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Data Sources for Microeconometric Risk and Vulnerability Assessments

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DATA SOURCES FOR MICROECONOMETRIC RISK AND VULNERABILITY ASSESSMENTS

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1. INTRODUCTION

The increasing recognition that there are considerable flows into and out of the poverty pool (e.g., see Baulch and Hoddinott 2000) has focused interest in household vulnerability as the basis for a social protection strategy. As Holzmann and Jorgensen (2000) note, in a dynamic environment where adverse economic shocks are easily transmitted across geographic borders, a social protection scheme might be able to perform more effectively the task of protecting households from the adverse effects of poverty by adopting a forward looking approach that not only identifies the groups of households that are presently poor but also the households that are vulnerable to economic shocks and other risks such as natural disasters and climate conditions.

The task of undertaking a risk and vulnerability assessment can be complicated both by multiple definitions of vulnerability and the scarcity of data with which to undertake vulnerability measurements.

The feasibility of applying a particular empirical approach is often dictated by data concerns. Analysts recognize that vulnerability involves both welfare losses due to low consumption or poverty as well as those due to uncertainty. However, analysts undertaking a risk and vulnerability assessment often only have a cross-sectional household survey at their disposal. Panel data, while ideal, are expensive, and oftentimes an urgent policy question needs to be answered before a new survey can be fielded. What are the options available to such analysts in the field? How can they make use of existing data sources to come up with measures of vulnerability? What are the pros and cons of various data sources? What are cost-effective ways of collecting additional information to enhance existing data sources?

This “toolkit” is designed to assist practitioners undertaking vulnerability assessments by identifying data sources, assessing their suitability for risk and vulnerability measurement, and proposing suggestions for data collection to supplement existing sources. It complements “Methods for Microeconomic Risk and Vulnerability Assessments: A Review with Empirical Examples” (Hoddinott and Quisumbing 2003), which discusses techniques for assessing vulnerability and issues relating to their application. The emphasis in both toolkits is on quantitative, survey-based methods for vulnerability assessment, although this document will also discuss contextual methods similar to those used in

livelihoods-based approaches.¹ Section 2 maps data sources to stages of the “risk chain,” and presents an overview of data issues. This section also shows how information on risk, risk management, and outcomes can be extracted from LSMS-type surveys at both the household and community levels. Section 3 discusses the use of household data from survey-based methods in risk and vulnerability assessments, while Section 4 deals with locality data (from community interviews and secondary sources) and data collected using contextual methods. Both Sections 3 and 4 illustrate the use of each data source with examples from recent risk and vulnerability assessments, discuss their advantages and disadvantages, and propose innovations to improve their usefulness for vulnerability assessments. Section 5 concludes. An Annex contains sample modules for assessing risk and vulnerability over the long-, medium-, and short-term.

2. INFORMATION NEEDS FOR VULNERABILITY MEASUREMENT

2.1 Conceptualizing Information Needs Using the “Risk Chain”

The “risk chain” (Heitzmann, Caganarajah, and Seigel 2002) is a useful approach for conceptualizing vulnerability. This decomposes household vulnerability into several components: (1) risk, or uncertain events; (2) options for managing risk, or risk responses, and (3) the outcome in terms of welfare loss. Tables 1, 2, and 3 map data sources to information needed to analyze each stage of the risk chain (Hietzmann, Caganarajah, and Seigel 2002) and are organized according to the following *row* headings:

- Risk, risk exposure, risk realization (Natural and environmental; Social and political; Lifecycle/demographic; Economic; Health).
- Ex ante and ex post risk management (Asset accumulation and diversification; Social capital and social relations; Acquisition of knowledge; Livelihood choices; Preventive actions; Credit; Private Insurance; Private transfers; Public transfers).

¹ This paper draws heavily on papers and discussions at an International Food Policy Research Institute/World Bank (IFPRI/WB) Workshop on Risk and Vulnerability: Estimation and Policy Implications held at the International Food Policy Research Institute in September 2002.

- Outcomes (Consumption; Health; Nutrition; Schooling). Note that these outcomes are a subset of those enumerated under the Millennium Development Goals.

The organization within each heading follows a similar pattern. Each begins with a set of general categories, then breaks these down into specific examples. For example, one risk management mechanism is asset accumulation and diversification. Within this group, we enumerate the following instruments: financial assets, property, equipment, and household durables.

All three tables contain *column* headings for data sources: single cross-sections, panel surveys, community surveys, and secondary sources. Each table may have columns which are specific to it (for example, a column on the degree of risk covariance in Table 1), but the data source columns are common to all tables. Because LSMS-type surveys are increasingly being used for vulnerability assessments, we include two columns listing the relevant LSMS modules and the reference in the LSMS prototype questionnaire found in the edited volume by Gosh and Glewwe (2000). Under “Natural and environmental risks” in Table 1, for example, we list whether data can be found in cross-sections, panels, and community surveys; the relevant LSMS module would be the community questionnaire. Under “Property” (Table 2), for example, we list the following LSMS modules containing relevant information on property holdings: savings, housing, and agriculture with agriculture further subdivided into land and livestock). Reference in LSMS prototype questionnaire refers to the section and question numbers within the relevant LSMS module. So “Agriculture E Q1-Q6” refers to the Agriculture module of the prototype LSMS questionnaire, part E, Questions 1-6. Note that some of these prototype modules come in “short,” “standard,” and “extended” sizes. In all cases, we use the “expanded version” or, where that is not available, the “standard version.” Also note that in a few cases, these modules are divided into “sections,” or more confusingly, “modules,” as indicated under the reference to the LSMS prototype questionnaire.

Tables 1 to 3 provide a broad overview of the data needs; the specifics by data source will be discussed in Sections 3 and 4.

2.2 An Overview of Data Issues

The completeness of information on various stages of the risk chain depends crucially on the available data, with some stages of the chain covered better than others. Heitzmann, Canagarajah, and Siegel (2002) and Alwang, Siegel, and Jørgensen (2001) argue that data and statistics on different types of risks, risk exposure, and outcomes are more readily available than detailed information on risk responses, which is the most difficult part of the risk chain to identify and quantify. Part of the difficulty in conducting risk and vulnerability assessments with existing data is that these data were often not intended for this purpose, and thus measures of risks and responses to risk will be imperfect. Moreover, without data collected before and after a shock, it will be difficult to identify whether an action is a risk prevention (*ex ante*) mechanism or a risk-mitigation (*ex post*) response.

Degree of Covariance of Risks and Shocks

Although econometric approaches do not require any a priori classification of shocks according to their degree of covariance, it may be useful in terms of systematically identifying sources of data on risk and degree of risk exposure (Table 1). Shocks can be classified into idiosyncratic (specific to the individual or household) or spatially covariate (covering a wider area such as a community, region, or even the nation). For spatially covariate risks and shocks, community information and secondary sources such as rainfall and administrative data on wages and prices are a very valuable complement to household data. By contrast, information on risk management instruments (Table 2) and outcomes (Table 3) is more likely to be available at the household level, although some risk-management institutions may operate at the community level, such as public works programs. One problem with matching household data with secondary data is the difficulty of mapping and matching localities—often one loses households from surveys because they do not match the spatially referenced data. Administrative boundaries may also be misleading when matching rainfall data, where

Table 1. Typical data sources for the identification of risks, risk exposure, and risk realization

Type of risk	Degree of covariance	Cross-sectional individual or household survey	Panel survey	Community survey	Secondary sources	Relevant LSMS modules	Reference in LSMS prototype questionnaire	Comments
Natural and environmental								
Physical location	Community	yes	yes	yes		Community	Section 2. Q1, Q2, Q4-Q7	Information on these risks can also be collected as retrospective questions in cross-section and panel surveys
Weather shocks (heavy rainfall, droughts, hurricanes)	Community	retrospective	yes	yes	rainfall data, weather data	Community	Section 8. Q12	
Natural disasters (landslides, volcanic eruptions, earthquakes, floods)	Community	retrospective	yes	yes	historical data, seismological data	Community	Section 8. Q2, Q13-Q16	
Crop losses to rodents, pests	Idiosyncratic, Community	yes	yes	yes		Agriculture	C1. Q2, Q6	
Loss of infrastructure	Community		yes	yes		Community	Section 3. Q14, Q16	
Pollution	Community, idiosyncratic	yes	yes	yes		Community	Section 11. Q1-Q8	
						Housing	B. Q39 – Q41	
						Environment (air pollution)	Module 3. Q1, Q2, Q6, Q8, Q9, Q11, Q13	
Water, water pollution	Idiosyncratic, Community	yes	yes	yes		Environment (water pollution)	Module 4. Q1-Q10, Q21, Q22, Q24, Q25	
						Environment (water source)	Module 4. Q20, Q21, Q24	
						Community	Section 7. Q12-Q24	
						Housing	B. Q1-Q7, Q10-Q20	
Sanitation	Idiosyncratic, Community	yes	yes	yes		Community	Section 7. Q32, Q36-Q41	
						Environment	Module 5. Q4,	

Type of risk	Degree of covariance	Cross-sectional individual or household survey	Panel survey	Community survey	Secondary sources	Relevant LSMS modules	Reference in LSMS prototype questionnaire	Comments
							Q9, Q18, Q19, Q45, Q48, Q50, Q64	
						Housing	B. Q21-Q26	
Deforestation	Idiosyncratic, Community	retrospective	yes	yes	satellite photographs			
<i>Social and political risks</i>								
Ethnic fractionalization	Idiosyncratic, community	yes	yes	yes		Community	Section 2. Q10	Not collected in most surveys, though information on race, ethnicity, and religion are collected
Religious fractionalization	Idiosyncratic, community	yes	yes	yes		Community	Section 2. Q11	
Linguistic fractionalization	Idiosyncratic, community	yes	yes	yes		Community	Section 2. Q12	
Crime, gangs	Idiosyncratic, community	yes	yes	yes	crime statistics			
Domestic violence	Idiosyncratic	yes	yes	yes	crime statistics			Not usually in survey questionnaires, often underreported in crime statistics
Terrorism, civil strife, war	Community	yes	yes	yes	news reports			
Risks in policy environment: credibility and commitment to continue policies	National, Community			yes	yes			Difficult to measure, but could be gleaned from monitoring policy changes
<i>Life cycle/demographic</i>								
Household size, number of dependents, recent births, gender of head, old age, deaths in family, family dissolution, etc.	Idiosyncratic	yes	yes			Household roster	A. Q1-Q7	National statistics on infant mortality rates, maternal mortality rates, and life expectancy can also be a good source of

Type of risk	Degree of covariance	Cross-sectional individual or household survey	Panel survey	Community survey	Secondary sources	Relevant LSMS modules	Reference in LSMS prototype questionnaire	Comments
Women's access to resources	Community			yes	anthropological accounts	Community	Section 2. Q14	information Good candidate for using qualitative methods
Economic								
Macro shocks: BOP, financial crisis, currency crisis, terms of trade	National				national accounts			
Loss in value of financial assets or pension funds linked to inflation, stock market, or exchange rate collapses	Usually covariate, could be idiosyncratic	yes	yes					
Risk in asset returns	Can be both idiosyncratic and covariate	yes	yes	yes	yes			Secondary data on land prices, stock prices could provide information on returns to different types of assets
Access to common property resources; unclear commitments regarding public goods	Both idiosyncratic and covariate	yes	yes	yes		Community (access to land)	Section 2. Q19-Q23	
Price risk	Community			yes				
Business failure or indebtedness	Idiosyncratic, community	yes	yes			Household enterprises	H. Q23, Q24	
Resettlement	Idiosyncratic, community	yes	yes					
Unemployment	Idiosyncratic, community	yes	yes		labor statistics	Employment	A. Q12, Q18-Q21 D. Q27-Q29	
Indebtedness	Idiosyncratic	yes	yes			Credit	A. Q3, Q4, Q6-Q8, Q10-Q12, Q14-Q16, Q18-Q20, Q23, Q25 B. Q1, Q20, Q28, Q29, Q44, Q52, Q53, Q68, Q76	
						Household	H. Q23, Q24	

