.	
References and applications:	<ul style="list-style-type: none"> • World Bank. (2002d). • Public Affairs Center (2002). 	

Tool Name: **Community Score Card**

What is it?	A community based qualitative monitoring tool that draws on techniques of social audit, community monitoring and citizen report cards. The process is also an instrument for empowerment and accountability as it includes an interface meeting between service providers and the community that allows for immediate feedback.	
What can it be used for?	The community scorecard is a tool for Participatory Public Expenditure Reviews. It is also used for local level monitoring and performance evaluation of services, projects and even government administrative units (like district assemblies) by the community themselves. The process allows for (a) tracking of inputs or expenditures (e.g. availability of drugs), (b) monitoring of the quality of services/projects, (c) generation of benchmark performance criteria that can be used in resource allocation and budget decisions, (d) comparison of performance across facilities/districts, (e) generating a direct feedback mechanism between providers and users, (f) building local capacity and (g) strengthening citizen voice and community empowerment.	
What does it tell you?	The community scorecard provides information on (a) how inputs or expenditures match with entitlements/allocations at the local/facility level, (b) the criteria used by the community and by providers themselves to assess their own performance, (c) how both the community and providers score themselves on these criteria, (d) anecdotal evidence on which these scores are based, and (e) how the assessments by the community and providers can be used to develop an action plan for improvements in the project/service.	
Complementary tools:	<ul style="list-style-type: none"> • Can be used in conjunction with national service delivery surveys and the citizen report card survey. • Can form participatory component of public expenditure reviews, public expenditure tracking surveys, formal financial audits and benefit incidence analyses. 	
Key Elements:	Community-based, i.e. designed and executed, qualitative service assessment; professionally facilitated public discussion of results.	
Requirements	Data/information:	The input tracking scorecard requires supply side information on inputs and expenditures such as (a) Budgets/allocations to a facility/project, (b) Entitlements as specified under a policy/project document, (c) List of inventories at facility level, etc. At the community level, an existing social mapping, and basic demographic data is needed to divide the community into focus groups. If the process is to be conducted on a representative sample of communities across the nation/district then basic socio-economic data would be needed to select the sample frame.
	Time:	The process itself requires only a few (sometimes a single) community gatherings. However the groundwork and orientation for collecting supply-side input/expenditure data, preparing the providers and community for the scorecard and for the interface meeting, as well as the secondary data analysis may require in the region of 3-6 weeks.
	Skills:	The community scorecard process requires expert facilitation and so experience with participatory methods and a history of involvement with the community are usually pre-requisites for the process to run smoothly.
	Supporting software:	N/A
	Financial cost:	Financial costs of conducting the process in a single community are quite low - limited mainly to the time of the facilitating staff. If however done on a large scale with many communities involved, the costs would be higher. Overall cost ranges from US\$30,000 to US\$40,000, comparable to a beneficiary assessment.
Limitations:	The limitations of the community scorecard process include: (a) it depends a great deal on quality of facilitation, (b) input tracking dependent on availability of supply side data, (c) the interface meeting can get confrontational, (d) greater standardization of indicators needed when scaling up, (e) small sample size during gathering can bias results, (f) scoring not always applicable.	
References and applications:	<ul style="list-style-type: none"> • Republic of Gambia (2002). • Information can be found at: http://www.worldbank.org/participation/spaccount.htm 	