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Shocks and Social Protection: Lessons from the Central American Coffee Crisis

(In Two Volumes) Volume I: Synthesis of Findings and Implications for Policy

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ACRONYMS

AGROSEMEX	Mexican Agricultural Reinsurance Company
ANACAFE	National Coffee Association (Asociación Nacional del Café)
BANRURAL	Bank of Rural Development
BASIS	Broadening Access and Strengthening Input Systems
BCN	Banco Central de Nicaragua
BMI	Banco Multisectorial de Inversiones
CAFTA	Central America Free Trade Agreement
CCT	Conditional Cash Transfer
CEPAL	Comisión Económica para América Latina y el Caribe
CETREX	Centro de Trámites de las Exportaciones
ENCOVI	Encuesta Nacional de Condiciones de Vida
FHIS	Fondo Hondureño de Inversión Social
FISDL	Social Investment Fund and Local Development (Fondo de Inversión Social y Desarrollo Local)
FUSADES	Foundation for Economic and Social Development
HDI	Human Development Index
ICO	International Coffee Organization
IDA	International Development Association
IDB	Inter-American Development Bank
IFPRI	International Food Policy Research Institute
INEC	Instituto Nacional de Estadísticas y Censos
LSMS	Living Standards Measurement Survey
MAGFOR	Ministry of Agriculture
MAGFOR	Ministerio de Agricultura y Forestal
MIFIC	Ministerio de Fomento, Industria y Comercio
NAFTA	North American Free Trade Agreement
PRAF	Programa de Asignación Familiar
PROCAMPO	Farmers Direct Support Program (Programa de Apoyo al Campo)
PRODECOOP	Promotora de Desarrollo Cooperativo de las Segovias
RPS	Red de Protección Social
TRQ	Tariff-Rate Quota
USAID	United States Agency for International Development

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Volume I: Synthesis of Findings and Implications for Policy

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PREFACE

This study is part of an ongoing engagement between the World Bank and its counterparts in Central America on social protection, comprising both policy dialogue and operational support to governments to extend basic services to their poorest inhabitants and to protect the most vulnerable from the most deleterious impacts of shocks. The report was undertaken in response to requests from several Central American governments for support in understanding the welfare impacts of the coffee crisis – an unprecedented decline in world coffee prices that occurred between 1997/98 and 2001/02 – and its broader lessons for public policy.

Work on the coffee crisis began in April 2002, when the World Bank, along with the Inter-American Development Bank (IDB), and USAID, sponsored a regional workshop in Antigua, Guatemala, to assess the situation and identify possible lines of action. In preparation for the workshop, the donors produced a joint assessment, “Managing the Competitive Transition of the Coffee Sector in Central America,” which identified several areas for action, focusing largely on production-side issues. In follow-up, a World Bank team also produced a more in-depth study, “Dealing with the Coffee Crisis in Central America: Impacts and Strategies,” which also provided a preliminary assessment of the crisis’s social impact. All these efforts, however, highlighted the need to understand better the social impacts of the crisis and to identify avenues for effective government action in response.

In this context, a major objective of this report is to provide a deeper, more policy relevant understanding of the welfare impacts of the coffee crisis – including the effects of the crisis on household income, consumption, poverty, as well as on basic human development outcomes, such as education and child nutrition. To do this, the study has generated a body of new empirical evidence, drawing from an unusually rich collection of household survey data from El Salvador, Guatemala, Honduras, and Nicaragua. This includes “panels” of data from Nicaragua, El Salvador, and Honduras that enable one to track changes in welfare of the same households over the period of the crisis. This has helped to provide a more detailed, clearer understanding of the crisis than has been available to date.

Given the prevalence of both natural and economic shocks in Central America, another key objective of the study is to draw out the broader policy lessons of the coffee crisis – to enhance the abilities of the region’s governments to respond to a range of shocks in a timely and effective manner. To do this, the report draws not only on evidence specific to the coffee crisis, but to other recent analysis on the role and efficacy of different safety net programs in the face of different types of shocks. By learning the lessons of recent experience, Central American governments, along with their development partners, can be better prepared to deal with a variety of different shocks in the future.

In pursuing its objectives, the report has been organized into two volumes. Volume I presents a synthesis of the key findings and policy implications, focusing both on the impacts of the coffee crisis, specifically, and the lessons for government responses to shocks, more generally. Volume II goes into more detail on the specific impacts of the coffee crisis, presenting the collection of background studies commissioned for this report. These background papers provide rich analytical detail on each of the four study countries for readers who are interested in a more in-depth assessment of country-level impacts, the unique data sets underlying the analyses, and the methodologies underpinning the analytical work summarized in Volume I.

Shocks and Social Protection: Lessons from the Central American Coffee Crisis

EXECUTIVE SUMMARY

Background

A region vulnerable to natural disasters and economic shocks—

Central America is a shock-prone region. Since the mid-1990s, the countries of Central America have experienced a number of natural shocks, including Hurricane Mitch (1998), earthquakes (El Salvador, 2001), and a series of seasonal droughts and floods (often associated with El Niño and La Niña). As small open economies, the Central America countries are also open to a variety of economic shocks, whether in the form of external terms-of-trade shocks (e.g., declining coffee prices, rising oil prices) or more generalized slowdowns in the U.S. and global economies.

—including a sharp decline in coffee prices between 1997 and 2001—

Among the most important economic shocks to hit Central America recently was the “coffee crisis” – a sharp decline in world coffee prices between 1997 and 2001 which had important impacts on the region’s economies, and on the families who depend on coffee-sector income. The crisis reflected, in part, an ongoing structural change in the world coffee market; entry into the market of several new producers (e.g., Vietnam) and dramatic production growth in other parts of Latin America (e.g., in Brazil) contributed significantly to lower world coffee prices. At the same time, prices reflected considerable year-to-year volatility in the coffee market – the result of inelastic world demand coupled with periodic supply shocks (e.g., due to weather). By 2001, these combined factors had brought real coffee prices to their lowest levels in more than 50 years.

—although the coffee crisis had little effect on other sectors

The coffee crisis had several important impacts on the main coffee producing countries of Central America – Guatemala, Nicaragua, Honduras, El Salvador, and Costa Rica. Between 1999 and 2001, export earnings from coffee declined by 45 percent in Central America as a whole, while demand for permanent and seasonal labor in the coffee sector was estimated to have declined by about one-quarter. Despite these magnitudes, the crisis did not appear to have had significant spill-over effects into other sectors of the Central American economies. Indeed, annual economic growth in the region continued to average about 4 percent during the crisis period. This growth had an important influence on the nature of the crisis impacts, as well as on how coffee sector households worked to protect themselves from the worst effects of the crisis.

Initial assessments of the impacts of the crisis were based on relatively aggregated data

While world coffee prices have since rebounded somewhat, the dramatic price decline associated with the crisis was a cause of great concern throughout the Central American region. Several early assessments of the coffee crisis raised serious concerns about the poverty and social impacts of the crisis – especially related to the apparently large declines in the demand for permanent and seasonal labor in the coffee sector. Yet, these early assessments were based largely on aggregate firm and industry-level data. Little information or analysis existed on the household-level welfare impacts of the crisis, making it difficult to know what types of government responses would be most effective in assisting those most affected by the crisis.

Objectives of the Report

Analysis of household data has improved our understanding of the crisis impacts—

The report was undertaken in response to requests from several Central American governments for assistance in understanding the welfare impacts of the coffee crisis, as well as its broader lessons for public responses to shocks. One main objective of this report is thus to develop a deeper, policy relevant understanding of the impacts of the coffee crisis – on household income and consumption, on poverty, and on basic human development outcomes, such as education and nutrition. To do this, the study has built up a body of new empirical evidence, drawing from an unusually rich collection of household surveys from El Salvador, Guatemala, Honduras, and Nicaragua. This includes panel data sets from Nicaragua, El Salvador, and Honduras that enable analysts to track welfare changes in the same households over the crisis period. This has resulted in a clearer, more detailed understanding of the crisis than had been available previously.

—and will enable us to develop more effective policy responses

Given the prevalence of shocks in Central America, a second main objective of the study is to draw out the broader policy lessons of the crisis – to enhance the abilities of the region’s governments to respond to shocks in a timely and effective manner. To do this, the report draws not only on evidence specific to the coffee crisis, but to other recent analysis of the role and efficacy of different safety net programs in the face of different types of shocks. By learning the lessons of recent experience, Central American governments, along with their development partners, can be better prepared to deal with a variety of different shocks in the future.

The Case of the Coffee Crisis – Key Insights

The new analysis of the coffee crisis has generated several important insights – on the welfare impacts of the crisis, on households’ strategies and capacity to manage risk, and on the efficacy of government responses to the shock.

Impacts of the coffee crisis. Analysis of data from Nicaragua, El Salvador, Honduras, and Guatemala paints a consistent picture of the impacts of the crisis. Although there are some country-specific differences, the coffee crisis has had significant negative impacts on smallholder coffee farm households throughout Central America – on their per capita income and consumption, on poverty, and on their children’s education and nutritional status.

Small-scale farmers in the coffee sector were affected more than workers

While the broad areas of impact are not surprising, there are some important differences between the actual effects of the crisis and what observers had initially expected. Early assessments of the crisis suggested that the most devastating effects of the crisis were occurring through the large-scale loss of employment by (often landless) laborers in the coffee sector. In fact, although coffee labor households are consistently among the poorest groups in rural areas, *small-scale, self-employed coffee farmers were unambiguously the hardest hit by crisis*. Moreover, these farmers were affected mostly through the effect of the price decline, rather than through the loss of employment.

Coffee sector workers *did* experience some increase in unemployment as a result of the crisis. Nonetheless, in the face of continued economic growth in Central America and expanding economic opportunities outside the coffee sector, labor households seem to have been able to shield themselves from many of the negative effects of the crisis – by shifting into non-agricultural activities and increasing the labor effort and earnings by other household members.

Household risk management strategies. Coffee sector households in all four countries used a variety of *ex-ante* and *ex-post* strategies in efforts to prevent, mitigate, or cope with the effects of the crisis. This involved efforts to diversify household income sources (including exiting the coffee sector all together), migration and remittances, increasing family labor supply, sale of household assets, and/or reliance on informal “insurance” (or “mutual help”) networks.