Type of risk	Degree of covariance	Cross-sectional individual or household survey	Panel survey	Community survey	Secondary sources	Relevant LSMS modules	Reference in LSMS prototype questionnaire	Comments
						enterprises		
Uncertain access to inputs and cash flow support during production	Idiosyncratic	yes	yes			Credit (denial of credit)	C. Q1-Q6	
	Idiosyncratic	yes	yes			Community (access to land)	Section 2. Q19-Q23	
	Idiosyncratic	yes	yes			Household enterprises (problems obtaining inputs)	H. Q4, Q5, Q12, Q13	
Other constraints on production	Idiosyncratic	yes	yes			Household enterprises (constraints on enterprises)	E. Q26-Q33	
	Idiosyncratic	yes	yes			Household enterprises (threat of foreign competition)	H. Q22	
Security of tenure, property rights	Idiosyncratic, community	yes	yes	yes		Agriculture (land rights)	A1. Q9 A3. Q10	
	Idiosyncratic, community	yes	yes	yes		Agriculture (livestock died, stolen, lost)	E. Q2, Q8	
	Idiosyncratic, community	yes	yes	yes		Household enterprises (security of title)	G. Q4, Q5	
	Idiosyncratic, community	yes	yes	yes		Household enterprises (problems associated with registering business)	F. Q31, Q32	
						Housing (ownership and security of title)	C. Q1, Q2, Q6-Q10	
Imperfect enforcement of contracts and informal arrangements	Idiosyncratic, community	yes	yes	yes		Employment (contractual security)	C. Q16, Q17, Q85, Q86 D. Q9, Q11, Q12, Q38, Q39	

Type of risk	Degree of covariance	Cross-sectional individual or household survey	Panel survey	Community survey	Secondary sources	Relevant LSMS modules	Reference in LSMS prototype questionnaire	Comments
Uncertainty regarding rationing in public support (exclusion from social safety net)	Idiosyncratic, community	yes	yes	yes				
Health risks								
Illness, injury, and disability	Idiosyncratic	yes	yes			Health (self-reported morbidity)	A. Q30-Q47	
Epidemic (e.g. malaria)	Idiosyncratic, Community	yes	yes	yes		Health (self-reported morbidity)	A. Q30-Q47	
Malnutrition	Idiosyncratic	yes	yes		national nutrition surveys	Anthropometry	Q1-Q8	
Substance use	Idiosyncratic	yes	yes	possible		Health (tobacco consumption)	B. Q2-Q11	Communities may have perceptions about the degree of substance abuse in their area, although they may not be willing to reveal them in surveys
						Health (alcohol consumption)	B. Q14-Q16	

Sources: Authors' compilations; Dercon (2001); Heitzmann, Canagarajah, and Siegel (2002).

Table 2. Typical data sources on ex post and ex ante risk management instruments

Risk management mechanism	Instrument	Type of Institution	Cross-section survey	Panel survey	Community survey	Secondary sources	Relevant LSMS modules	Reference in LSMS prototype questionnaire
<i>Asset accumulation, diversification, and disposal</i>								
Financial assets	Savings and contributions to savings accounts	Private	yes	yes			Savings (liquid assets)	B. Q1, Q2, Q4 C. Q1-Q3 E. Q1, Q2
							Consumption (contributions to savings accounts)	C. Q1-Q4
	Participation in ROSCAs	Private	yes	yes			Savings (ROSCAs)	D. Q1, Q3
							Consumption (contributions to ROSCAs, tontins etc)	C. Q1-Q4
	Credit (loans to others)	Private	yes	yes			Credit (loans to others)	D. Q1, Q2, Q7
Property (acquisition and disposal)	Savings	Private	yes	yes			Savings	A. Q2, Q3
	Housing	Private	yes	yes			Housing (characteristics, Ownership and value of dwelling)	A. Q1-Q5, Q11, Q13-Q16 C. Q1, Q2, Q6-Q12
							Agriculture (value of landholdings)	A1. Q2, Q4, Q9, Q10 A3. Q2, Q6, Q10, Q11
							Agriculture (livestock)	E. Q1-Q6
	Equipment	Private	yes	yes			Agriculture (value of farm capital)	B1. Q1-Q6 B2. Q1-Q2
							Household enterprises (Value of equipment, inputs, inventory)	G. Q1-Q6, Q37-Q39 H. Q2, Q10
	Household durables	Private	yes	yes			Consumption	E. Q1, Q2, Q7
<i>Social capital and social relations</i>		Private	yes	yes				
	Community	Private	yes	yes	yes		Community	Section 2. Q16-

Risk management mechanism	Instrument	Type of Institution	Cross-section survey	Panel survey	Community survey	Secondary sources	Relevant LSMS modules	Reference in LSMS prototype questionnaire
	gatherings							Q18
	Existence of cooperatives	Private	yes	yes	yes		Community	Section 5. Q22, Q23
	Participation in community or social activities	Private	yes	yes			Time use	Version 2. Q21, Q22
	Gift giving	Private	yes	yes			Savings	A. Q13, Q14
							Consumption (gifts, charity)	C. Q1-Q4 D. Q2, Q14-Q20
							Agriculture (land)	A3. Q2, Q17
	Dowry, brideprice	Private	yes	yes			Consumption	C. Q1-Q4
Acquisition of knowledge		Private	yes	yes				
	Access to new technologies	Private, public	yes	yes	yes		Community	Section 5. Q25, Q26
	Access to agricultural extension	Public	yes	yes	yes		Community	Section 5. Q19-Q21
							Agriculture	F. Q1-Q4, Q7-Q10, Q13-Q15, Q18, Q19
	Knowledge of STDs, HIV/AIDS	Private, public	yes	yes	yes		Health	B. Q24-Q26
							Community (provision of information about AIDS)	Section 9. Q18
Livelihood choices								
	Access to employment outside the community	Private	yes	yes	yes		Community	Section 4. Q8-Q20
							Household roster (migration of household members)	A. Q8-Q11 C. Q1-Q14
	Occupational choice and diversification, including child labor	Private	yes	yes	yes		Employment	B. Q1-Q4 C. Q1-Q4 D. Q1-Q4, Q31-Q34
							Time use	Version 2. Q1-Q3
	Agricultural diversification	Private	yes	yes	yes		Agriculture	A1. Q6

Risk management mechanism	Instrument	Type of Institution	Cross-section survey	Panel survey	Community survey	Secondary sources	Relevant LSMS modules	Reference in LSMS prototype questionnaire
	Enterprise diversification	Private	yes	yes	yes		Household enterprises	A. Q1, Q2 B. Q1, Q3 C. Q6, Q8 D. Q1, Q3, Q4, Q5, Q6, Q7, Q9, Q10, Q11, Q14-Q17
<i>Preventive actions</i>	Risk minimization in agriculture	Private	yes	yes	yes		Community (availability of irrigated land)	Section 5. Q29-Q33
							Agriculture (household access to irrigation)	A1. Q4, Q7 A3. Q6, Q8
							Agriculture (land improvement)	A1. Q12. A3. Q13-Q15
							Agriculture (use of pesticides, herbicides, fungicides)	D2, Q19, Q20, Q30, Q31
	Treating water supplies	Private, public	yes	yes	yes	Data on infrastructure	Environment	Module 4. Q20, Q21, Q24
							Housing	B. Q8, Q9
	Sanitation	Private, public	yes	yes	yes	Data on infrastructure	Environment	Module 5. Q4, Q26, Q39
							Housing	B. Q21-Q26
	Health and child care (checkups, proper feeding and weaning practices)	Private	yes	yes	yes	Health facility data, especially service statistics	Time use (child care)	Version 2. Q14
							Time use (health care)	Version 2. Q15, Q20
							Health (child immunization)	C. Q1-Q11
							Fertility (pre-natal care)	B. Q2-Q5
							Fertility (breastfeeding)	B. Q2, Q7-Q9
	Physical fitness	Private	yes	yes		yes	Health (physical exercise,	B. Q17-Q23

Risk management mechanism	Instrument	Type of Institution	Cross-section survey	Panel survey	Community survey	Secondary sources	Relevant LSMS modules	Reference in LSMS prototype questionnaire
							participation in sports)	
	Contraception	Private	yes	yes			Fertility	C. Q1-Q4
	Community health programs	Private, public	yes	yes	yes		Community (general)	Section 8. Q7-Q8
							Community (outreach and immunization)	Section 9. Q10-Q16
<i>Credit</i>								
	Community access to savings instruments	Public, private			yes		Community	Section 6. Q1
	Community access to public/private credit institutions	Public, private			yes		Community	Section 6. Q2-Q9
	Household access to credit	Private	yes	yes	yes		Credit	B. Q53, Q68
<i>Private Insurance</i>								
	Health insurance	Private, public	yes	yes			Health	D. Q2-Q17
	Sick leave	Private	yes	yes			Employment	C. Q48
	Pension entitlement	Public, private	yes	yes			Employment	C. Q49
	Sharecropping	Private	yes	yes			Agriculture	A2. Q13-Q17
<i>Private transfers</i>								
	Receipt of private transfers	Private	yes	yes			Transfers and non-labor income	A. Q2-Q20
							Consumption (food gifts received)	B. Q1, Q10
							Consumption (on-food gifts received)	C. Q1, Q5, Q6
							Education (payment of school fees)	B. Q3-Q5
	Access to transfers from siblings	Private	yes	yes			Household roster (siblings living elsewhere)	D. Q1-Q11

Risk management mechanism	Instrument	Type of Institution	Cross-section survey	Panel survey	Community survey	Secondary sources	Relevant LSMS modules	Reference in LSMS prototype questionnaire
<i>Public transfers</i>								
	Existence of public works programs	Public	yes	yes	yes		Community	Section 4. Q32-Q35
	Entitlement to social security	Public, private	yes	yes			Employment	B. Q6 C. Q8, Q81 D. Q8
	Receipt of public transfers (including food aid and disaster relief)	Public	yes	yes	yes		Transfers and non-labor income	B. Q1-Q9
	Receipt of scholarship, conditional cash transfers	Public, private	yes	yes	yes		Education	B. Q6, Q7

Sources: Authors' compilations; Heitzmann, Canagarajah, and Siegel (2002).

Table 3. Typical data sources for outcomes

Outcome and indicator	Single cross-section	Panel	Community	Secondary	Relevant LSMS modules	Reference in LSMS prototype questionnaire
Consumption						
Food consumption ¹	yes	yes			Consumption	A. Q3, Q4 B. Q1-B10
Consumption of nonfood goods ¹	yes	yes			Consumption	A. Q1, Q2 C. Q1-Q6
Expenditures on schooling	yes	yes			Education	B. Q2 E. Q18
Expenditures on health (Fees, transport, medicines)	yes	yes			Health	E. Q8, Q14-Q19, Q27, Q33-Q38, Q46, Q52-Q57, Q65-Q68, Q76-Q79, Q87-Q94
Expenditures on housing ²	yes	yes			Housing	C. Q3-Q5, Q16-Q40
Employment related expenditures	yes	yes			Employment	C. Q13, Q23, Q42
Health						
Self-assessment of health status	yes	yes			Health	A. Q3-Q4
Self-reported limitations in daily activities	yes	yes			Health	A. Q11-Q29
Self-reported morbidity	yes	yes			Health	A. Q30-Q47
Incidence/severity of diarrhea	yes	yes			Health	A. Q6-Q9
Respiratory illness	yes	yes			Environment	Module 3. Q5-Q8
Observed activities of daily living	yes	yes			Health	G. Q1-Q11
Cognitive functioning ³						H. Q1-Q32
Nutrition						
Child height for age ⁴	yes	yes			Anthropometry	Q1-Q7
Child weight for height ⁴	yes	yes			Anthropometry	Q6-Q8
Child weight for age ⁴	yes	yes			Anthropometry	Q1-Q5, Q8
Adult BMI	yes	yes				
Schooling						
Grades attended	yes	yes		official education statistics	Education	A. Q3-Q26
Attending school	yes	yes		official education statistics	Education	A. Q28-Q50

Notes. 1. Note that total household consumption must be “built up” from these LSMS modules. See Deaton and Grosh (2000) for a discussion.

2. Note that imputing a value to owner-occupied housing is difficult. See Deaton and Grosh (2000) and Malpezzi (2000) for a discussion.

3. This is administered only to respondents over 40.

These measures should be converted to z scores that standardize measures across children of different ages and sex.

topography plays a more important role. Prior knowledge regarding the degree of covariance of shocks may help inform data designers regarding the level of aggregation: if shocks are highly covariate, it may be more cost-effective to collect data at a higher level of aggregation.

In practice, however, even within well-defined rural communities, variance decomposition analysis reveals that few risks are purely idiosyncratic or common. Variance decomposition analysis involves computing the contribution of village-level variance to total variance: the lower its contribution, the more idiosyncratic the shock. Dercon (2002), drawing from his work in rural Ethiopia (Dercon and Krishnan 2000), finds that most shocks have both idiosyncratic and common parts. In Ethiopia, for example, rainfall variation had a large covariate component (the village-level variance accounted for 41 percent of the variation in the individual rainfall index), while number of days lost due to illness was clearly an idiosyncratic shock (the village-level variance accounted for only 5.2 percent of total variance). A priori classifications may also misclassify shocks. In the Guatemala poverty assessment, shocks were classified a priori into idiosyncratic or covariate (Tesliuc and Lindert 2002). However, a variance decomposition test showed that location alone explained less than 25 percent of all shocks that were classified as covariate (except inflation). The shocks with a high degree of covariance at the local level were bad harvests and income losses, which were classified a priori as idiosyncratic. Respondent reports of the impact of shocks may have systematic biases. Again, in the Guatemala poverty assessment, respondents tended to “complain” about covariate shocks and to be more “honest” about the impact of idiosyncratic shocks (the share of covariate shocks that had no negative impact on household income or wealth was significantly larger than the equivalent share of idiosyncratic shocks).

Ex Post versus Ex Ante Mechanisms

There are a number of reasons why information on risk responses is difficult to obtain. First, obtaining information on expectations is inherently difficult. A person’s answer regarding questions regarding “expected yield” or whether it was a “normal” year involves three elements: the person’s understanding of the objective distribution of risks,

the person's own response, and the person's own risk preferences. How does one get at the probability distribution of the risk? Is it a one-time event, or something that occurs with some regularity? In Bangladesh, for example, floods occur yearly, but the 1998 floods were memorable because of their severity. By asking about well-defined, specific recent events, one can get some idea about the risk distribution that the person faces. Discrete events can also be recalled over a longer period than recurring events. Second, depending on the timing of the survey (see the next point below), a response could be identified either as an ex ante or an ex post response. Take as an example membership in a rotating savings association (ROSCA). Suppose that the member was interviewed prior to a shock that enabled her to withdraw funds from the ROSCA. In that case, membership in the ROSCA would be interpreted as an ex ante risk management mechanism. However, suppose she was interviewed after a shock, and she had just withdrawn funds from the ROSCA. Without knowing the date that she joined the ROSCA in reference to the timing of the shock, it would be difficult to establish whether a particular mechanism was used ex ante or ex post.

Timing and Frequency of Surveys

As already hinted at above, the timing of the survey work is important. Shocks work with time lags, and have different distributions. Because shocks are, by definition, unanticipated, it is often pure coincidence that a survey will be able to capture information on shocks (particularly if it is a one-time shock) unless the survey was conducted for that purpose. A case can certainly be made for shorter surveys that are fielded more frequently for monitoring purposes, rather than long surveys that are fielded at longer intervals.

Cross-Validation of Responses

Cross-validation is important if different data sources are inconsistent. For example, there may be disagreement between household-level data and cluster-level data. Depending on whether geographic boundaries are drawn and where the household is actually located, administrative data may not be relevant to households in a particular cluster, if households (for example) obtain public services from a municipality other than

their official place of residence. Cross-validation within the household may also be necessary. Often, we rely on the head of the household to report on assets or risk responses of other household members. Evidence from Indonesia (Thomas and Frankenberg 1999) suggests that husbands tend to underestimate their wives' asset holdings and vice versa.

*Types of Data and Methods of Data Collection*²

As mentioned in the introduction, the emphasis in this toolkit is on data from household surveys, supplemented by data from secondary sources. It is useful to distinguish types of data from methods of data collection. Data can be classified into quantitative or qualitative; methods into noncontextual and contextual. In a survey-based context, quantitative data measure the degree to which a feature is present, while qualitative data are numeric observations that denote the presence or absence of a characteristic or membership to a particular category. Qualitative data can be analyzed using quantitative methods, e.g., they can be used to calculate percentages, frequencies, chi-squares, or other statistics (Chung 2000, p. 337). Qualitative data are also defined in terms of textual or visual data that have been derived from interviews, observations, documents, or records. While these data are often associated with methods that require “intensive, often repeated encounters with small numbers of people in their natural environment” (Chung 2000, p. 337), a distinction between survey-based and contextual methods (Hentschel 1999; Moser 2001) is more useful. Contextual methods are those that attempt to understand human behavior within the social, cultural, economic, and political environment of a locality (Hentschel 1999, p. 71). Survey-based methods, on the other hand, involve structured interviews of a representative household sample to obtain information on a range of questions, and preformulated, closed-ended, and codifiable questions are usually asked to one household member (often the head) during one or two visits. In the remainder of this paper we discuss six types of data and the ability of each of these data sources to shed light on each stage of the risk chain.

² For a more comprehensive discussion of types of data and methods of data collection, see Booth et al. 1998; Hentschel 1999, and Moser 2000). A thorough discussion of qualitative methods in the context of the LSMS is found in Chung (2000).

3. HOUSEHOLD DATA FROM SURVEY-BASED METHODS

3.1 Single-Cross Section of Households

A cross-section survey of households, conducted at a single point in time, is often the only data source for conducting risk and vulnerability assessments. While adequate for a poverty assessment, a single-cross section is problematic for measuring vulnerability because of the absence of data from more than one point in time—that is, this data set does not have any intertemporal variability. Consequently, users of single cross-sections have used cross-sectional variability as a proxy for intertemporal variability, as explained in our companion paper, Hoddinott and Quisumbing (2003).

However, single cross-sections can still be used for vulnerability assessments if they are supplemented with other data sources, such as historical or time-series data on cropping patterns and weather events. These could inform the simulations described in Section 5 of Hoddinott and Quisumbing (2003). They can also be supplemented by qualitative, contextual studies. If the analyst knows beforehand that risk and vulnerability measurement is one of the objectives of conducting the household survey, retrospective questions can be included to capture, albeit imperfectly, information about past shocks as well as ex ante coping mechanisms.

Uses of This Data Source

We use an example from a recent vulnerability assessment conducted by the World Bank in Guatemala (Example 1) and a study of risk-coping in Ethiopia (Example 2) to illustrate the uses of this data source.

Advantages and Disadvantages

The main advantage of a single cross-sectional household survey is its availability, and, if it is designed to be nationally representative, its ability to capture the diversity of living conditions of households within a country. As shown in Tables 1, 2, and 3, most household surveys under the Living Standards Measurement Study (LSMS)

Example 1. Risk and vulnerability assessment in Guatemala

The recently completed vulnerability assessment in Guatemala (Tesliuc and Lindert 2002) illustrates how creative use of a single cross-section survey, combined with a qualitative study, can provide a wealth of information on risks and coping mechanisms. This study combined quantitative data from the Living Standards Measurement Study and qualitative information from an in-depth qualitative study of poverty and exclusion conducted in 10 villages in Guatemala. Both data sources were designed to capture issues related to vulnerability, risks, and risk management.

The quantitative survey included a risks and shocks module, in which households were asked to report if they had experienced a shock during the previous 12 months, using precoded questions for 28 economic, natural, social/political, and life-cycle shocks. These shocks were classified *ex ante* into covariant and idiosyncratic shocks. Households also reported: (1) whether these shocks triggered a reduction or loss of their income or wealth; (2) the main strategy that they used to cope with their welfare loss; (3) if they had succeeded in reversing the reduction or loss in their welfare by the time of the survey, and (4) the estimated time that had elapsed until successful resolution of the situation. Information on covariant shocks was also collected from the community questionnaire at the survey cluster level.

The vulnerability assessment included several types of analysis of shocks and their impact, including (1) factor analysis to understand the correlation structure or “bunching” of shocks; (2) a multivariate logistic model to examine the association between a household’s characteristics and location and the probability that it reports a shock or incurs wealth and income losses due to the shock and the probability that it has recovered from the negative impact of the shock by the time of the interview; (3) nonparametric density estimation to estimate the counterfactual density of consumption or income; (4) multiple regression analysis to estimate the cost of shocks; (5) propensity score matching to estimate the cost of shocks; and (6) multiple regression analysis to estimate vulnerability to consumption poverty.

Example 2. Risk-related hardship faced by rural households in Ethiopia

A retrospective module on shocks that caused serious hardship in the last 20 years was administered during the third round of the Ethiopian Rural Household Survey (Dercon and Krishnan 2000). The list was based on pilots using open-ended questions. It asked whether the event caused very serious hardship in the last 20 years and to nominate the years in which it occurred, where simple landmark dates were used to help dating during the interviews to survey respondents. The largest percentage of households mentioned harvest failure due to environmental factors, with the mode year the year of the 1984 famine. Illness and deaths, affecting labor in the household or shock to livestock holdings were also very common. But outcomes due to the individual-specific effects of “policy” are also high—higher than war or banditry, despite years of civil war in this period. While rural policy was especially restrictive in this period, this effect also measures the unpredictability of the impact of policy, with specific measures at the village level, in the form of villagization or taxation (often in the form of forced deliveries of grain) affecting people in unexpected and often arbitrary ways.