It is better to prepare for potential risks, ex-ante, than to react to their impacts, ex-post—

Households that were better prepared for shocks *ex-ante* – e.g., with higher levels of education, more diversified incomes, or existing sources of remittance income – generally did better in protecting themselves from the effects of the crisis than those who simply coped with the problem, *ex-post*. Nonetheless, coffee sector households were generally only partially able to “insure” themselves against the effects of the crisis. This suggests that need for efforts to strengthen and/or supplement households’ own efforts to deal with risk.

—as some ex-post strategies can have negative long-run consequences

Moreover, while several of the strategies households used can be considered “appropriate” ways to manage economic risk, others have potentially harmful long-term effects on household productivity and welfare. In Nicaragua and Honduras, for example, coffee households commonly withdrew their children from school and put them to work, as part of their efforts to maintain and protect family incomes. These negative effects on schooling – coupled with the adverse nutritional effects of the crisis – raise serious concerns about the long-term effects on children’s human capital, including potentially *irreversible* impacts on children’s future economic productivity and welfare. Such effects on children’s human capital increase the risk of poverty being passed on from one generation to another.

Regional government responses. In light of significant welfare impacts of the crisis – and the fact that even a short-term shock could have negative long-term effects on household welfare and productivity – there was a strong rationale for government interventions to strengthen households’ own risk management efforts and to mitigate the impacts of the crisis.

Against this background, initial government responses focused largely on debt restructuring for (mostly large and medium sized) coffee producers. Although some governments in the region subsequently implemented small-scale “workfare” (e.g., food-for-work, cash-for-work) programs to address some of the employment effects of the crisis, only a relatively small percentage of the crisis-response resources went toward safety net type interventions. This raises concerns about the impact of regional governments’ actions and potentially important gaps in their responses.

An initial focus on debt may not have been appropriate—

First, regional governments’ focus on debt restructuring in the face of the large structural changes occurring in the world coffee market raises questions about whether the incentives created by such programs were appropriate. While the focus on debt may have reflected, in part, a concern about the broader economic impacts of a crisis in the coffee sector, it is possible that debt relief also served to delay the exit of coffee producers who will not be competitive in the long-run, in the face of the changing nature of the world market. This may just defer the need for further sector adjustments – and set the stage for additional “crises” – in the future.

—and other policies may have been poorly targeted

Second, review of the main government responses to the crisis raises questions about the adequacy of the response to the human dimensions of the crisis. On one hand, the analysis suggests that the government responses were regressive; the vast majority of resources benefited large- and medium-scale producers, as opposed to small-scale farmers or laborers. On the other

hand, the workfare programs that were implemented appear to have had little impact on small-scale, self-employed coffee farmers who have experienced the most serious poverty and welfare impacts of the crisis. Together, the analysis suggests considerable scope for strengthening government support to adversely affected groups in the face of a shock.

Lessons from the Coffee Crisis – Elements of a Strategy to Deal with Shocks

The long- and short-run dimensions of the coffee crisis suggest the need for an approach that both facilitates people's economic mobility, *ex-ante*, and strengthens households' abilities to manage risk and shocks, both *ex-ante* and *ex-post*. In this context, the evidence argues for an integrated, multi-level approach that includes efforts to:

- Ensure macroeconomic stability and growth
- Broaden and strengthen people's ability to manage risk *ex-ante* through
 - investments in people's long-run economic mobility, and
 - development of more effective insurance and market-based risk management mechanisms
- Develop appropriate, well-targeted safety nets, and
- Strengthen data, information, and monitoring systems

Ensuring macroeconomic stability and growth

The evidence suggests there are high returns to prudent macroeconomic policies that facilitate growth. Stable macroeconomic environments, coupled with flexible labor markets, can help to soften the blow of an economic shock, and facilitate households' adjustment to changing circumstances. Indeed, these factors along with moderate growth environments in Nicaragua and El Salvador appear to have enabled coffee laborers to find alternative sources of income – something that would not have been possible in unstable or stagnant economies.

Strengthening ex-ante risk management instruments

Households that engaged in risk management investments and strategies, *ex-ante*, did better in mitigating the impacts of the coffee crisis than those that did not. Another key element of a country's strategy to strengthen its risk management capacity is thus to strengthen people's ability to manage risk *ex-ante*. This includes both *investments to enhance people's economic mobility* and the development of *more effective insurance – and other market-based risk management – mechanisms*. Indeed such investments, along with suitable *ex-ante* risk management instruments, can also help to reduce the pressure to introduce measures, such as debt relief, that can create perverse incentives *ex-post*.

- ***Key measures to strengthen people's long-run economic mobility include:***
 - Investments in ***education*** to promote greater mobility, adaptability to changing economic circumstances
 - Deepening of ***rural financial markets*** to break liquidity constraints to enterprise development
 - Investments in ***road and transportation infrastructure*** to increase people's access to labor and product markets, reduce transactions costs, and raise enterprise profitability

- Improving *information*, for example, on prices, trends, and changing market circumstances improves the environment for investments and economic planning among individuals, households, and firms.

It is worth noting that these measures coincide quite closely with the core elements of the “Complementary Agenda” set forth in a forthcoming study by the World Bank on strengthening countries’ abilities to benefit from the Central America Free Trade Agreement (CAFTA). Indeed, they operate through many of the same channels, enabling people to adapt more effectively to changing economic circumstances.

- ***Insurance and other market-based risk management mechanisms***

- In the case of shocks to internationally traded commodities, such as coffee, maize, soybeans, sugar, wheat, and some livestock, market-based risk instruments like *futures or options markets* can play an important role as an integrated risk management tool-kit. While these instruments have long been available to large-scale producers, pilot efforts by the World Bank are currently underway in El Salvador and Nicaragua to explore practical ways to provide access to these risk markets to smallholder farmers.
- Emerging “index insurance” instruments, such as *area-yield and/or weather-based insurance*, may also hold promise for helping farmers deal with natural or economic shocks in agriculture (while reducing the problems of “moral hazard” and “adverse selection” associated with traditional crop insurance). Ongoing applications of weather-based insurance in Canada, Mexico, and Argentina may provide valuable lessons for future use in Central America.

Developing an effective safety net for shocks

Even with strong *ex-ante* investments and risk management instruments, households may still require additional support following a shock. As such, the development of a flexible safety net is a critical element of a country’s response to shocks. Several principles stand out:

- Developing an effective safety net response to shocks requires *pre-shock preparedness* for various contingencies, including which institutions and types of programs might play the most effective roles in the face of different shocks.
- Ensuring that a program is *well-targeted* to affected groups is important to assuring program impact, particularly in Central America where governments face tight fiscal constraints. In addition to increasing the efficiency of interventions, targeting can also serve to minimize the risk of perverse work incentives to non shock-affected populations.
- Developing the *capacity for counter-cyclical financing and implementation* is also important to ensuring impacts, establishing appropriate incentives, and using fiscal resources effectively and efficiently. Developing counter-cyclical mechanisms requires governments to develop the fiscal discipline and a reliable financing mechanism that can take effect in the face of a shock.
- It also requires that governments consider prior to a shock *eligibility rules and exit strategies* (such as time-limited eligibility) to ensure that participants exit from the program once the shock-related need has passed.
- Cross-country experience also suggests that responses to shocks are most effective – and easiest to scale up and down in the face of changing circumstances – if they *build on existing program and institutional capacity prior to the shock*.

- Finally, designing *flexibility* into a country's response mechanisms is paramount. This includes developing contingency procedures into existing social assistance institutions and programs, procedures that will enable agencies to respond quickly and appropriately once the specific nature of the shock and its impacts have been determined.

Which specific program is most effective depends on the circumstances

Several types of programs implemented recently in Latin America have – or could be – used to address shocks. Recent experience suggests that different programs have different strengths, however, depending on the nature of the shock and of affected groups. Different safety nets also pose different administrative and implementation challenges. Specifically:

- ***Workfare programs*** (food-for-work, cash-for-work) are best suited to address employment shocks, where the opportunity cost of participating is low among affected groups. Workfare programs are relatively simple to administer and, if well-designed, can be self-targeting. The ability to make workfare programs self-targeting, however, depends on whether the regulatory environment allows authorities to set program wages below the prevailing market wage, so as to attract only those who are truly in need.
- ***Decoupled income support***, transfer programs in which payments are de-linked from current (or future) prices or production to minimize economic distortions, are better suited to dealing with price and income shocks faced by rural producers – e.g., from trade reform or other terms-of-trade shocks. Decoupled transfers are more complex to administer than workfare programs. This is due, in part, to the need to identify affected producers and verify their eligibility which, historically, has relied on good cadastral and/or land-use records.
- ***Conditional cash transfers (CCTs)*** provide cash payments to families conditional on their making specified investments in children's human capital. While traditionally CCTs have focused on reducing structural poverty through investments in human capital, new evidence indicates that they are also effective in protecting families against price and income shocks, as well as against adverse effects on children's education and nutrition. CCTs are relatively complex to administer, however, requiring both the capacity to target eligible groups and to monitor their compliance with program conditions.
- ***Temporary fee waivers for school and healthcare services*** can be used specifically to address the effects of shocks on people's human capital. By administering benefits through local service providers, this approach uses a relatively straightforward targeting mechanism, although its effectiveness depends on local institutional capacity. Programs based at schools and healthcare facilities are most effective when the shock has a strong geographic dimension and when the impacts on human capital of an income or employment shock are strong.

Strengthening data, information, and monitoring systems

The differences between observers' initial expectations about the coffee crisis impacts and its actual impacts highlight the importance of establishing data and surveillance systems to understand both the nature of the crisis, and the key characteristics of affected groups. In the case of Nicaragua, for example, the workfare programs implemented by the government were probably less effective than desired, as they were better suited to assist newly unemployed laborers than to farmers who faced a dramatic decline in the value of their product. In contrast, based on evaluation of the *Red de Protección Social*, which addressed both the income and human capital dimensions of the crisis, some kind of conditional or unconditional transfer program might have been more effective. Better information on impacted groups earlier on, as

well as explicit monitoring of program impacts, may have facilitated the fielding of more appropriate programs with greater impact.