Events causing hardship	Percentage of households to have been seriously affected in last 20 years
Harvest failure (drought, flooding, frost, etc.)	78
Policy shock (taxation, forced labor, ban on migration...)	42
Labor problems (illness or deaths)	40
Oxen problems (diseases, deaths)	39
Other livestock (diseases, deaths)	35
Land problems (villagization, land reform)	17
Asset losses (fire, loss)	16
War	7
Crime/banditry (theft, violence)	3

Source: Dercon 2002.

or patterned after the LSMS, even if not designed specifically to examine risk and vulnerability, are quite rich in information on various parts of the risk chain. In particular, they provide information on consumption or measures of household well-being, household demographic characteristics, livelihood strategies, and coping mechanisms.

The primary drawback of using a single cross section is, of course, the absence of temporal variability. As explained in Hoddinott and Quisumbing (2003), identifying the household characteristics that are associated with vulnerability requires making strong assumptions about the stochastic process generating consumption, in particular assuming that the cross-sectional variance can be used to estimate inter-temporal variance. While the cross-sectional variance can explain that portion of intertemporal variance due to idiosyncratic components or cluster-specific shocks, it will not capture intertemporal or aggregate (household invariant by time-varying) shocks. It may produce good estimates of vulnerability if the distribution of risks and risk management instruments is similar over time (Tesliuc and Lindert 2002), if the macroeconomic environment is stable and if shocks do not generate survivorship bias. They are less well suited to capturing the impact of large aggregate shocks, such as the late 1990s East Asia crisis, unless the sample size is especially large and the data on consumption especially detailed (Friedman and Levinsohn 2002; Hoddinott and Quisumbing 2003).

Issues and Innovations

With a single cross-section, analysts will have to depend on a good retrospective module to obtain a history of shocks and responses to shocks and secondary data (administrative data, rainfall data) to get an idea of the distribution of the shocks.

- The phrasing of the question has important implications for the accuracy of the response.
- Amendments of basic questionnaire modules to capture risk and vulnerability issues might be cost effective, for example, amending the household roster to get more information on orphans (e.g., whether one parent is deceased, when the child joined the household, etc.).

- To get an idea about the distribution of risks:
 - (a) Make a list of potential events and go through the list with the respondent;
 - (b) Ask when the event occurred in relation to seasonal events (for example, did the malaria episode hit during the peak labor demand season?);
 - (c) Ask what people are doing to prevent the risky event or to cope with it;
 - (d) Ask about the likelihood of the shock occurring again.
- Evaluate the pros and cons of prelisting risks and asking respondents to rank them in importance. Soliciting a list from respondent may bring up things that the researcher is unaware of, but the list may exclude important risks that are likely to be sensitive (e.g., risk of domestic violence). Also, lists are likely to be highly correlated with the immediate past. Risk-ranking exercises are useful to find out about what has happened recently, but may not be a good predictor of vulnerability to future events.
- Adjust the recall period to the frequency of the shock, with longer periods for catastrophic shocks and shorter periods for frequent shocks.
- In designing the questionnaire, use known, discrete events as “signposts” for recalling smaller shocks (e.g., date of Independence, the 1998 floods in Bangladesh, Hurricane Mitch).
- Collect information on the frequency and severity of shocks and their correlation with other shocks. Households may report the same shock, even though the characteristics and severity of the shock may be different. Self-reported information is often subject to respondent bias, with richer respondents tending to “complain” more than poorer respondents (Hoddinott and Quisumbing 2003; Tesliuc and Lindert 2002).
- Cross-validate reported shocks with secondary sources such as administrative data, rainfall data, seismological data, and historical records. Cross-validate household reports with community reports.
- Use a specially designed qualitative/contextual study to get at aspects of risk and vulnerability that are difficult to capture using household surveys.

3.2 Repeated Cross-Sections

A number of countries have household surveys that are undertaken at regular intervals, but that are not panel surveys because they do not return to the same households. Examples of these are the Family Income and Expenditure Surveys in the Philippines, the Welfare Monitoring Surveys in Kenya (Example 3), the SUSENAS surveys in Indonesia. The Living Standards Measurement Studies in Côte d'Ivoire used a rotating panel that results in a mix of longitudinal and repeated cross-sectional data. If the repeated cross-sections are drawn from the same sampling frame, then cluster panels can be created, permitting an analysis of intertemporal variation within the cluster, even if the households covered within each cluster may be different.

Advantages and Disadvantages

Repeated cross-sections clearly have an advantage over a single cross-section by being able to capture intertemporal variation. Unlike panel data, which are relatively rare, repeated cross-sections are more readily available, being part of many countries' regular statistical activities. Construction of cluster or community averages also is a way of creating observations on a whole range of variables over time, when panel data are not available. If the sample sizes are large enough, repeated cross-sections can be used to create pseudo-panels of cohorts.

Issues and Innovations

How useful are cluster data for making inferences about household vulnerability?³ The basic assumption underlying this approach is that each cluster represents a "representative household." One concern is that each "representative household" in fact constitutes a different number of households. This would be true if households varied widely in their characteristics and behavior across clusters, and if clusters were given equal weights in the regression analysis. However, even if each cluster did not consist of the same number of households, or if clusters were of different size, this concern can be

³ This discussion draws heavily from Christiaensen and Subbarao (2001).

Example 3. Examining vulnerability to risk in Kenya

Christiaensen and Subbarao (2001) use the 1994 and 1997 Welfare Monitoring Surveys in Kenya to construct a vulnerability profile and examine the determinants of vulnerability. Both the 1994 and 1997 WMS were collected on the same clusters, even though the households covered in each cluster may have differed. The authors estimate the coefficients of the determinants of the ex ante mean and variance of each cluster's average per adult equivalent household consumption in 1997 based on its average household and locality characteristics in 1994. The dependent variable is real expenditure per adult equivalent in 1997, while the regressors fall into three categories: risk factors, risk exposure, and coping capacity (see below). The analysis is conducted separately for non-arid and arid/semi-arid areas. The authors then construct a vulnerability profile by substituting the 1994 socioeconomic characteristics of each community in the estimated regression equations. Assuming that consumption is lognormally distributed and using the official poverty line as a reference, a community was considered to fall under the poverty line if future consumption of its households was on average below the poverty line. In 1994, communities, on average, had a 35 percent chance of falling below the poverty line (V0) in 1997. Using a threshold of 50 percent, a community is classified as vulnerable if it has a chance of 50 percent or more to fall below the poverty line in the future. Almost a fifth (19.3 percent) of all communities fall into this category. The authors also compute different statistics based on the variants of the $R\alpha$ measure: the expected gap (V1), the conditional expected gap (V1/V0), and the normalized expected gap squared (V2).

How useful are these estimates for vulnerability analysis? The usefulness of these measures depends on their ability to predict future poverty. The Spearman correlation coefficient between the 1994 vulnerability measures V0, V1, and V2 and actual average consumption of the community in 1997 are -0.47, -0.44, and -0.42, respectively. The average probability of shortfall (35 percent) is nearly identical to the proportion of communities who fell below the poverty gap in 1997, and the average expected shortfall is also close to the actual consumption gap in 1997. Contingency table analysis also shows that more than two-thirds of the clusters are correctly classified as poor or nonpoor by the vulnerability measure, although the classification is sensitive to the vulnerability cutoff used.

Variables related to risk factors, risk exposure, and coping capacity of rural, nonpastoralist communities in Kenya are

- Dependent variable
- Real expenditure (Ksh) per adult equivalent in 1997
- Risk Factors
 - 1996 rainfall below 70 percent of historical average
 - Percent adult members/household with fever/malaria during last two weeks in 1994
- Risk Exposure
 - Landholdings (acres) per adult equivalent in 1994
 - Fertilizer use per adult equivalent in 1994
 - Percent adult unskilled public-sector workers/household in 1994
 - Percent adult skilled private-sector workers/household in 1994
 - Percent adult unskilled private-sector workers/household in 1994
 - Income share from pensions in 1994
 - Income share from nonagricultural activities (excluding pensions and transfers) in 1994
- Coping capacity
 - Household size in 1994
 - Dependency ratio in 1994
 - Percent Literate adults/household in 1994
 - Number of animals per household adult equivalent
 - Use of electricity for lighting or cooking in 1994
 - Time to food market (as recorded in 1997 WMS)

addressed in the regression analysis using sampling weights. A second concern, raised in the context of cross-country studies (Behrman and Deolalikar 1988) is that the use of average data may be misleading if the distributional issues are important and if the distribution is different across clusters. Even though households within clusters tend to be more homogeneous than households within countries—and thus distributional differences are of less concern—it may be advisable to do a variance decomposition for some measures of interest to see whether intra-cluster variability is greater than inter-cluster variability. So long as the distribution of “representative households” reflects the distribution of household and locality characteristics, the estimated coefficients of the ex ante mean and variance of future consumption will provide a good indication of the relative importance of the determinants of household vulnerability.

In the example above, Christiaensen and Subbarao estimate vulnerability (expected poverty) in 1997 using 1994 values as regressors. To construct a vulnerability profile at a later point in time, one would need to recalibrate the model using the latest household survey data. The timeliness of a vulnerability profile constructed using earlier data depends on the temporal stability of three factors: (1) estimated returns to demographic and social characteristics of households and their communities as well as natural shocks occurring between the period on which analysis is based and the future period for which vulnerability is being assessed; (2) rainfall and weather patterns between the two time periods; and (3) households and community characteristics themselves. If shocks cause widespread dissolution of households, changes in household structure, and changes in the structure of communities, vulnerability profiles based on an earlier distribution of characteristics will no longer be valid.

To summarize, repeated cross-sections can be a useful tool for vulnerability analysis if:

- The same sampling frame is used for both cross-sections, and clusters are relatively homogeneous;
- The appropriate sampling weights are used in the analysis;

- No significant changes took place in economic, social, and political institutions that may alter the returns to household and community characteristics;
- Rainfall and weather patterns are stable;
- Household and community characteristics are relatively stable in the face of shocks which occurred in the intervening period;
- Where more recent data are available, for example, on rainfall, coefficients can be estimated based on the more recent data; and
- The model is recalibrated for the time period for which a vulnerability prediction is required based on the most recently available data.

3.3 Panel data⁴

A number of the vulnerability measures discussed in the companion document to this toolkit are best estimated using panel data such as those that examine both ex ante poverty and also household responses to risk (Examples 4 and 5).

Example 4. Welfare losses from poverty and risk in Bulgaria

Ligon and Schechter (2002) define vulnerability as the sum of both losses due to poverty and losses due to risk exposure (Ligon and Schechter 2002). They use monthly data from the Household Budget Survey in Bulgaria, collected over 12 months, to estimate their vulnerability measure. They divide idiosyncratic risk into three parts: risk arising from variation in the income stream, from changes in the number of pensioners in each household, and from changes in the number of unemployed persons in the household. They also attempt to measure the contribution of various components of the vulnerability measure to overall vulnerability, using both total consumption and food consumption. They find that for both measures, poverty is the largest single component of vulnerability. After that, unexplained risk is the second largest component, and aggregate risk is the third largest component—thus aggregate risks are more important than idiosyncratic sources of risk. They then regress each element of vulnerability on a set of observable household characteristics. They find that households headed by an employed, educated male are less vulnerable to aggregate shocks than are other households. They also find that the correlates of vulnerability are extremely similar to the correlates of poverty; moreover, the correlates of aggregate risk are the same as the correlates of poverty. This is not surprising since aggregate shocks are, by definition, the same for all households, and so poorer households will experience a greater impact on their utility from this component of risk.

⁴ This discussion draws heavily from Glewwe and Jacoby (2000).

Example 5. Effects of shocks on adult body mass in rural Ethiopia^a

Dercon and Krishnan (2000) use panel data to explore determinants of adult Body Mass Index (BMI) movements across seasons in Ethiopia. They argue that predictable movements in relative prices and wages could affect the optimal path of nutritional status over the seasons, with price variability and differential returns to labor in off-peak and peak seasons encouraging the use of the body as a store of energy, provided that returns to other liquid assets are low, resulting in different ‘optimal’ weights across the seasons: feast when prices are low and fast when prices are high. They find evidence that this occurs; BMI increases by about 0.5 percent during periods of peak labor needs and up to 0.5 percent in the period immediately after the harvest. The effects are typically only significant and large for households with low landholdings, so that “feast now, fast later” is a strategy typically used by poorer households. This use of body weight as a consumption-smoothing device is consistent with imperfections in risk management strategies, suggesting that returns to assets, food stocks and returns to using the body as a store of energy are not integrated and arbitrage is profitable. Further, Dercon and Krishnan (2000) show that rainfall shocks significantly affect BMI. Even though rainfall was relatively favorable in the period of their study, relatively poor rainfall in some communities lowered BMI by about 0.9 percent for households with low landholdings, suggesting that the absence of effective risk management strategies was costly in terms of adult health.

The impact of shocks during 1994/95 on the BMI of Ethiopian adults

Source of shock and fluctuation (by group)	Estimated coefficient	t-statistic
<i>Selected community and household-level shocks</i>		
Peak labor period for males	0.0039	1.70*
Peak labor period for females	0.0050	2.10**
Postharvest period (land rich household)	0.0015	0.69
Postharvest period (land poor household)	0.0049	2.45***
Rain shock (land rich households)	-0.0012	-0.14
Rain shock (land poor households)	0.0089	2.01**
<i>Individual specific shocks</i>		
Own illness if male in South (land rich household)	-0.0010	-0.95
Own illness if male in South (land poor household)	0.0001	0.04
Own illness if female in South (land rich household)	-0.0022	-1.17
Own illness if female in South (land poor household)	-0.0042	-5.90***
Own illness if male in North (land rich household)	0.0013	1.17
Own illness if male in North (land poor household)	-0.0016	-1.35
Own illness if female in North (land rich household)	0.0004	0.32
Own illness if female in North (land poor household)	-0.0007	-0.81

Notes:

1. The dependent variable is the natural logarithm of BMI. Sample size is 1,787.
2. The results are based on a model regressing the change in BMI on the previous level of BMI, shocks and a number of time-varying control variables, as well as controlling for fixed effects in the change in BMI. The Arellano-Bond GMM estimator is used. Group-specific effects are obtained via interaction terms.
3. Land poor households have less than the median level of land per adult per village.
4. * Significant at the 10 percent level; ** significant at the 5 percent level.
5. Further details and full results in Dercon and Krishnan (2000).

Advantages and Disadvantages

Although a series of repeated cross-sections could lend itself to synthetic cohort analysis, panel data have a number of advantages for undertaking risk and vulnerability assessments: (1) in the absence of measurement error, panel data enable more precise

estimation of changes in variable means; (2) they are suited to estimating changes at the individual level whereas repeated cross-sectional surveys only permit comparisons over time across broad groups; (3) they provide more accurate data on past events than retrospective surveys; and (4) they may be cheaper to collect than repeated cross-sections since a subset of basic information will not need to be collected, but rather updated.

Since panel data are, essentially, a series of surveys on the same cross-sectional units, any type of analysis that can be done with a single cross-section, or a series of cross-sections, can also be done with panel data. One advantage of panel data is that they permit correction for unobserved household-level characteristics that may be correlated with the error terms in the regression. The standard procedure used has been fixed-effects estimation. However, fixed-effects estimates based on panel data may not be the best or only solution to the problem of unobservables. First, fixed-effects estimates rely on the assumption that the unobserved factors that may affect outcomes are fixed over time, which is not necessarily the case. Second, fixed-effects procedures do not necessarily require individual-level panel data—repeated surveys of communities with different households could tease out unobserved community effects, while retrospective data could help generate “past” observations on exposure to a program. Third, nonrandom sample attrition needs to be considered. Attrition may lead to bias if households or individuals that remain in the sample differ in unobserved ways from those that have left. Sample attrition will not lead to bias if the characteristics that lead to attrition (or selective migration) do not change over time.

Some caveats also need to be pointed out if panel data are used to estimate models in which some of the right-hand-side variables are endogenous. First, there are difficulties in finding credible instrumental variables and in correctly specifying the unobserved heterogeneity. Second, one must distinguish between transitory shocks and measurement error in the data. This is especially important when making inferences about transitory and chronic poverty. Third, one must deal with the problem of panel attrition. Other problems with fixed-effects estimation have to do with the loss of statistical degrees of freedom, the loss of the ability to estimate coefficients on time-invariant variables (which will drop out in the fixed-effects estimation), incompatibility of fixed effects with some estimation methods, and the possibility that differencing will

worsen the problem of measurement error. Despite these caveats, Glewwe and Jacoby (2000) argue that sound questionnaire design can be used to reduce the drawbacks of panel data, particularly in generating suitable instruments for estimation and repeated contemporaneous measures of outcomes of interest to avoid measurement error.

From a survey logistics issue, collecting panel data will need to deal with respondent fatigue, which could be a factor leading to attrition due to nonresponse or unwillingness to be surveyed. Panel data based on a sampling frame of dwellings may miss groups like pastoralists. Panel data based on a household sampling frame will have to face issues like drastic changes in household structure due to death or migration, or simply aging. Also, panel data can be expensive. Lastly, over time, the panel will no longer be representative of the population, unless households are added to maintain the representativeness of the panel.

Issues and Innovations

Some changes can be made at the survey design stage to maximize the usefulness of panel data for risk and vulnerability assessments.

- When designing a survey, work into the first round the ability to find people subsequently by having complete addresses, a complete household roster, and a name list of respondents. The latter does not need to be released for confidentiality reasons, but the ability to track respondents should be ensured.
- If it is not feasible to field a large household surveys (like the LSMS) on a regular basis, consider having a small panel component to understand dynamic issues.
- Because panels typically cover only a few years, retrospective modules can help bridge the gap between survey years.
- If panel data were (fortuitously) collected before and after a shock, use various modules from the earlier period to examine ex ante mechanisms, and from the later period to analyze ex post response. For example, information on diversification, low-risk activities, migration, nonmonetary savings, and

risk-sharing groups provide insights into ex-ante mechanisms, while changes in labor supply, remittances, and informal transfers are ex-post mechanisms.

4. LOCALITY INFORMATION AND DATA FROM CONTEXTUAL METHODS

Locality data collected from community questionnaires and secondary sources provide important information on the household's environment. Locality information can be obtained from a variety of sources: "community questionnaires" on local infrastructure, health and education facilities; administrative sources; market price surveys; archives; rainfall stations; focus groups and key informants detailing local histories; and, where appropriate, other primary data sources such as Demographic and Health Surveys. Data from contextual methods also provide insights into the social and cultural environment of households, and may be extremely useful in examining individual perceptions of risk and vulnerability and sensitive issues that are less suitable for survey-based methods. In cases where the analyst has no other household-level data source but a cross-sectional survey, locality data may be the only source of information on intertemporal variation. Contextual methods can get at people's perceptions of risk and vulnerability, and explore issues that may be less amenable to survey questionnaires, including sensitive issues such as intrahousehold relations, crime, illness, magic, and politics, as well as more "complicated," multidimensional issues such as power relationships, trust, and belief systems. Contextual methods can also be especially useful in drawing up a timeline of shocks and major events affecting the community.

4.1 Community Information

Information collected from "community questionnaires" on local infrastructure, health and education facilities, and market prices are a valuable complement to household surveys in undertaking risk and vulnerability assessments.⁵ Although data from secondary sources (such as administrative data) are also collected at the community level, we use the term "community information" to mean that collected from interviews with key informants and community members, using a structured questionnaire (we discuss

⁵ This section draws heavily on a detailed discussion of the design of community questionnaires in Frankenberg (2000).

secondary data below). In combination with secondary sources, such as administrative data and information collected by government statistical services, community questionnaires are an important source of information on public institutions and interventions that may affect a household's vulnerability to, and ability to cope with, shocks. Over half of LSMS data sets collected before 1997 included community and price questionnaires, covering topics such as demographics, the economy and infrastructure, education, health, agriculture, and the prices of food and nonfood goods (Grosh and Glewwe 2000). A smaller number of surveys also collected facility data. Most existing LSMS data sets contain information on the availability of sanitation facilities, power, water supply and public works such as road and transport networks and, in some cases, irrigation systems, health and education facilities and the distance to travel to them (Frankenberg 2000: 317). By combining data on access to schools or facilities with household-level data, it is possible to produce descriptive statistics on households' access to health care, educational opportunities, and other public services (Example 6). Questions about when facilities opened are also useful, when linked to retrospective data from the household about past behavior. These can be used to relate intracommunity or intrafamily changes in behavior or outcomes over time to changes in access to services.

Community questionnaires can also be used to obtain information about local institutions and norms. For example, land tenure relations are often not codified in areas governed by customary tenure. Using community interviews in Ghana and Sumatra (Quisumbing et al. 2001; Suyanto et al. 2001a), researchers were able to define the strength of property rights attached to different types of land depending on the mode of acquisition based on customary law. Community questionnaires can also yield data on access to informal networks as well as the presence of "safety nets" in times of crises. Finally, community questionnaires can also be designed to obtain a history of local covariate shocks.

Issues and Innovations

Some of the issues surrounding the use of community data have to do with its use in analysis, and others to do with survey design and administration. First, communities with access to infrastructure, health facilities, and schools may well have a number of

Example 6. Shocks and schooling attainment in Guatemala

Stein et al. (2003) present a preliminary examination of determinants of completed grades of schooling amongst adults born in four villages in eastern Guatemala. Recognizing that this attainment would reflect past events such as shocks, they drew on a specially commissioned anthropological study of these villages. This work included discussions with key informants, focus groups as well as a review of records held by the schools in the four villages. These data were used to construct three measures of school quality (whether all six grades of primary schooling were offered; the ratio of teachers to grades taught and the availability of a preschool) and three covariant shocks (whether schools were closed after the 1976 earthquake; a terms-of-trade shock that rendered cash crop production in one village unprofitable; and a positive employment shock—the availability of high-paying wage jobs in a cement factory). Controlling for individual's sex, cohort effects and locality fixed effects, they find that two measures of school quality and all three covariant shocks had statistically significant impacts on the number of grades attained. An analysis that had not used qualitative data would have missed the impact of these shocks completely.

other attributes that contribute to positive outcomes. Unless the analysis controls for these other attributes, the effects of access to facilities will be overstated. Second, measures often tend to be highly collinear. Third, missing data at the individual household, community, or facility level means that analysts can only use a significantly smaller and possibly nonrandom subset of observations. A fourth problem is the potential endogeneity between community characteristics and individual or household-level behavior and outcomes. Governments may place programs in communities where households have certain characteristics, or households may migrate to places where publicly provided infrastructure is present. While these issues are not a disadvantage of community data, analysts need to take them into account.