No one size fits all

Finally, it is important to note that in spite of the similarities of coffee crisis impacts across the four study countries, the most effective responses likely differ across the countries, given differences in the structures of the coffee sector, different geographic distributions of the shock, differences in existing programs, institutions and institutional capacity, and so on. This reinforces the need for good forward planning and information in ensuring effective responses to shocks.

1. Introduction: Shocks and Social Protection in Central America

1.1 Central America is a shock-prone region. Since the mid-1990s, the countries of Central America have experienced a number of natural shocks, including Hurricane Mitch (1998), earthquakes (El Salvador, 2001), and a series of seasonal droughts and floods (often associated with El Niño and La Niña); as small open economies, the Central America countries are also open to a variety of economic shocks, whether in the form of external terms-of-trade shocks, like the recent “coffee crisis,” policy-induced terms of trade changes, like those expected from the Central America Free Trade Agreement, CAFTA¹), or more generalized slowdowns in the U.S. and global economies.

1.2 This report is about the impact of shocks on people’s welfare in Central America and about public responses to shocks. Whether natural disasters or economic events, shocks can have traumatic effects on people’s well-being in the form of reduced income and consumption and increased poverty. Income and consumption shocks often generate secondary effects on children’s nutrition, health, and access to schooling. Even ostensibly short-term shocks can thus have long-term impacts on family well-being, productivity, and economic prospects. For families that are already poor, such impacts could mean the difference between exiting or remaining in poverty for yet one more generation. Well-designed and timely public actions to help families deal with shocks can thus be critical not only to determining how shocks affect people’s well-being in the short-term, but the extent to which they have detrimental long-term impacts.

1.3 This report focuses on shocks and social protection policy in Central America, focusing on the recent coffee crisis – a sharp decline in the world coffee price in the late 1990s and early 2000s – as a case study. The report brings new empirical evidence on the welfare impacts of the coffee crisis in four Central American countries – El Salvador, Guatemala, Honduras, and Nicaragua. Based on the insights from this analysis, along with other recent evidence on shocks and social protection in the region, the report then draws lessons for the region’s governments (and donors) on how to develop effective public strategies to address future shocks.

Shocks in the Central American Context

Central American households are exposed to a wide variety of shocks—

1.4 A recent household survey from Guatemala (ENCOVI 2000) sheds light on the prevalence of shocks in Central America. In 2000, over half of all households – 53 percent – reported experiencing one or more shocks. Nearly a quarter (23 percent) reported being hit by a natural shock in the past year, 17 percent reported having experienced a “man-made” – or economic – shock, and 13 percent reported having experienced both types of shocks.² The most common types of shocks reported were agriculture-related – pest infestations and harvest losses; other commonly reported shocks included job loss, drought, and worsening terms-of-trade. Moreover, the majority of households reporting shocks in 2000 were hit by more than one. A quarter reported having experienced two shocks that year, while another 25 percent reported three or more shocks. While the reported incidence of natural shocks was somewhat greater for the

¹ The recently negotiated Central America Free Trade Agreement (CAFTA) represents an important growth and development opportunity for the Central American countries. Nonetheless, there are concerns about how well certain rural households will be able to deal with changing terms of trade in agriculture associated with the liberalization of trade in so-called “sensitive” agricultural commodities, such as maize, beans, dairy, beef, and poultry.

² Guatemala Poverty Assessment, World Bank, 2004.

poor than for the non-poor, the incidence of multiple shocks was similar across poor and non-poor groups.

—including natural disasters—

1.5 The impacts of several recent large *natural shocks* in Central America have been significant. For example, in late-October, 1998, *Hurricane Mitch* hit Honduras, Nicaragua, and to a lesser extent, El Salvador and Guatemala.

- In Honduras, the storm – which followed three weeks of rain that had already soaked the countryside – pounded the country for three days. Torrential winds, floodwaters, and mudslides destroyed villages, shattered social and economic infrastructure, paralyzed production, and left up to three feet of mud and debris throughout the country. Communities cut off from economic activity and from basic services faced immediate health concerns and security risks. Some 6,000 people died, 8,000 were missing, 13,000 were wounded, and more than a million were homeless.³
- In Nicaragua, as many as 3,000 people also died and over 850,000 were displaced by the storm. Although Mitch did not appear to have a major effect on Nicaragua's poverty situation at the national level, the hurricane did have a short-term negative effect on poverty in the country's Central rural region, due to Mitch's impact on agriculture and to the region's relatively difficult accessibility and high levels of vulnerability.⁴

1.6 In January and February, 2001, *two powerful earthquakes* hit El Salvador, resulting in over 1,000 casualties and leaving more than 300,000 families homeless. As many as 85 percent of rural households in the main earthquake-affected areas experienced some damage to their homes and as much as 40 percent of households in affected areas experienced damage severe enough to make their homes uninhabitable.⁵ Although the earthquakes did not result in an increase in income poverty at the national level, they did have important short-term impacts in those localities hardest hit by the quakes. About 3 percent of the population in the most affected departments fell into poverty following the earthquakes.⁶ Moreover, the earthquakes adversely affected basic education outcomes in the most-affected areas, where nearly 4 percent of children left school, at least temporarily.

—to which the poor are often the most vulnerable—

1.7 Although the geographic location of a natural shock determines in large part who is affected and how, several factors lead to particularly high risks among the poor who are affected. For example, the poor are more likely to live on marginal lands or in high risk geographic areas that are vulnerable to secondary impacts, such as mudslides; and they are more likely to reside in low-quality housing which can collapse during earthquake or other extreme weather events.⁷ Poor households also tend to have fewer savings and liquid assets than the non-poor, meaning that they tend to have fewer "instruments" with which they can manage risks or cope with the impacts of a shock. Further, destruction of infrastructure during a natural disaster – e.g., rural roads used by smallholder farmers to sell their production – may particularly affect poor households' access to markets and, thus, their abilities to bounce back after an event.

³ Warren (2003).

⁴ Nicaragua Poverty Assessment, World Bank, 2001.

⁵ Beneke de Sanfeliu and Shi, 2004.

⁶ El Salvador Poverty Assessment, World Bank, 2004.

⁷ Klugman, Kruger, and Withers (2004)

1.8 While recent natural disasters have had high human tolls, several recent World Bank studies suggest that the impacts could have been worse – and longer lasting – in the absence of timely responses by the region’s governments and by the international community.⁸ In Nicaragua, for example, post-Mitch reconstruction and investment spending, supported by large in-flows of donor resources, played an important role in offsetting the potential negative impacts of the hurricane on household income and consumption. Moreover, quick mobilization of resources and programmatic responses by existing institutions, such as the Honduras Social Investment Fund (FHIS) and the Social Investment Fund for Local Development (FISDL) in El Salvador, enabled quick and effective relief and rehabilitation activities that helped to mitigate the most serious impacts of Mitch and the 2001 earthquakes, respectively. Indeed, evidence from Nicaragua and El Salvador suggest that the resources and activities contributed not only to the short-term recovery, but to improved poverty and social indicators in affected areas. The experience in Central America is broadly consistent with a body of international evidence on shocks and the role of social protection (Box 1.1).

Box 1.1: Shocks, Household “Self-Insurance”, and the Role of Social Protection

People in Central America face a number of risks. Some risks, such as economic recessions, hurricanes, earthquakes, drought or floods can affect entire societies or, at least, large portions of the population. These are commonly referred to as “covariate” or “aggregate” risks. Other risks, such as the illness of family members or loss of a household breadwinner’s job may affect only individual households or families. These are commonly referred to as “idiosyncratic” risks.

In the face of such risks – and in the absence of adequate insurance markets – households generally adopt a range of private, informal risk management strategies. Common strategies include diversification of income sources, sale of assets, migration and remittances, and sending additional family members – including often school-aged children – into the workforce. A growing body of international evidence indicates that households are only partially successful in “insuring” themselves against risk and the impacts of shocks, however.

Indeed, recent evidence from several Latin American countries, including Mexico, Nicaragua, and Peru, suggests that households in these countries are able to protect (or insure) only between 60 and 75 percent of their per capita consumption in the face of an income shock. In other words, a 10 percent shock to a household’s per capita income translates on average into 2.5-4 percent decline in their per capita consumption.

The evidence also indicates that poor households are often less able to “smooth” their consumption in the face of shocks than non-poor households. A recent study of income dynamics in rural El Salvador indicates, for example, that poor households take considerably longer to recover from an income shock than non-poor households. Evidence from rural China also indicates that income shocks have deeper impacts on poor households. While an income shock of 10 percent had only a one percent impact on the consumption of the wealthiest households, it caused a 4 percent decline in consumption among the poorest households.

While social protection responses to shocks – especially those targeted to the poor – may be justified on welfare grounds, recent evidence suggests that there can also be important efficiency reasons. Indeed, recent studies suggest that *too much uninsured risk has significant costs to growth and poverty reduction*, as the poor continue to invest in safe, but low-productivity activities within and outside agriculture. Such low-risk, low-return investments can serve to perpetuate low productivity and, thus, low living standards among the poor.

⁸ World Bank (2001), World Bank (2003), *SPpectrum* (2003), World Bank (2004).

For both efficiency and household welfare-related reasons, therefore, there are rationale for governments to engage in efforts to assist households and individuals in managing risks and shocks.

Sources: Glewwe and Hall 1998, Jalan and Ravallion 1999, Klugman, Kruger, and Withers 2003, Ravallion 2002, Rodriguez-Meza and Gonzalez-Vega 2004, Skoufias 2002, *SPpectrum* 2003. For more information on recent studies on household consumption smoothing and self-insurance, see Annex 1.

—and economic shocks, whether caused by external factors or domestic policy

1.9 *Economic shocks* are also an integral part of the Central American landscape. While Central America's macro-economic situation is relatively stable, countries are exposed both to external and policy-induced terms of trade shocks. In the context of policy, Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua – along with the Dominican Republic – recently completed negotiations on a Free Trade Agreement with the United States. Although the vast majority of Central Americans are expected to benefit from the Agreement, known as CAFTA, there are specific sub-populations – e.g., *net* producers of agricultural staple crops – who, in the absence of specific policy measures, would be exposed to adverse terms-of-trade changes.⁹ While CAFTA includes provisions to phase out tariffs and quotas gradually on agricultural staples, providing an extended adjustment period to affected farmers, new empirical analysis of the likely impacts of CAFTA finds that nearly 20 percent of rural households in Nicaragua and 25 percent of rural households in Guatemala could experience negative income effects, if the negotiated safety net provisions (or alternative mitigating measures) are not implemented. As with natural shocks, the risk of experiencing negative impacts tends to be higher among the poor than the non-poor.¹⁰

The coffee crisis, a steep decline in world coffee prices, was particularly noteworthy

1.10 Among the most important *external economic shocks* to affect the region recently has been the “*coffee crisis*” – a sharp decline in world coffee prices – that has had important impacts on the region's families who depend on coffee-sector income. Indeed, structural changes in the world coffee market have significantly affected the coffee sectors in Guatemala, Nicaragua, Honduras, El Salvador, and Costa Rica. The recent entry of several new producers (most notably Vietnam), as well as dramatic production growth in other parts of Latin American (most notably Brazil), led to unusually steep declines in international coffee prices during the late 1990s. By 2001, these forces helped push real coffee prices to their lowest levels in more than 50 years, well below long-term trend levels. Coffee prices even fell below the average cost of production in several producing countries.

1.11 World coffee prices have since rebounded somewhat (due in part to weather-related shocks in Vietnam). Nonetheless, the precipitous drop in coffee prices between 1997 and 2001 was a cause of great concern throughout Central America. Several early assessments of the coffee crisis raised serious concerns about the poverty and social impacts of the crisis – especially related to apparently large declines in the demand for permanent and seasonal labor in the coffee sector following the coffee price declines. These assessments were based largely on aggregate, coffee industry data. And while such information was instructive, it did not enable a detailed understanding of how the crisis affected the well-being of coffee sector families; nor did it provide sufficient information to facilitate the most appropriate and effective policy responses.

⁹ “Net producers” are defined as households that produce more of a given commodity than they consume, i.e., they sell at least some of their production into the market. In the absence of mitigating measures, net producers of agricultural staples slated to be liberalized under CAFTA would stand to lose from the expected fall in the domestic prices of those goods.

¹⁰ Mason (2005).

Objectives of the Study

Analyzing the impacts of the coffee crisis—

1.12 This report was commissioned in response to requests from several Central American governments to better understand the impacts of the coffee crisis on household income and consumption, poverty, and several key related outcomes, such as child education and nutrition. To that end, much of the remainder of this report focuses on the case of the coffee crisis in four coffee-producing countries in Central America – El Salvador, Guatemala, Honduras, and Nicaragua – both to understand its impacts on the people’s well-being *and* its lessons for public actions with respect to shocks.

—and drawing lessons for public responses to shocks

1.13 The objective of this study extends beyond simply understanding the impacts of the coffee crisis or its lessons for future coffee price shocks, however.¹¹ Rather, based on the findings of the empirical work commissioned for this report, as well as other recent evidence on shocks and social protection, the objective of this report is to present the broader lessons for Central America regarding shocks and social protection. This study is thus intended to support Central America’s policymakers, as well as their development partners, in strengthening their ability to address future shocks, whether within or outside the coffee sector. By learning the lessons from the coffee crisis, as well as from other recent shocks, the region’s policymakers can be better prepared to protect their citizens from the most serious and long-lasting effects of adverse economic or natural events.

Data and Analysis

The report brings together evidence from several newly commissioned studies

1.14 To achieve its objectives, this report draws on several newly commissioned studies of household panel surveys, on the efficacy of government responses to the crisis, and on the role of existing safety net programs in helping to mitigate the crisis impacts. The new empirical evidence presented here draws on an unusually rich collection of panel data from Nicaragua, El Salvador, and Honduras, as well as on a detailed cross-section of household survey data from Guatemala (Table 1.1). The report also draws on several recent World Bank Poverty Assessments and related studies on shocks, safety nets, and social protection policy in the Latin America region.

Table 1.1: Data and Analyses Undertaken for this Report

Country	Data/Analyses
Nicaragua	<ul style="list-style-type: none">- Living Standards Measurement Surveys (LSMS), a panel of the same households in 1998 and 2001, just before the outset and in the midst of the crisis; analysis of crisis impacts on household welfare and household risk management strategies- International Food Policy Research Institute (IFPRI) panel data from 2000, 2001, 2002; collected to evaluate the households impacts of the <i>Red de Protección Social</i> (RPS), a Nicaraguan safety net program; analysis of the impacts of the RPS in mitigating the impacts of the coffee.
El Salvador	<ul style="list-style-type: none">- BASIS Rural Household Income Surveys, collected by FUSADES in collaboration with Ohio State University; panel data following the same

¹¹ As will be discussed in Chapter 2, the international coffee market is characterized by high price volatility as well as by the long-term secular decline in coffee prices. As such, periodic “coffee crisis” are a predictable part of the world coffee economy. The lessons of this report should thus provide useful guidance for dealing with this eventuality.

	rural households in 1995, 1997, 1999, and 2001, prior to and including the crisis period. Analysis of the impacts of the crisis on household incomes and human capital outcomes.
Honduras	- International Food Policy Research Institute (IFPRI) panel data from 2000 and 2002; collected to evaluate the households impacts of the <i>Programa de Asignación Familiar</i> (PRAF), a Honduran safety net program; analysis of the impacts of the coffee crisis on household welfare, as well as of the impacts of the PRAF in mitigating the impacts of the coffee.
Guatemala	- ENCOVI household survey data from 2000 (modeled on LSMS); included special data module on household responses to shocks; analysis builds on earlier work on the welfare of coffee sector households in the Guatemala Poverty Assessment (2003).

The data from Nicaragua and El Salvador are particularly rich—

1.15 While the report is regional in nature, it should be noted that the relative balance of country-specific evidence largely reflects the availability of country-level survey data. In the context of the coffee crisis, the largest body of country evidence presented in this report comes from Nicaragua, which has particularly rich sets of data with which to examine crisis impacts. The “core” analysis for Nicaragua uses panel data from the Nicaragua Living Standards Measurement Study (LSMS) surveys from 1998 and 2001, which include detailed information on household consumption, income, and a number of key social indicators and outcomes for the family. The 1998-2001 time period bracket the crisis period almost perfectly, enabling analysis of changes in household welfare over a period of a nearly 60 percent decline in the world coffee price. This core analysis is supplemented by an evaluation of the extent to which the *Red de Protección Social* (RPS), a Nicaraguan safety net program, was successful in mitigating the negative effects of the coffee crisis. A separate household panel was used for this assessment, data that was collected by the International Food Policy Research Institute (IFPRI) specifically to evaluate the impacts of the RPS on a range of household welfare indicators.

1.16 The El Salvador country analysis also draws on an unusually rich panel data set, with income data collected from the same rural households in four separate waves – in 1995, 1997, 1999, and 2001. As in the case of Nicaragua, the data brackets the pre-crisis and crisis periods well (specifically, 1997-2001). In contrast to the Nicaragua LSMS surveys, the El Salvador data sets lack detailed information on household consumption; nevertheless, the surveys do have detailed data on household income and on several other key social indicators at the household level, which facilitate detailed analysis of the crisis impacts.

—while data from Honduras enable analysis of impacts from a subset of rural areas

1.17 The household surveys used to analyze the crisis impacts in Honduras are also panels. In contrast to the Nicaragua and El Salvador data sets, however, the Honduras data are not statistically representative of rural areas. The Honduras surveys, also collected by IFPRI, were collected specifically to evaluate the impact of the Honduran safety net program, *Programa de Asignación Familiar* (PRAF), and thus focused on enabling an unbiased analysis of the PRAF impacts, rather than on being representative of *all* rural areas.¹² In the case of Guatemala, only a single cross-section of household survey data was available with which to analyze the welfare of households working in the coffee sector – the ENCOVI 2000 survey, a nationally representative household survey which, like the Nicaragua surveys, is modeled on the LSMS. While Guatemala

¹² The survey covers households in 70 (out of 297) of the most disadvantaged municipalities in 7 departments (Copan, Intibuca, Ocotepeque, F. Morazan, La Paz, Sta. Barbara and Lempira). These municipalities are all located in the western part of Honduras and cover many of the countries major coffee-growing departments. For details, see Coady et al (2004).

is the only country in the study for which there is no inter-temporal data, the survey is unique in that it included a special module on households' experiences with and responses to shocks. Thus, in its own way, the Guatemala survey enabled an extremely interesting and rich analysis of household-level shocks.

Organization of the Report

The main findings are synthesized here, with more details available in a second Volume

1.18 This report is organized into two volumes. This volume (Volume I) presents a synthesis of the key findings and policy recommendations. Volume II presents a collection of the commissioned background studies to the report. These background papers provide considerable analytical detail on each country for readers who are interested in more in-depth information on the country-level impacts, the unique data sets underlying the analyses, and/or the methodologies underpinning the analytical works summarized in this volume.

1.19 The remainder of this Volume is structured as follows. Chapter 2 focuses on the impacts of the coffee crisis. Specifically, the chapter examines:

- the socio-economic impacts of the coffee crisis in Nicaragua, El Salvador, Honduras, and Guatemala;
- the risk management strategies Central American households used to deal with the crisis; and
- the main government responses to the coffee crisis.

The next chapter shows that small scale coffee farmers were hardest hit by falling prices—

1.20 The evidence presented in Chapter 2 shows that the coffee crisis indeed had significant negative impacts on smallholder coffee farm households in the region – on per capita income and consumption, on poverty, and on children's education and nutritional status. Contrary to early expectations, the welfare impacts of the crisis were most severe on small-scale, self-employed coffee farmers and not on coffee laborers, as the crisis impacts were transmitted mostly through the price and income effects, rather than through increased unemployment.

—and that households were only partly able shield themselves from the effects of the crisis

1.21 In response to the crisis, coffee sector households in all four countries used a variety of *ex-ante* and *ex-post* strategies to try to prevent, mitigate, or cope with the effects of the crisis. This included diversification of household income sources, migration and remittances, and increasing family labor supply, among other things. Nonetheless, the evidence shows that coffee sector households were not able to shield themselves fully from the effects of the crisis. In fact, in some cases, attempts to cope with the crisis involved pulling children out of school or reducing household food consumption, which raises concerns about the long-term effects on children's human capital development, including potentially detrimental and *irreversible* effects on children's future economic productivity and welfare.