In designing community questionnaires to be fielded as a complement to a household survey, survey designers may want to take note of the following points:

- Pay special attention to the definition of the “community.” Cluster boundaries may not have any significance to people actually living in the community. Ideally, communities should be defined in accordance with the particular outcome of interest to survey designers and the characteristics of survey clusters. This may be more problematic in urban areas. From a pragmatic point of view, it is helpful to be able to match communities to the units for which administrative data have been collected.

- Key informants at very local levels, and persons who have lived in the community for a longer period of time will be valuable sources of information for building up a history of shocks and events in the community.
- Questions on shocks can be asked at both the household and community level for cross-validation. If shocks are both multiple and covariant, community information can provide the context for individual responses to be interpreted. Questions on public responses to shocks should also be asked at the community level, to capture such responses as public works, local disaster relief schemes, etc.
- When collecting information on public safety nets, go beyond ascertaining their presence or absence; look into the probability of actually receiving support or, conversely, of being excluded from the safety net. For example, community questionnaires on public works programs could ascertain criteria for eligibility as well as explore the possibility that eligible persons may be excluded from the program due to rationing or explicit or implicit forms of social exclusion.
- Community-level indicators can, of course, be constructed from household averages. The usefulness of household averages depends on the size of the geographical area to be characterized, the number of respondents per community, and the degree of heterogeneity across potential sampling units in the area.

4.2 Secondary Sources

Secondary sources of data, such as administrative data, data from rainfall stations, price data from market surveys, and even publicly available data sets such as the Demographic and Health Surveys, can all be used for risk and vulnerability analysis. One advantage of many of these secondary data sources is that, in many countries, they have been collected for several years, although their quality will need to be verified on a case-by-case basis. Indeed, when the analyst only has a single cross-section survey to work with, information from secondary sources will be valuable in capturing intertemporal dimensions of risk. For example, the extent of a weather shock could be

proxied by using the percent deviation of rainfall during the survey year from its long-run trend, or an indicator of rainfall variability could be constructed using the variance of monthly or yearly rainfall.

Issues and Innovations

Administrative data. Some issues that need to be taken into account when using secondary data are (1) the geographic coverage of the data; (2) the age and timing of the data; (3) whether the data have sufficient information with which to construct variables that enable analysis of relevant policy questions; (4) availability of policy or control variables in the data; and (5) measurement error (Frankenberg 2000: 323). The analyst may want to ask the following questions:

- Do the data cover the entire country or specific geographic areas? Even if the country coverage is nationwide, matching secondary data to household data may be difficult if a different geographical coding scheme was used in the secondary data set than the one used in the household survey. Ideally, both data sets should contain the names of the administrative areas about which the data were collected as well as a common set of codes.
- In matching data related to weather and agriculture, pay attention to topography: the presence or absence of mountain ranges may affect rainfall patterns and create microclimates that may not be captured by mean rainfall collected at a rainfall station.
- Are the data too old to be of any use? Are they gathered frequently enough to make a meaningful time series, e.g., of rainfall, possible?
- Do the data have enough information on policy relevant variables? Have they been collected at too high a level of aggregation? Do they report the conditions that actually prevail in a community, or what is supposed to be at a facility?
- Is there information on private institutions, not just public facilities for which administrative data are more readily available?

GIS data. GIS data have much potential for risk and vulnerability assessment, because they enable units of information to be spatially referenced. This would enable better visualization of the spatial distribution of the data, the stratification of sampling, identification of spatial correlates of vulnerability, geographical targeting, and assessment of the local and nonlocal (externality) impacts of some types of shocks (Wood and Rhinehart 2002). However, there are many outstanding issues that need to be recognized when using GIS data. First, most socioeconomic data are not geo-referenced, although newer surveys are beginning to take geographical coordinates at the time of interview. Second, the scale of GIS data is often inappropriate, e.g., 8-20 kilometer grids for NDVI and climate data. Third, their accuracy is usually unstated and often unassessed, such as maps of rainfall surfaces. Most GIS information is also on status or condition, with little on trends and dynamics (e.g., migration, changing rainfall variability), although information on land cover change from satellite and aerial photographs is improving. Thus, most GIS information is relevant to static vulnerability assessments or short-term (current season) risks and interventions. Most GIS data also lack spatial predictive power for most risk variables in a time frame relevant for policy design, with the exception of some aspects of climate change and land cover change. However, the spatial analysis framework can be used to help assess the potential impact of some type of interventions, such as changing land use practices, technologies, and infrastructure.

Many of the suggestions for improving the GIS information system are probably not directly relevant to analysts and survey designers. However, one key recommendation that is very easy to implement is simply to geo-reference socioeconomic data. With handheld GPS units, it is now relatively easy to get latitude and longitude measurements of dwellings and facilities. While these can be used to compute distance to facilities (and, by taking measurements as a sequence of readings, one can get more accurate estimates for distance compared to straight-line distance), the potentially most useful possibility would be the ability to link into digitized maps of the areas in which the survey is being conducted. As more and more data series become digitized and geo-referenced, it will be increasingly possible to address the spatial aspects of risk and vulnerability in both measurement and analysis.

Census and other demographic data. Census data and demographic surveys (such as the Demographic and Health Surveys) are especially valuable for characterizing life-cycle risks. Census data can give an idea of the size of particular age cohorts as well as their geographic distribution. Matching the geographic distribution of the population to, say, rainfall and seismological data could identify population groups that might be most vulnerable to weather and earthquake shocks.

Agricultural census and crop reporting data. Although agricultural censuses are typically collected once every ten years (if at all), such data can be used to generate profiles of cropping patterns throughout the country, which can be used as a proxy for regional crop diversification. If matched with rainfall data, these can identify regions that are ex ante vulnerable to rainfall shocks. If certain regions are devoted to specific export crops, these regions can also be identified as ex ante vulnerable to terms of trade shocks or changes in world market prices.

Nutrition and health surveys. Similar to agricultural census data, nationwide nutrition and health surveys are not conducted frequently. However, they can provide information on regions that are more likely to have high prevalence of malnutrition as well as high incidence of contagious diseases.

4.3 Contextual Information⁶

Many outcomes of interest are not amenable to measurement using standard quantitative survey techniques, particularly when one is interested in processes as much as outcomes. In assessing the likelihood of poverty, for example, one can use “objective” quantitative measures such as the probability of falling below the poverty line. However, since vulnerability, like poverty, is a multidimensional concept, quantitative measures will not necessarily capture “subjective” issues like the effect of vulnerability on behavior and the effect of vulnerability on well-being. Other approaches such as livelihoods analysis and participatory approaches yield rich, contextual data, although doubts can be raised (rightly or wrongly) about their generality and representativeness (Dercon 2001).

⁶ This section draws from Adato and Meinzen-Dick (2002b).

Concerns regarding lack of representativeness can, unfortunately, be used as an excuse to ignore valid findings.

In practice, most survey researchers use some form of qualitative research or contextual method to understand the political, economic, or cultural context in which their surveys are conducted (Chung 2000), ranging from ad hoc efforts (informal conversations with villagers) to more systematic contextual studies conducted in tandem with the survey. Chung (2000) points to three ways in which contextual methods can be used to improve household surveys.⁷ First, contextual methods can be used to produce hypotheses and to shape a survey's conceptual framework. Second, contextual methods can be used to clarify the questions and terms that are used in a survey. Third, contextual methods can be used to explain counterintuitive or inconclusive survey findings.

The emerging consensus is that both survey-based and contextual approaches can be useful for vulnerability analyses. For example, open-ended questions can be used to identify sources of vulnerability, which can then be used to formulate questions in a quantitative survey. They can also be used to explore topics that are less amenable to survey questionnaires, including sensitive issues such as intrahousehold relations, crime, illness, magic, and politics, as well as more “complicated,” multidimensional issues such as power relationships, trust, and belief systems. An example where both survey and contextual approaches were combined is found in the CGIAR study of the impact of modern agricultural technologies (see Example 7). Moreover, by addressing the issue of representativeness head on, it is possible to combine approaches in the same study. Moser (2001), for example, argues that it is possible for research using participatory approaches to be quantified and to make it representative. This would involve careful choice of communities and efforts in post-coding of answers in patterns—for example, the sampling frame used in the household survey could be used to generate the

⁷ Chung's exposition is in terms of “qualitative methods,” but in this toolkit we use “contextual methods” in line with the distinction between qualitative and quantitative data, and contextual versus noncontextual methods.

Example 7. Integrating quantitative and qualitative research in studying vulnerability

In 2000 and 2001, IFPRI researchers—in collaboration with other CGIAR centers—undertook a multicountry study assessing the social impact of new agricultural technologies in Bangladesh, Kenya, Mexico, and Zimbabwe (Adato and Meinzen-Dick 2002a). These studies combined quantitative household surveys, focus groups, key informant interviews, in-depth household case studies, and secondary data. The case studies combined social and economic (as well as some biophysical), qualitative and quantitative, participatory, and conventional (or extractive) data.

All the case studies made use of focus groups to elicit collective experience and opinions. Separate groups were convened for men and women of different wealth/poverty categories. For example, in Bangladesh, six focus groups were held in each selected village (men and women separately for the very poor, poor, and nonpoor categories of households). Preexisting survey data helped in the disaggregation of wealth groupings for the focus groups, particularly in communities where a wealth ranking exercise may be divisive or difficult to carry out (e.g., because of large community size or time limitations that prevent researchers from getting sufficiently acquainted with a community to comfortably carry out such an exercise). Where possible, households that were selected for the surveys were included in the focus groups to improve the comparability of the information obtained by the different sources.

During the focus group meetings, a range of participatory and extractive data collection activities was conducted: seasonality mapping, identification and ranking of livelihood activities and sources of vulnerability, as well as discussions of the technologies being studied and dissemination approaches. In some of the studies (e.g., Kenya, Zimbabwe, and Mexico), focus groups were used following a series of household case studies to further investigate issues raised (including the experiences of households not included in these studies), check whether the findings resonate or contradict, and receive feedback on the research findings. In other studies (especially in Bangladesh), focus groups were the primary means of qualitative data collection, but were followed up with in-depth interviews or case studies of individuals who participated in those groups.

Key informant interviews allowed the research team to follow up in more detail with individuals that have specialized knowledge. This may include researchers from CGIAR and national centers, NGO, community organization, or government project staff, extension agents, local seed distributors and shops, agricultural researchers from the private sector, community elders, chiefs, early adopters, etc. Semi-structured interviews allowed the researchers to go in with a core set of information that they hope to collect, but also to follow up on relevant topics that emerge during the course of the discussion.

In-depth household case studies provided more detail on the complexity of household livelihood strategies, particularly in the Kenya, Zimbabwe, and Mexico cases. Researchers lived in sample villages for three to six months, spending time in the homes of a subsample of the survey households, conducting informal interviews, observing and participating in their daily activities, such as farming, extension field days, and social interactions and activities. Such participant observation can provide insights that are not available from other methods and inform and refine the questions asked in other, more structured, data collection.