Moreover, government responses did relatively little to protect the most affected families

1.22 While the region's governments did initiate some programs in response to the crisis, these focused predominantly on debt restructuring for large- and medium-sized coffee producers, with relatively little emphasis being placed on mitigating the welfare impacts on small farmers and coffee sector laborers. Indeed, the evidence suggests that government responses did relatively little to shield small farmers, or laborers, from the worst effects of the crisis.

Chapter 3 outlines key elements of a strategy for dealing with shocks—

1.23 Building on this understanding of the coffee crisis impacts – and on related evidence on shocks in the region – Chapter 3 outlines several broad lessons for public policy regarding shocks and social protection. Specifically, the chapter highlights the importance of:

- maintaining macroeconomic stability and growth;
- strengthening people’s capacity to manage risk through policies and investments that enhance people’s economic mobility and through development of stronger market-based risk management instruments;
- developing, in advance, the institutional and policy framework to ensure timely implementation of well-targeted safety nets following a shock; and
- strengthening data, information and monitoring systems to support appropriate safety net design and effective program implementation and follow-up.

1.24 Chapter 3 examines the relative strengths and administrative requirements a several safety net programs that have been used recently in Latin America. The analysis shows that the choice of the most effective response to a shock will depend not only on the specific nature of the shock impacts but, critically, on existing country-level institutions and programs as well as on local capacity to administer alternative programs.

Chapter 4 summarizes the implications for future public responses to shocks

1.25 Chapter 4 concludes this volume with a brief summary of the main findings of the report and their implications for government strategies to deal with shocks in the future. While many studies focus largely or exclusively on *ex-post* safety nets implemented by public agencies, one key message of this report is the importance of efforts to strengthen households’ risk management capacity *ex-ante* as well. In this context, a second key message is that there is scope for further developing private market instruments, such as insurance (depending on the type of the shock), as part of a broader complement of public *and* private instruments available to manage risk and shocks.

2. The Welfare Impacts of the Coffee Crisis: A Tale of Four Countries

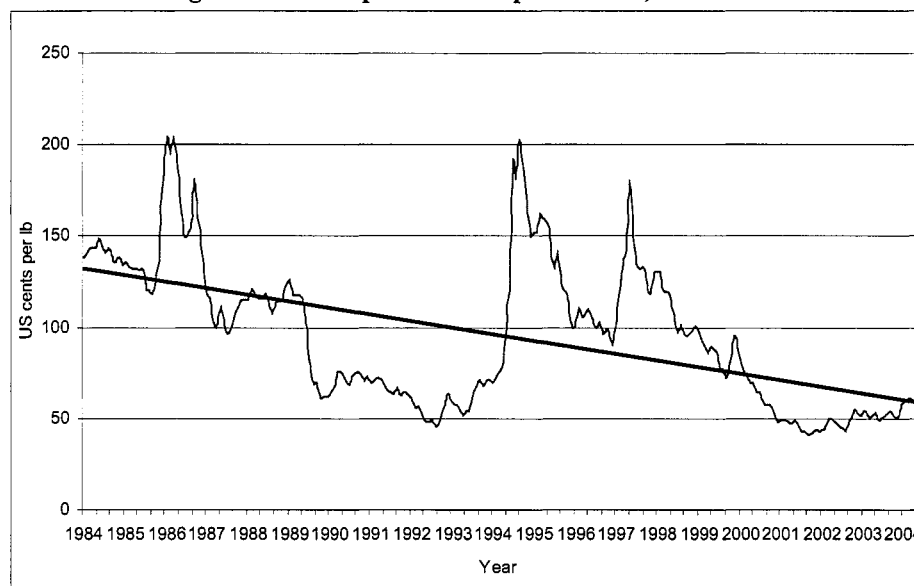
2.1 This chapter: (i) examines new evidence on the socio-economic impacts of the coffee crisis; (ii) reviews the private risk management strategies that Central American households used to deal with the crisis, highlighting how those strategies differed across countries; and (iii) reviews the main responses to the crisis fielded by the region's governments.

The Central American Coffee Crisis: Macro Trends

Structural changes in the world coffee market have depressed prices

2.2 The coffee sector has historically been subject to price fluctuations and uncertainty, mostly driven by weather and other supply-related shocks. Nonetheless, in recent years, the coffee industry has been undergoing a worldwide structural change. On the demand side, there has been slow growth, and over time the coffee sector has experienced a shift in consumer preferences towards more differentiated and higher quality coffee products (e.g., gourmet blends, fair trade coffees, organic, shade-grown varieties, etc.). More importantly, on the supply side, the entry of a number of new coffee producers in the 1990s (e.g., Vietnam), along with technological improvements that have led to large increases in coffee production among key Latin American producers (e.g., Brazil) have resulted in a dramatic increase in coffee production and improvement in coffee quality. These forces served to severely depress international coffee prices, most dramatically during the 2001-02 period (Figure 2.1); this, in turn, has reduced the competitiveness of many small coffee producing countries, like those in Central America. Indeed, at their lowest point, world coffee prices had fallen below the average cost of production for producers in a number of countries.¹³

Figure 2.1: Composite coffee price index, 1984-2004



Source: ICO Website.

¹³ Lewin and Giovannucci 2003.

2.3 While prices have subsequently rebounded, the crisis represented the culmination of two characteristic features of the world coffee market: (i) the long-term secular decline in the world coffee price, and (ii) significant price volatility, often driven by weather-related shocks, that by late 2001 had left real prices at their lowest levels in more than 50 years. As can be seen in Figure 2.1, these price lows followed quite closely upon two short-lived upward price spikes during the mid-to-late 1990s.¹⁴

Coffee has been one of the most important cash crops in the region—

2.4 Coffee has long been one of the most important cash crops for the Central American economies. In fact, together the four countries included in this case study – El Salvador, Guatemala, Honduras and Nicaragua – along with Costa Rica – comprise the second largest coffee producer, after Brazil.¹⁵ Moreover, the coffee sector is an important source of employment. An International Coffee Organization (ICO) estimate suggests that 200,000 farmers produce coffee and between 2-3 million workers find seasonal or permanent work in the sector. At the same time, the coffee sector in Central America is heterogeneous, characterized by a combination of small-, medium- and large-scale farmers; the latter may work on their own coffee farms, but also offer an important source of permanent and/or seasonal employment opportunities to agricultural workers.

2.5 In terms of recent production trends, between 1998 and 2001, world coffee production increased from 108 million bags to 124 million (Table 2.1). In contrast, combined coffee production in the four study countries decreased over the period. Indeed, coffee production in El Salvador, Guatemala and Nicaragua declined by almost 10 percent; only in Honduras did it increase and, then, only slightly.

Table 2.1: Coffee production in Central America, 1998-2003 (in millions of bags)

Crop year commencing	El Salvador	Guatemala	Honduras	Nicaragua	Brazil	World
1998	1.8	4.3	2.5	1.1	35.6	108.5
1999	2.6	4.4	3.1	1.5	30.8	113.4
2000	1.6	4.6	2.8	1.6	34.1	117.7
2001	1.6	3.5	3.1	0.9	35.1	110.9
2002	1.4	3.8	2.7	1.0	51.6	123.9

Source: ICO Website.

—produced by a mix of large fincas, medium-scale, and many small-scale farms

2.6 In terms of the structure of production, the coffee sectors in El Salvador, Guatemala, Honduras, and Nicaragua are all very heterogeneous. The majority of the coffee producers are small-scale farmers. In Honduras, for example, an estimated 92 percent of the producers are considered small-scale, producing less than 100 quintals per year (Table 2.2); only 3 percent of Honduran coffee farmers are defined as large-scale. On average in the four countries, large-scale

¹⁴ While it is clear that real world coffee prices cannot trend downward indefinitely – i.e., that there will be point at which adjustments on the supply side will roughly equilibrate with demand – it is not obvious that long-term price trends will reverse in the short-run, absent a major shift in the structure of world demand for coffee (e.g., a structural increase in demand for coffee in China or other large potential consuming countries). For a more detailed discussion of supply and demand forces in the world coffee market, see Lewin and Giovannucci (2003).

¹⁵ ICO.

farms or *fincas* only comprise about five percent of all coffee farmers. At the same time, except in Honduras, large- and medium-scale producers dominate, in terms of the quantities produced. For example in both El Salvador and Guatemala, large farmers produce more than half of all coffee produced; medium and large-scale coffee farmers represent more than 85 percent of coffee production in Nicaragua. Accounting for this heterogeneity, and particularly for the large proportion of small-scale farmers in the sector, will thus be important to understanding the welfare impacts of the coffee crisis.

Table 2.2: Distribution of coffee farmers and production in 2000

	Small ^{a)}	Medium ^{b)}	Large
% farmers			
El Salvador	81	15	4
Guatemala	80	14	6
Honduras	92	5	3
Nicaragua	90	9	1
% production			
El Salvador	10	32	58
Guatemala	20	30	50
Honduras	45	44	11
Nicaragua	14	50	36

^{a)} Small-scale: less than 100qq;

^{b)} Medium: El Salvador 100-1000 qq, Guatemala 100-2000 qq, Honduras 100-1000 qq, Nicaragua 100-1500 qq.

Source : Adapted from Varangis et al. (2003)

Loss of export revenues due to the price drop equaled roughly 1% of GDP

2.7 Due to the severe drop in coffee prices, coffee export revenues in the four countries declined dramatically during the crisis period. Between 1999 and 2001, for example, coffee export revenues declined by an average of 45 percent across the four countries (Table 2.3). As a consequence, the importance of coffee exports to total exports has also decreased by about 50 percent in each of the four countries (Figure 2.2). Losses in export revenues corresponded to approximately 1 percent of GDP, on average, across the four countries, and put considerable pressure on these countries' balance of payments during the period.¹⁶

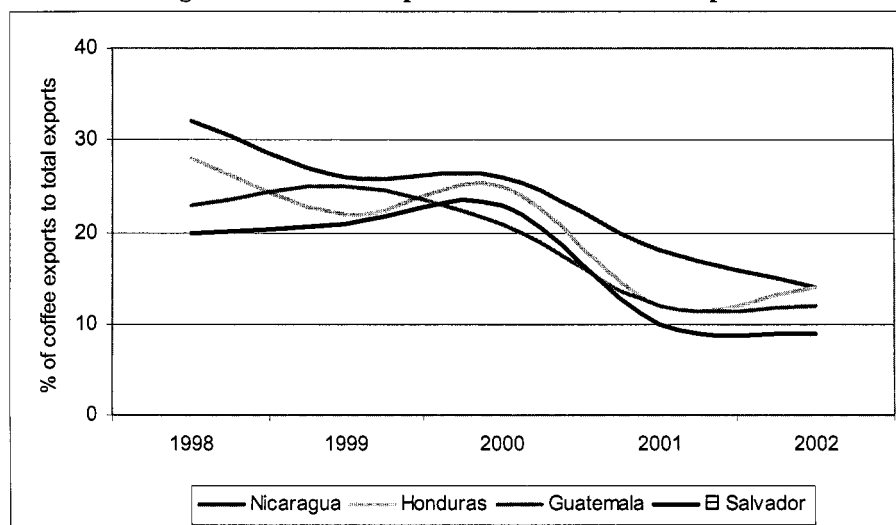
Table 2.3: Coffee exports revenues from Central America, 1999/2000 and 2000/2001
(in millions of US\$)

	1999/2000	2000/2001	Change (%)
El Salvador	276	108	-61
Guatemala	598	400	-38
Honduras	345	167	-33
Nicaragua	170	85	-50
Total	1389	760	-45

Varangis et al. (2003)

¹⁶ World Bank 2002a.

Figure 2.2: Coffee exports as a share of total exports



Source: ICO Website.

Initial concerns about social impacts focused on unemployment among coffee workers—

2.8 Early concerns about the social impacts of the coffee crisis focused on the employment and incomes of thousands of permanent and seasonal coffee plantation workers in each country, many of whom own no cultivable land of their own. Indeed, as noted above, coffee sector employment is significant in Central America—in the form of both self-employment on family farms and in permanent and seasonal wage employment on coffee plantations. It was estimated that in 2002, for example, more than 3,000,000 people were involved as laborers in the coffee sector (Table 2.4). This suggests that nearly 30 percent of the rural labor force in these countries, on average, has some connection to the coffee economy.

Table 2.4: Estimated Coffee Sector Employment in Central America, 2002

	Labor force in coffee	Labor force in coffee as % of rural labor force
El Salvador	936,000	17
Guatemala	700,000	31
Honduras	1,152,000	26
Nicaragua	672,000	42

Source: ECLAC 2002.

2.9 Initial estimates of the impact of the crisis on employment suggested significant effects on coffee sector employment. In El Salvador, the *Consejo Salvadoreño del Café* (Salvadoran Coffee Council) estimated that employment in coffee production fell from 185,630 individuals in 2000 to just 58,800 in 2003.¹⁷ In Guatemala, an estimated 200,000 people were permanently

¹⁷ Consejo Salvadoreño del Café.

employed in the coffee industry and another 300,000 were seasonally employed;¹⁸ of those workers, approximately 40,000 jobs related to coffee production were thought to have been lost in 2002 alone.¹⁹ Similarly, in Nicaragua, initial estimates suggested that 35,000 permanent and more than 100,000 seasonal coffee plantation jobs were lost in 2001.²⁰ Overall, roughly 20 percent of the seasonal coffee sector jobs and more than 50 percent of the permanent coffee sector jobs in Central America were thought to have been lost between 2000 and 2002 (Table 2.5).

Table 2.5: Estimated Decline in Coffee Sector Employment in Central America, 2000/01-2001-02

	2000/01	2001/02	Change %
Seasonal	1,700,000	1,350,000	-21
Permanent	350,000	160,000	-54

Source: Varangis, et al 2003.

Note: Includes Costa Rica.

—but did not account adequately for laborers’ abilities to find work in other sectors—

2.10 While the estimated job losses associated with the coffee crisis are clearly significant, aggregate data such as these figures need to be interpreted carefully. This is because the estimates do not necessarily reveal the *net* job losses – or corresponding income or welfare losses – associated with the crisis. In particular, these estimates refer solely to the loss of employment in the coffee sector, and do not consider that laid-off coffee workers could potentially find work in other sectors. In fact, given that several of the Central America countries were experiencing positive economic growth at the time of the coffee crisis, it is likely that at least some workers laid off from coffee sector jobs found alternative employment, without extended periods of unemployment. At least in principle, in such a growth context, coffee sector laborers and their families may not have experienced a significant loss in income or welfare as a result of the crisis.²¹ Moreover, as will be discussed further below, households often employ risk management strategies in the face of expected or actual economic shocks that help them to deal with shocks or other economic changes. Such actions, like sending additional family members into the labor force in the face of job uncertainty or job loss, may help to soften (or perhaps even eliminate) the negative income effects of the shock.

2.11 Indeed, analysis of panel data from Nicaragua, El Salvador, and Honduras, undertaken for this study, indicates that the main impacts of the crisis were more nuanced than originally envisioned. On one hand, analysis of household survey data from rural Nicaragua between 1998 and 2001 confirms that there were negative employment effects resulting from the coffee crisis; members of Nicaraguan households that remained involved in the coffee economy over the 1998-2001 period experienced significant increases in unemployment at a time when unemployment rates in other rural sectors remained largely unchanged.²²

¹⁸ Ministry of Agriculture, Guatemala.

¹⁹ ANACAFE put this figure at 60,000.

²⁰ Ibid.

²¹ Especially in the case of seasonal labor, such workers are generally “footloose” and are likely have multiple sources of income of income (both across family members and over time) that, with small changes, may enable them to smooth the income impact of a decline in the demand for labor in coffee plantations.

²² Vakis et al 2004.

—or for the direct effect of prices on small-scale coffee farmers' incomes

2.12 On the other hand, the analysis indicates that the most severe impacts of the crisis in Nicaragua were not transmitted primarily through increased unemployment. Indeed, households whose members worked as coffee laborers in 1998 managed largely to maintain their income and consumption levels in 2001, at least in part, by finding other earnings opportunities outside of agriculture. In contrast, small-scale, self-employed coffee farmers experienced substantial declines in income and welfare as prices dropped between 1998 and 2001.

The Socio-Economic Impacts of the Coffee Crisis

Real per capita income growth in Central America between 1995 and 2002—

2.13 Overall, the 1995-2002 period is characterized by modest-to-high economic growth in Central America. Real GDP growth rates in El Salvador, Nicaragua, Honduras, and Guatemala averaged about 4 percent per year – ranging from 3 percent in Honduras to 5 percent in Nicaragua.²³ GDP per capita grew at a rate of 1 percent per year, on average, in the four countries over the same period.

—translated into a general reduction in poverty—

2.14 Partially in response to economic growth, overall poverty declined during this period. Between 1998 and 2001, for example, poverty in Nicaragua declined by 4 percent to achieve a headcount of 46 percent in 2001.²⁴ Poverty rates declined faster in rural areas than in urban areas. Similarly, rural poverty in El Salvador decreased from 65 percent in 1995 to around 52 percent in 2001.²⁵ In all four countries, other socioeconomic indicators – such as education and health – improved over this period. This is reflected in the Human Development Index (HDI), which synthesizes health, education and growth dimensions of development. The HDI improved in all four countries over the 1995-2002 period (Table 2.6).

**Table 2.6: Trends in Human Development Index in
Guatemala, El Salvador, Honduras, and Nicaragua, 1995-2002**

	Guatemala	El Salvador	Honduras	Nicaragua
1995	0.60	0.68	0.62	0.62
1999	0.63	0.70	0.63	0.64
2002	0.65	0.72	0.67	0.67

Note: A higher number denotes an improvement in human development.

Source: UNDP (2004).

—but not among those in the coffee sector

2.15 In spite of these broad socio-economic gains, the coffee crisis had significant deleterious impacts on those working in the coffee sector – and particularly on small-scale, self-employed farmers and their families. Indeed, households that earned income in the coffee economy experienced setbacks in a number of areas – with respect to their income and consumption, poverty, child schooling and child nutrition. In light of early concerns about the crisis impacts on

²³ WDI 2004.

²⁴ Vakis et al. 2004. For a more detailed analysis of poverty trends in Nicaragua, using a slightly different sample from the same data set, see Nicaragua Poverty Assessment, World Bank, 2003. For further details on the data definitions used here, see Vakis et al, 2004, Volume II or this report.

²⁵ El Salvador Poverty Assessment *Strengthening Social Policy*, World Bank, 2004.

coffee laborers, in the sections that follow the analysis attempts to distinguish between the impacts of the crisis on households that are linked to the coffee sector through self-employed farming activities and through labor earnings. To illustrate, the typology of “coffee households” used in the Nicaragua analysis is shown in Box 2.1. Similar distinctions were made in the other country case studies.

2.16 In addition, because coffee production tends to be concentrated in specific regions within each country, analysis of the effects of the crisis was generally also carried out across different sub-regions of countries, based on the intensity of coffee production (or lack thereof) in each location. Regional, as well as household, definitions were used to examine possible spill-over effects of the crisis beyond the coffee sector; they were also used as a gauge of the robustness of the basic findings on coffee crisis impacts (Box 2.1).

Box 2.1: A Typology of “Coffee Households” and “Coffee Regions” for Nicaragua

The analysis of the coffee crisis in Nicaragua relied on several methods to define a household’s affiliation with the coffee sector. This is done to help distinguish the effects of the crisis across self-employed farming and wage earning households. Regional, as well as household, definitions were used to help assess the robustness of the basic results.

In general, the household-level definition focuses on household employment activities and classifies a household as either “coffee” or “non coffee” based on whether any member of the household worked in the coffee sector either as a wage earner or as a producer. Coffee households are then further defined based on their status in the sector as farmer or laborer. This results in a three-pronged definition of rural households:

- *non-coffee*, if the household had no members involved in any coffee activities in a given year;
- *coffee-labor*, if the household had members involved in coffee-labor activities in a given year; and
- *coffee-farm*, if the household had members involved in coffee farming activities in a given year.

In addition, the use of panel data permitted identification of households that moved in or out of the coffee sector during the crisis period; for example, a household that was categorized as coffee producer in the first year, but classified as a non-coffee household in the second year was defined as having “exited coffee” over the period.