In the case of Zimbabwe, for example, ethnographic fieldwork revealed that the vast majority of people perceived vulnerability of crops to be due to magic or witchcraft. For example, yields can be stolen through magic, while high yields are similarly achieved through magic. People are unwilling to show interest in or to observe others' crops (which could be a way of learning from each other) to avoid suspicions of witchcraft. Farmers were unwilling to discuss yields and prices, and discounted scientific explanations. There was also a widespread belief that lent or borrowed animals or implements could be bewitched. The researchers concluded that the perceived vulnerability to magic can inhibit the spread of agricultural technology, since diffusion of new technologies involve experimentation and sharing of lessons learned from the experiment. Moreover, the vulnerability to accusations of magic has implications for the formation of social capital.

subsamples for further study using contextual approaches. In her study of individual, household, and community vulnerability in the context of economic crises, Moser (2001) used three types of data collection methods in the same communities: a random sample survey to collect statistically quantifiable data, a subsample survey using both structured and open-ended questions to collect qualitative data, and a community survey using contextual methods such as participant observation, triangulations, and interviews to collect qualitative community-level data. An example using both survey-based and contextual methods is shown in Example 7.

Drawing from the work of Hentschel (1999) and Moser (2001), we propose some guidelines for using contextual methods in risk and vulnerability assessments:

- Some methods will be better than others in generating particular types of data. Some types of information on risk and vulnerability can be obtained through contextual methods of data collection only. In these instances, strict statistical representativeness will have to give way to inductive conclusion, internal validity, and replicability of results.
- Think of contextual methods and quantitative surveys as part of an iterative process. Contextual methods can be used to design appropriate noncontextual data collection tools. If the contextual study can be conducted prior to the quantitative survey, it can help define terms and categories for the quantitative questionnaire.
- Where information requires survey-based methods, or if the contextual study is conducted after the household survey, contextual methods can play an important role for assessing the validity of the results at the local level, and interpreting the survey results.
- In cases where different data collection methods can be used to probe general results, formal links between the methods can—and need to—be established. For example, preexisting survey data can be used to disaggregate wealth groupings for focus groups, particularly in communities where a wealth ranking exercise may be divisive or difficult to carry out (e.g., because of large community size or time limitations that prevent researchers from getting

sufficiently acquainted with a community to comfortably carry out such an exercise).

- The same sampling frame for the household surveys and contextual methods can also be used if possible. Households included in surveys can be selected for focus groups to improve the comparability of the information obtained through different sources. Group responses tend to provide information on norms, whereas individual answers may reveal deviation from those norms, depending on individual or household circumstances.
- Pay attention to linking different sources of data. Depending on the sequence of data collection, insights from the surveys might be followed up in the focus group or key informant interviews and participant observation, or vice versa.
- Assemble a research team with the proper mix of skills. The team can include an economist, technical scientists, social scientist (a sociologist or anthropologist) with extensive experience in the region, and national economics and social analysis experts who guide the data collection and analysis, and who work with teams of less experienced researchers, engaging in training and capacity building. The field staff require strong analytic and facilitation skills in order to conduct the focus group and household case studies, while the key informant interviews are often conducted by the national or international social or economics experts.

5. CONCLUDING REMARKS

This “toolkit” set out to assist practitioners undertaking vulnerability assessments by identifying data sources, assessing their suitability for risk and vulnerability measurement, and proposing suggestions for data collection to supplement existing sources. Using the “risk chain” as an organizing principle, we mapped data sources into the three stages of the risk chain: (1) risk, or uncertain events; (2) options for managing risk, or risk responses, and (3) the outcome in terms of welfare loss. These data sources included cross-sectional surveys, panel surveys, community information, and secondary sources, as well as LSMS-type household surveys. We then discussed the uses of six

types of data for risk and vulnerability assessments, pointing out their advantages and disadvantages, as well as suggesting innovations in their collection and use. To summarize, these types of data are:

- Single-cross-section (*Section 3.1*)
- Repeated cross-sections (*Section 3.2*)
- Panel data (*Section 3.3*)
- Community information (*Section 4.1*)
- Secondary sources (*Section 4.2*)
- Data from contextual methods (*Section 4.3*)

Because the objectives of each risk and vulnerability assessment will differ, and because the analyst will be faced with different types of data constraints in each particular situation, we offer three very general conclusions:

- Use multiple data sources, but be aware of the advantages and limitations of each source. Each data source will have its own advantages in terms of information content, reliability, and availability. Understanding the features of each data source in relation to information requirements at each stage of the risk chain will help the analyst choose among sources. Always cross-validate information from different sources, and seek expert opinion, especially from in-country experts who know both the data generating infrastructure as well as the country's policy environment.
- Let the question drive the methods and data, not vice versa. The companion document on methods for risk and vulnerability assessment suggests that all vulnerability analyses attempt to do the following: (1) identify the correlates of vulnerability; (2) examine the sources of vulnerability by characterizing risks and shocks faced by the population as well as the distribution of those shocks; and (3) determine the gaps between risks and risk management mechanisms. Using these general guidelines will enable the analyst to identify the data required, and to conduct the analyses, given data constraints.

- Be open to contextual methods to complement analyses using household survey data. Contextual methods can be used at different stages of the risk and vulnerability assessment—whether to produce hypotheses and to shape a survey’s conceptual framework, to clarify the questions and terms that are used in a survey, or to explain counterintuitive or inconclusive survey findings. Using multiple methods may improve validity and relevance of the vulnerability assessment, particularly in cases where panel data are not available and discussions of poverty and vulnerability may be sensitive.

ANNEX 1. MODULES ON RISKS AND SHOCKS

The modules presented in this section are draft modules on risks and shocks that correspond to different recall periods. The first module, patterned after the third round of the Ethiopian Rural Household Survey, collects information on long-term shocks and coping mechanisms but has been modified somewhat to be equally applicable to households residing in urban areas. The second module, which is similar in design to the long-term shocks module, has a recall period of 12 months. In addition, we also provide a module specifically tailored to agricultural shocks that could be inserted into a section of the household questionnaire on agriculture.

As with any survey module, it is vitally important to pretest these questions to ensure that they are appropriate to the country/locality in which they will be used. Many of these questions have been used in one or two surveys, but the module as a whole has been subject to considerably less use than that of many “LSMS” type modules. While we have erred on the side of being exhaustive in what is listed here, survey designers should be aware that their respondents’ time is valuable and that the quality of information collected deteriorates if respondents are requested to participate in an excessively lengthy survey. Good pilot testing should make it possible to reduce the number of questions being asked; further, in some circumstances, it may make sense to move some of the topics listed here to a community-level questionnaire. Also, survey planners may want to consider more carefully how much detail they need on the specifics of shocks. For example, the questions on shocks in the previous 20 years could be made more general, with the more specific questions reserved for shocks in the last 12 months. If survey planners are administering both the long-term and the medium-term shocks module, they may want to qualify that the 20-year recall does not include the past 12 months.

A. MODULE ON LONG-TERM SHOCKS AND COPING MECHANISMS

IN THE LAST 20 YEARS, SINCE (name an event which is a widely known landmark date in the history of the country) has this household been affected by a shock—an event that led to a reduction in your asset holdings, caused your household income to fall or resulted in a significant reduction in consumption? We would like to learn more about the worst shocks in the last 20 years.

NATURE OF SHOCK	SPECIFICS OF SHOCK	CODE	In what years did these shocks occur? (List the three worst shock years, in descending order of severity)	Did these shocks result in: 1. Loss of productive assets 2. Loss of household income 3. Reduction in household consumption 4. Asset & income loss 5. Asset loss & reduced consumption 6. Income loss & reduced consumption 7. Asset, income loss & reduced consumption	How widespread was this shock? 1. Only affected my household 2. Affected some households in this village 3. Affected all households in this village 4. Affected this village and other villages nearby 6. Affected the region 7. Affected the whole country
1. ...has there been a weather or environmental shock?	Drought	100			
	Too much rain or flood	101			
	Earthquake	102			
	Volcanic eruption	103			
	Landslides	104			
	Erosion	105			
	Frost and hailstorm	106			
	Pests or diseases that affected crops before they were harvested	107			
	Pests or diseases that led to storage losses	108			
	Pests or diseases that affected livestock	109			
2. ... has there been war, civil conflict, banditry, crime	Destruction, confiscation or theft of tools or inputs for production	201			
	Theft of cash	202			
	Theft of stored crops	203			
	Destruction or theft of housing	204			
	Destruction or theft of consumer goods	205			
	Death of working adult household members	206			
	Death of other household members	207			
	Disablement of working adult household members	208			
	Disablement of other household members	209			
	Conscription, abduction or draft of working adult household members	210			

NATURE OF SHOCK	SPECIFICS OF SHOCK	CODE	In what years did these shocks occur? (List the three worst shock years, in descending order of severity)	Did these shocks result in: 1. Loss of productive assets 2. Loss of household income 3. Reduction in household consumption 4. Asset & income loss 5. Asset loss & reduced consumption 6. Income loss & reduced consumption 7. Asset, income loss & reduced consumption	How widespread was this shock? 1. Only affected my household 2. Affected some households in this village 3. Affected all households in this village 4. Affected this village and other villages nearby 6. Affected the region 7. Affected the whole country
3. ...have there been negative political, social or legal events?	Confiscation of land	301			
	Confiscation of other assets	302			
	Land reform	303			
	Resettlement, villagization or forced migration	304			
	Bans on migration	305			
	Forced labor	306			
	Forced contributions or arbitrary taxation	307			
	Imprisonment for political reasons	308			
	Disrimination for political reasons	309			
	Disrimination for social or ethnic reasons	310			
	Contract dispute or default affecting access to land	311			
	Contract dispute or default affecting to other inputs	312			
	Contract dispute or default affecting sale of products	313			
4. ... have there been economic shocks	Lack of financing/capital	401			
	Lack of access to inputs	402			
	Increase in input prices	403			
	Decrease in output prices	404			
	Lack of demand or inability to sell agricultural products	405			
	Lack of demand or inability to sell nonagricultural products	406			
	Unemployment	407			

NATURE OF SHOCK	SPECIFICS OF SHOCK	CODE	In what years did these shocks occur? (List the three worst shock years, in descending order of severity)	Did these shocks result in: 1. Loss of productive assets 2. Loss of household income 3. Reduction in household consumption 4. Asset & income loss 5. Asset loss & reduced consumption 6. Income loss & reduced consumption 7. Asset, income loss & reduced consumption	How widespread was this shock? 1. Only affected my household 2. Affected some households in this village 3. Affected all households in this village 4. Affected this village and other villages nearby 6. Affected the region 7. Affected the whole country
5. ...have there been other events or shocks?	Death of husband	501			
	Death of wife	502			
	Other death (Specify _____)	503			
	Illness of husband	504			
	Illness of wife	505			
	Other illness (Specify _____)	506			
	Divorce	507			
	Abandonment	508			
	Disputes with extended family members regarding land	509			
	Disputes with extended family members regarding other assets	510			
6. ... have there been other events or shocks that we have not listed here. (Specify)		601			
		602			
		603			
		604			

Ask the respondent to list the five worst crises from the list above. What did the household do to compensate, resolve or address this loss of assets, loss of income and/or reduction in consumption?