Finally, a geographically based index of the intensity of coffee production was constructed to facilitate analysis of the regional dimensions of the crisis impacts, based on the share of land dedicated to coffee cultivation, and using the 2001 *Censo Nacional Agropecuario* (Agricultural Census). The three-pronged regional definition – low coffee intensity, medium coffee intensity, and high coffee intensity – was linked to the household survey data and used to test for potential spillover effects between the coffee and non-coffee sectors. It also allowed for assessment of the robustness of the results obtained using household-level definitions.

Source: Vakis et al 2004.

Impacts on Household Incomes, Consumption and Poverty

Small-scale coffee farming households were relatively well-off prior to the crisis—

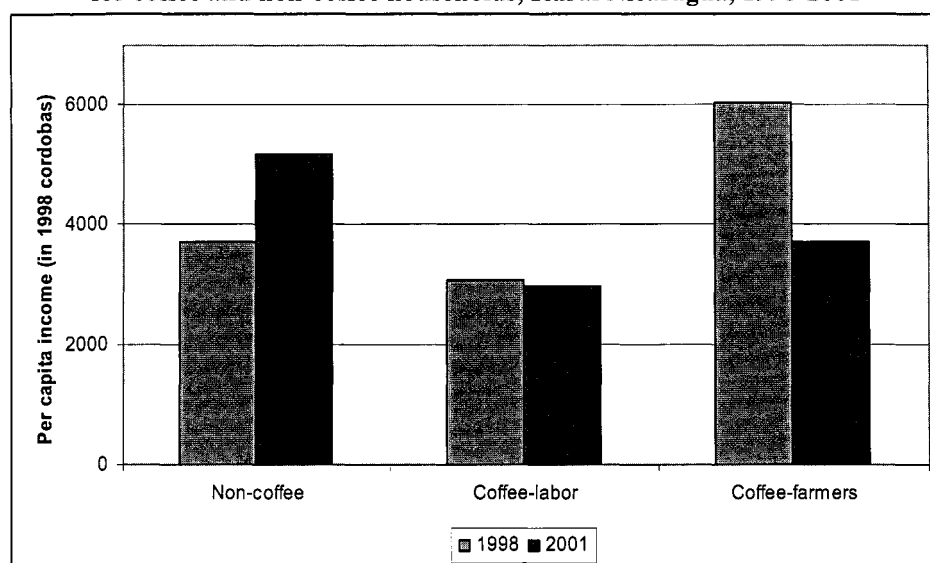
2.17 *Income.* According to household survey data from the study countries, small-scale coffee farming households were among the wealthier sub-groups in rural areas prior to the crisis. For example, the data from Nicaragua indicates that, in 1998, real per capita income of coffee farmers was more than 50 percent higher, on average, than that of non-coffee households (Figure 2.3). By

contrast, coffee labor households were the poorest of the three rural groups. Similarly, in El Salvador (and to some extent in Guatemala and Honduras), coffee farmers were by far the wealthiest rural sub-group during 1995, when world prices were high, while coffee labor households were the poorest sub-group.²⁶

—but their incomes fell most rapidly as prices fell—

2.18 This income profile changed considerably over the coffee crisis period, however. In Nicaragua, for example, real per capita income increased by 40 percent for non-coffee households living in rural areas between 1998 and 2001, while per capita income of small-scale coffee farm households declined by more than 38 percent over the period (Figure 2.3). Somewhat surprisingly, per capita incomes among coffee labor households stayed largely the same over the period. In El Salvador, real per capita incomes of all 3 groups increased between 1995 and 2001; however, relative income changes followed the same pattern as in Nicaragua. Incomes among coffee farm households grew at the slowest pace, followed by that of coffee labor households. Per capita incomes of non-coffee households in rural areas grew the fastest over the period.²⁷ Although panel data are not available for Guatemala, in 2000 coffee farm households were found to be the poorest sub-group in rural areas, a finding that is consistent with the findings on impacts in the other countries.²⁸

**Figure 2.3: Real per capita income changes,
for coffee and non-coffee households, Rural Nicaragua, 1998-2001**



Source: Vakis et al (2004).

—as did their consumption levels

2.19 *Consumption.* Declines in per capita consumption were more severe among coffee farm households than in coffee labor households or non-coffee households. In Nicaragua, for example, real

²⁶ Trigueros and Avalos (2004), Vakis (2004), Coady et al. (2004).

²⁷ Trigueros and Avalos (2004). These differences in income growth, across coffee and non-coffee households are still seen after controlling for a range of household and regional characteristics that might also have been associated with different levels of income growth. For details, see Beneke de Sanfeliú and Shi (2004).

²⁸ Vakis (2004).

consumption per capita declined by more than 25 percent among coffee farm households, while per capita consumption among coffee labor households remained unchanged.²⁹ This compares with real per capita consumption increases of 15 percent, on average, among non-coffee households. Relative patterns of consumption changes were similar in Honduras, based on data collected for a subset of 70 of the most disadvantaged municipalities in rural Honduras during the 2000-2002 period.³⁰ In contrast to the aggregate-level data for Honduras, which indicates real per capita income growth over the period, per capita consumption among households in the survey areas was found to have declined by an average of 16 percent in real terms from 2000 to 2002. The decline among coffee farm households was significantly larger than that among non-coffee households, however (Table 2.7). Specifically, real per capita consumption among coffee farm households was found to have declined by 20 percent over the period, compared to declines of 12 percent among non-coffee households over the same period.

Table 2.7: Consumption changes among coffee and non-coffee households, selected municipalities in rural Honduras 2000-2002

	Percent change in per capita consumption	
	Total consumption	Food consumption only
Coffee farmer	-20%	-16%
Live in "coffee region"	-16%	-13%
Non-Coffee	-12%	-9%
Total	-16%	-13%

Source: Coady et al (2004)

2.20 Results of analyses of different rural regions, according to their intensity of coffee cultivation, mirror that of coffee and non-coffee households. Specifically, households living in regions where coffee production is important to the local economy experienced larger declines in per capita consumption than households that lived outside coffee growing areas. It should be noted that in both Nicaragua and Honduras, where measuring changes in household consumption over time is possible, a significant proportion of the declines in total household per capita consumption came from declines in household food consumption (see, for example, Table 2.7 for Honduras). This likely contributed to the adverse nutritional outcomes associated with the crisis (and discussed further below).

Poverty rose amongst coffee farm households

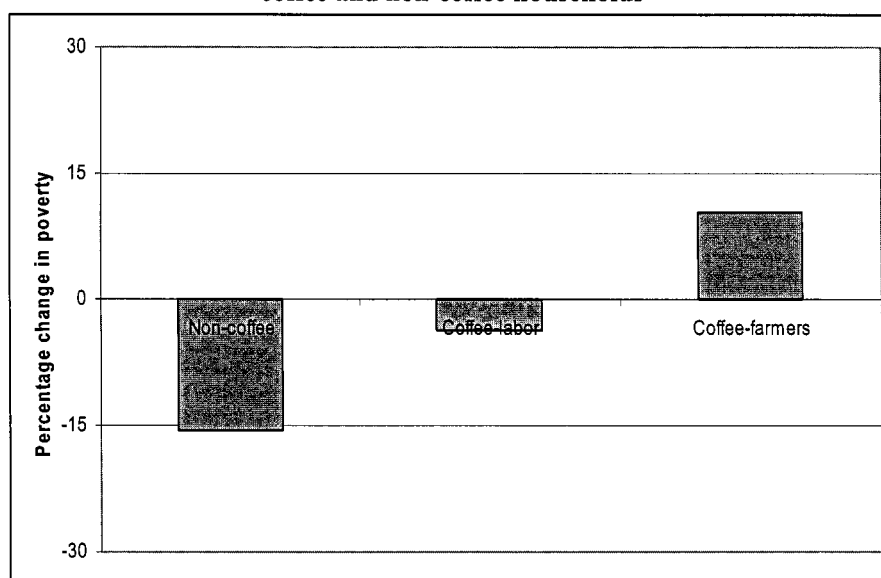
2.21 *Poverty.* Changes in poverty among the different sub-groups over the coffee crisis periods are consistent with changes in income and consumption. Poverty analysis similarly indicates relatively large negative impacts on the welfare of (mostly small-scale) coffee farm households. In Nicaragua, whereas poverty headcount among non-coffee sector households declined by more than 15 percent (from 65 to 55 percent), coffee farm households experienced a 10 percent increase in their incidence of poverty (Figure 2.4). Again, somewhat surprisingly, poverty rates among coffee labor households declined over the period (by 4 percent) – albeit at a slower pace than among non-coffee households. The findings indicate, moreover, that while coffee labor households were, on average, poorer than coffee farm households, the coffee price shock did not affect wage earners in the coffee sector as significantly as it did farmers. Consistent with the findings on income, coffee farm households in Guatemala were found to be

²⁹ Vakis et al. (2004).

³⁰ For details, see Coady, Olinto, and Caldes (2004), Volume II of this report.

the poorest among the different categories of rural households in 2000. While lack of panel data make it impossible to observe changes in poverty status directly, qualitative evidence from Guatemala suggests that as in the other countries, this reflects a change in the welfare status of coffee households resulting from the dramatic decline in world coffee prices.³¹

Figure 2.4: Poverty changes in Rural Nicaragua, 1998-2001, coffee and non-coffee households



Source: Vakis et al (2004).