Five most important crises		What did the household do to compensate or resolve this decrease or loss of income and/or inheritance? List the three most important activities in descending order of importance)			How much time did it take to go back to the position you were in before the crisis?	
List the five most important crises from the modules above		Spent savings or investments.....1 Pawned goods.....2 Mortgaged house or land.....3 Cashed in securities.....4 Worked more, if already working..... 5 Other members went to work.....6 Applied for a cash loan from a private bank.....7 Applied for a cash loan from a state bank.....8 Asked for a cash loan from a family member....9 Asked for a cash loan from a friend.....10 Asked for a cash loan from a moneylender ...11 Asked for a cash loan form work.....12 Sold house or land..... 13 Sold animals..... 14 Sold appliances, equipment, machines..... 15 Sold jewelry..... 16 Sold the harvest in advance..... 17 With help from government organizations... 18 With help from private entities..... 19 With help from international entities..... 20 With help from NGOs..... 21 With help from the neighbors or friends 22 Reduce food consumption..... 23 Stop consuming some products or services.... 24 Didn't do anything..... 25 Other, what?.....26			Less than a year.....1 One year to five years....2 Six to 10 years.....3 More than 10 years.....4 Never recovered.....5	
Code	Year					

B. MODULE ON MEDIUM-TERM SHOCKS AND COPING MECHANISMS

NATURE OF SHOCK	SPECIFICS OF SHOCK	CODE	When did these occur?			Did these shocks result in: 1. Loss of productive assets 2. Loss of household income 3. Reduction in household consumption 4. Asset & income loss 5. Asset loss & reduced consumption 6. Income loss & reduced consumption 7. Asset, income loss & reduced consumption	How widespread was this shock? 1. Only affected my household 2. Affected some households in this village 3. Affected all households in this village 4. Affected this village and other villages nearby 6. Affected the region 7. Affected the whole country
			In the last four weeks	Between one month and six months ago	Between six and 12 months ago		
5. ...have there been other events or shocks?	Death of husband	501					
	Death of wife	502					
	Other death (Specify _____)	503					
	Illness of husband	504					
	Illness of wife	505					
	Other illness (Specify _____)	506					
	Divorce	507					
	Abandonment	508					
	Disputes with extended family members regarding land	509					
	Disputes with extended family members regarding other assets	510					
6. ... have there been other events or shocks that we have not listed here. (Specify)		601					
		602					
		603					
		604					

Ask the respondent to list the five worst crises from the list above. What did the household do to compensate, resolve or address this loss of assets, loss of income and/or reduction in consumption?

Five most important crises		What did the household do to compensate or resolve this decrease or loss of income and/or inheritance? List the three most important activities in descending order of importance.			How much time did it take to go back to the position you were in before the crisis?	
List the five most important crises from the modules above		Spent savings or investments.....1 Pawned goods.....2 Mortgaged house or land.....3 Cashed in securities.....4 Worked more, if already working..... 5 Other members went to work.....6 Applied for a cash loan from a private bank.....7 Applied for a cash loan from a state bank.....8 Asked for a cash loan from a family member....9 Asked for a cash loan from a friend.....10 Asked for a cash loan from a moneylender ...11 Asked for a cash loan form work.....12 Sold house or land..... 13 Sold animals..... 14 Sold appliances, equipment, machines..... 15 Sold jewelry..... 16 Sold the harvest in advance..... 17 With help from government organizations... 18 With help from private entities..... 19 With help from international entities..... 20 With help from NGOs..... 21 With help from the neighbors or friends 22 Reduce food consumption..... 23 Stop consuming some products or services.... 24 Didn't do anything..... 25 Other, what?.....26			Less than a month.....1 Between one and six months....2 Between six and 12 months3 Not yet recovered4	
Code	When occurred					

SEASONALITY AND AGRICULTURE-RELATED SHOCKS

Note: This module should be adapted to use the local names for the agricultural seasons.

Please think back to the last main rainy season (or major growing season in _____). We would like to know whether any of the following events happened to you that affected the growth of your crops and the harvest. These questions should be asked to all farmers who harvest during the main rainy season, all farmers who grow permanent crops, and any other farmers for whom these rains can be relevant.

Permanent crop growers should be asked in general about the growing season preceding the last main harvest. If the crop is continuously harvested, ask for a general assessment of the last growing season.

1. Is the main rainy season important for your crops? Yes.....1 Not very important..2 No.....3	2. According to your own plans, did the main rains come on time? On time.....1 Too late.....2 Too early.....3	3. Was there enough rain on your fields at the beginning of the rainy season? Enough.....1 Too much.....2 Too little.....3	4. Did the rains stop on time on your fields? On time.....1 Stopped too late.....2 Stopped too early...3	5. Did it rain near the harvest time? Yes....1 No.....2

Did your crops suffer from any of the following? Yes....1 No.....2

Low temperatures	Wind/storm	Flooding/waterlogging	Plant diseases	Insects	Livestock eating/trampling crops	Weed damage	Other (specify)

Please mention which crops were most affected by the above factors during the last rainy season, and mention whether they were moderately or very badly affected (up to three crops). Give comments if necessary.

Crop affected (crop codes)	Please list the three most important factors in descending order of importance. Low temperatures.....1 Wind/storm.....2 Flooding/waterlogging.....3 Plant diseases.....4 Insects.....5 Livestock eating/trampling crops...6 Weed damage.....7 Other.....8 (specify)	Overall, how badly affected was this crop? Slightly affected1 Moderately.....2 Severely.....3 Totally destroyed...4			Comments

Were any of your crops affected by any of the following in this period? Yes....1 No.....2

Could not obtain draft animals at right time	Farmer or other household workers too ill to work at right time	Could not plant on time	Could not obtain outside labor at right time	Could not obtain other inputs (fertilizer, pesticides) at the right time	No cash to purchase inputs	Other (specify)

REFERENCES

- Adato, M., and R. Meinzen-Dick. 2002a. *Assessing the impact of agricultural research on poverty using the sustainable livelihoods framework*. Food Consumption and Nutrition Division Discussion Paper 128. Washington, D.C.: International Food Policy Research Institute.
- Adato, M., and R. Meinzen-Dick. 2002b. Integrating qualitative and quantitative methods to study vulnerability. Presentation at the IFPRI-World Bank Conference on Risk and Vulnerability: Estimation and policy applications, September 23-24, Washington, D.C.
- Alwang, J., P. B. Siegel, and S. L. Jørgensen. 2001. *Vulnerability: A view from different disciplines*. Social Protection Discussion Paper No. 0115. Washington, D.C.: World Bank.
- Baulch, B., and J. Hoddinott. 2000. Economic mobility and poverty dynamics in developing countries. *Journal of Development Studies* 36 (6): 1-24.
- Behrman, J., and A. Deolalikar. 1988. Health and nutrition. In *Handbook of development economics*, Vol. 3., ed. H. Chenery and T. N. Srinivasan. Amsterdam: North-Holland.
- Booth, D., J. Holland, J. Hentschel, P. Lanjauw, and A Herbert. 1998. *Participation and combined methods in African poverty assessments: Reviewing the agenda*. London: Social Development Division, Department for International Development (DfID).
- Christiaensen, L., and K. Subbarao. 2001. Towards an understanding of vulnerability in rural Kenya. World Bank, Washington, D.C. Photocopy.
- Chung, K. 2000. Using qualitative methods to improve the collection and analysis of data from LSMS household surveys. In *Designing household survey questionnaires for developing countries: Lessons from 10 years of LSMS experience*, ed. M. Grosh and P. Glewwe. Washington, D.C.: World Bank.
- Deaton, A., and M. Grosh. 2000. Consumption. In *Designing household survey questionnaires for developing countries: Lessons from 10 years of LSMS experience*, ed. M. Grosh and P. Glewwe. Washington, D.C.: World Bank.
- Dercon, S. 2001. Assessing vulnerability to poverty. Paper prepared for the Department for International Development, United Kingdom. Manuscript, Oxford University.
- Dercon, S. 2002. Income risk, coping strategies, and safety nets. *World Bank Research Observer* 17 (2): 141-166.

- Dercon, S., and P. Krishnan. 2000. In sickness and in health: Risk-sharing within households in rural Ethiopia. *Journal of Political Economy* 108 (4): 688-727.
- Frankenberg, E. 2000. Community and price data. In *Designing household survey questionnaires for developing countries*, ed. M. Grosh and P. Glewwe. Washington, D.C.: World Bank.
- Friedman, J., and J. Levinsohn. 2002. The distributional impacts of Indonesia's financial crisis on household welfare: A "rapid response" methodology. *World Bank Economic Review* 16 (3): 397-423.
- Glewwe, P., and H. Jacoby. 2000. Recommendations for collecting panel data. In *Designing household survey questionnaires for developing countries*, ed. M. Grosh and P. Glewwe. Washington, D.C.: World Bank.
- Grosh, M., and P. Glewwe. 2000. *Designing household survey questionnaires for developing countries: Lessons from 10 years of LSMS experience*. Washington, D.C.: World Bank.
- Heitzmann, K., R. S. Canagarajah, and P. B. Siegel. 2002. *Guidelines for assessing the sources of risk and vulnerability*. Social Protection Discussion Paper 0218. Washington, D.C.: World Bank.
- Hentschel, J. 1999. Contextuality and data collection methods: A framework and application to health service utilization. *Journal of Development Studies* 35 (4): 64-94.
- Hoddinott, J., and A. Quisumbing. 2003. Methods for microeconomic risk and vulnerability assessments: A review with empirical examples. Manuscript. International Food Policy Research Institute, Washington, D.C.
- Holzmann, R., and S. Jorgensen. 2000. *Social risk management: A new conceptual framework for social protection and beyond*. Social Protection Discussion Paper No. 0006. Washington, D.C.: World Bank.
- Ligon, E., and L. Schechter. 2002. Measuring vulnerability. Manuscript. University of California-Berkeley.
- Malpezzi, S. 2000. Housing. In *Designing household survey questionnaires for developing countries: Lessons from 10 years of LSMS experience*, ed. M. Grosh and P. Glewwe. Washington, D.C.: World Bank.
- Moser, C. 2001. 'Apt illustration' or 'anecdotal information'? Can qualitative data be representative or robust? In *Qualitative and quantitative poverty appraisal: Complementarities, tensions, and the way forward*, ed. R. Kanbur. Contributions to a workshop held at Cornell University, March 15-16, 2001, Ithaca, N.Y. Draft.

- Quisumbing, A. R., K. Otsuka, with S. Suyanto, J. B. Aidoo, and E. Payongayong. 2001. *Land, trees, and women: Evolution of land tenure institutions in western Ghana and Sumatra*. Research Report 121. Washington, D.C.: International Food Policy Research Institute.
- Stein, A., J. Behrman, R. Grajeda, J. Hoddinott, R. Martorell, and M. Ramirez. 2003. Education and health over the life course in Guatemala. Research proposal, Emory University, Atlanta, Georgia.
- Suyanto, S., T. P. Tomich, and K. Otsuka. 2001a. Land tenure and farm management efficiency: The case of paddy and cinnamon production in customary land areas of Sumatra. *Australian Journal of Agricultural and Resource Economics* 45 (3): 411-436.
- Suyanto, S., T. P. Tomich, and K. Otsuka. 2001b. Land tenure and farm management efficiency: The case of smallholder rubber production in customary land areas of Sumatra. *Agroforestry Systems* 52 (2): 145-160.
- Tesliuc, E., and K. Lindert. 2002. *Vulnerability: A quantitative and qualitative assessment*. Guatemala Poverty Assessment Program. Washington, D.C.: World Bank.
- Wood, S., and I. Rhinehart. 2002. Improving data collection for risk assessment: The (potential) role of GIS. Presentation at the IFPRI-World Bank Conference on Risk and Vulnerability: Estimation and Policy Applications, September 23-24, Washington, D.C.

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