Impacts on Child Nutrition and Education

General gains in nutrition were not shared by children in intensive coffee-growing regions

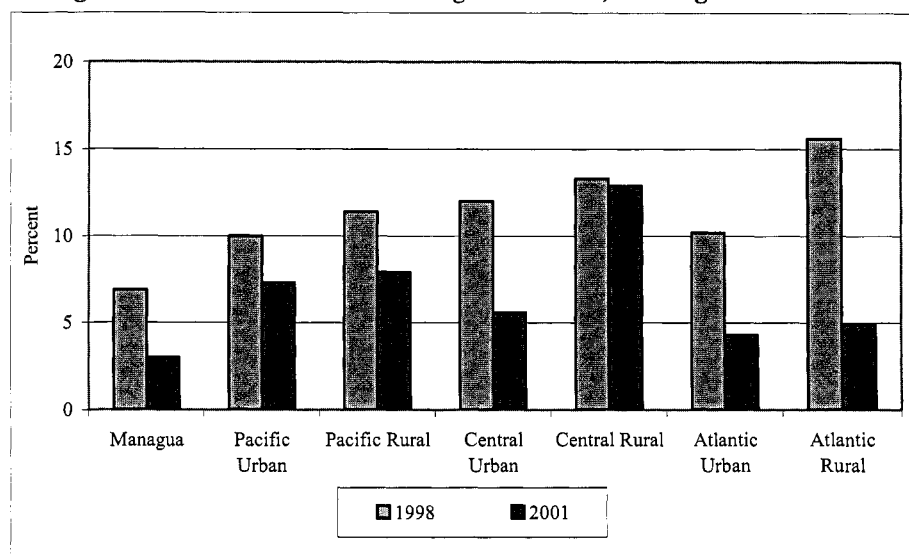
2.22 *Nutrition.* The impacts of the coffee crisis extended beyond its effect on family income, consumption, and poverty. Evidence from the study countries indicates that the crisis also affected family investments in children and, thus, children's human capital outcomes. In Nicaragua, for example, despite the fact that the different measures of malnutrition (stunting, wasting, and underweight) all showed improvement during the period – national declines of 35, 11, and 73 percent, respectively – these gains were not shared by children from households living in intensive coffee-growing regions.³² As can be seen in Figures 2.5 and 2.6, in the Central Rural region, where more than 80 percent of Nicaragua's coffee production is concentrated, the incidence of underweight children changed very little while chronic malnutrition (stunting) actually increased slightly. Comparing these outcomes to national trends, the evidence suggests

³¹ Vakis (2004).

³² Stunting (height-for-age) reflects chronic malnutrition, which results from years of retarded skeletal growth and is associated with poor economic conditions; wasting (weight-for-height) captures deficiencies in fat tissue and indicates food loss from a short-term, emergency situation; and underweight (weight-for-age) combines the previous two measures and reflects total malnutrition. A child (of usually 5 years or less) is considered "stunted", "wasted" or "underweight" if his/her corresponding anthropometric measure is two or more standard deviations below the median of the internationally recognized reference population. Also see Marini and Gragnolati 2002, and Chawla 2001.

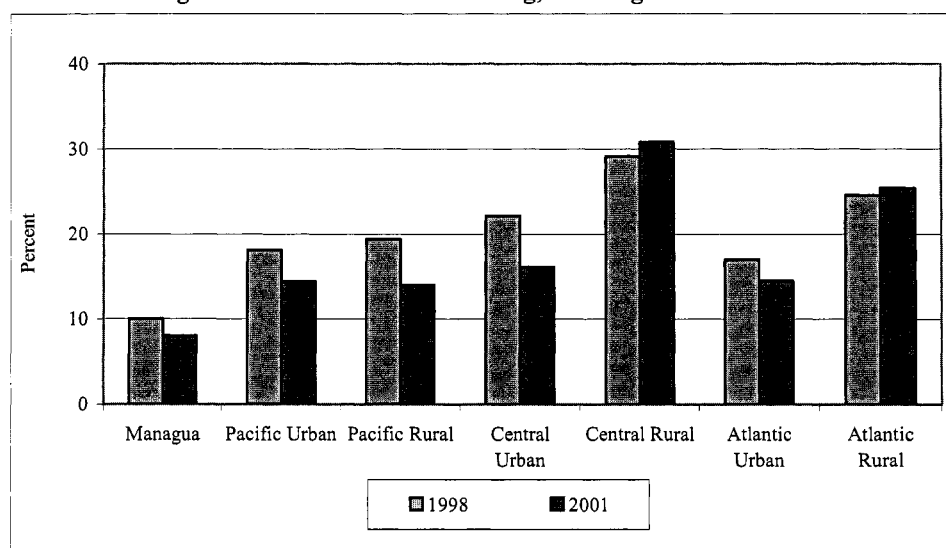
that the coffee crisis had an adverse impact on the nutritional status of children under 5 years, at least in relative, if not in absolute terms.

Figure 2.5: Incidence of Underweight Children, Nicaragua 1998 – 2001



Sources: Nicaragua LSMS 1998 and 2001.

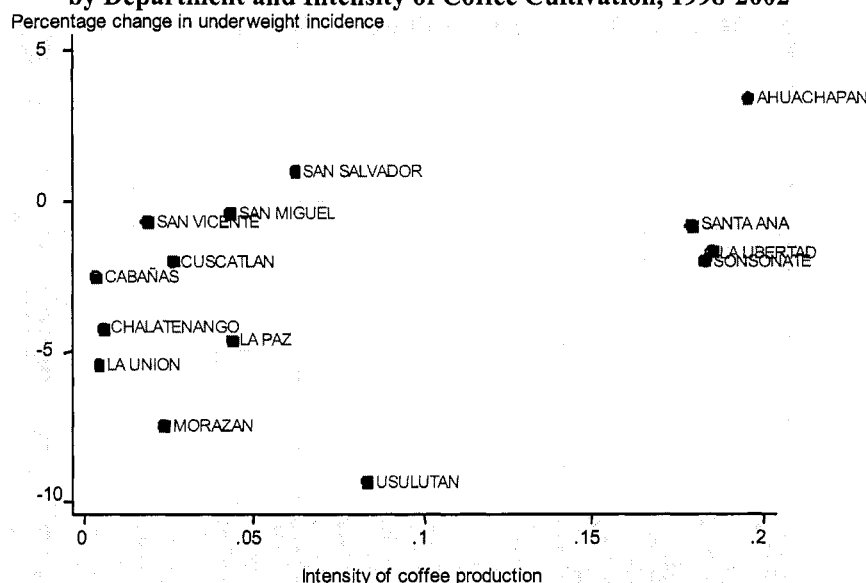
Figure 2.6: Incidence of Stunting, Nicaragua 1998 – 2001



Sources: Nicaragua LSMS 1998 and 2001.

2.23 Similar patterns are observed in El Salvador. Between 1998 and 2002, the percentage of underweight children in rural El Salvador declined by almost 50 percent.³³ Nonetheless, regions with greater involvement in the coffee sector tended to experience smaller declines in malnutrition than those with less involvement. For example, administrative Departments with higher intensity of coffee production, measured as the proportion of land under coffee cultivation, tended to experience smaller declines in the incidence of underweight children between 1998 and 2002 (Figure 2.7). In fact, the Department with the highest coffee production intensity, Ahuachapan, actually experienced an absolute *increase* in the percentage of underweight children that coincided with the timing of the coffee crisis.

Figure 2.7: Change in Percentage of Underweight Children in Rural El Salvador, by Department and Intensity of Coffee Cultivation, 1998-2002



Source: Trigueros and Avalos 2004, based on FESAL and PROCAFE data.

2.24 While establishing a causal relationship between the coffee crisis and malnutrition is difficult, given existing data constraints, the descriptive findings appear robust. Similar patterns are found in El Salvador when changes in the incidence of underweight children are examined across Departments according to the extent of labor force involvement in the coffee sector.³⁴ In addition, analysis of the correlation between changes in malnutrition and several other variables, including changes in real per capita income, female literacy rates, and intensity of coffee production, reveal the strongest statistical association between changes in malnutrition over the period and the level of intensity of coffee cultivation in the Department.³⁵

Lower school enrolment rates for coffee households in Nicaragua and, possibly, Guatemala

2.25 **Education.** With respect to education, all four study countries achieved increases in average enrollment rates during the period, both at the primary and secondary levels. Not all

³³ FESAL 2003.

³⁴ Trigueros and Avalos (2004)

³⁵ Ibid.

groups of households were able to benefit from the broader advances in schooling, however. Children among coffee households in Nicaragua did not fair as well as those in non-coffee households, for example. In particular, while primary net enrollment rates increased from 78 to 86 percent among children non-coffee households, they declined from 77 to 72 percent among children in households involved in the coffee sector.³⁶ Similarly, while secondary net enrollment rates almost doubled – to 40 percent – among children in non-coffee households, they remained essentially unchanged among children in coffee-sector households. School enrolment in Guatemala among children in coffee farm households was significantly lower compared to non-coffee ones.³⁷ While it is not possible to attribute such differences solely to the coffee crisis, given data limitations, it is likely that these patterns reflect, at least in part, harmful coping strategies on the part of coffee households. This issue is discussed in greater detail below.

2.26 In contrast to Nicaragua and (what appears to be the case in) Guatemala, there seems to have been no systematic, negative impact of the coffee crisis on primary and secondary schooling rates among children residing in coffee households in El Salvador – although there is some evidence suggesting schooling effects in specific locations. The results from El Salvador suggest that the absence of obvious negative schooling effects may be attributable, at least in part, to active Government of El Salvador programs to increase school enrollments in rural areas – for example, EDUCO and *Escuelas Saludables* (Healthy Schools) which provides food supplements to students, the timing of which overlapped with the timing of the coffee crisis.³⁸

2.27 To summarize, household survey data from Nicaragua, El Salvador, Honduras, and Guatemala indicates that households involved in coffee activities were not able to benefit fully from what was otherwise a period of growth and socio-economic progress in the four study countries. In fact, many key socio-economic indicators worsened for coffee sector households during the crisis. While accurately quantifying the impact of the coffee crisis is challenging, the large differences between coffee and non-coffee households across the four countries cast little doubt that the coffee crisis had a strong impact on small-scale coffee farm households and, contrary to expectations, had a relatively smaller effect on coffee labor households. The major impacts of the coffee crisis on household welfare in the four countries are summarized in Table 2.8.

³⁶ Vakis et al. (2004)

³⁷ Vakis (2004).

³⁸ Trigueros and Avalos 2004.

**Table 2.8: The Impact of the Coffee Crisis on Coffee Households' Well-being:
Summary**

	Outcomes Relative to Non-Coffee Households over the Crisis Period		
	Income, Consumption and Poverty	Nutrition	Education
Coffee Labor Households			
El Salvador	-	-	0
Guatemala*	n.a.	n.a.	n.a.
Honduras	-	n.a.	n.a.
Nicaragua	-	-	-
Coffee Farm Households			
El Salvador	--	--	0
Guatemala*	-	-	-
Honduras	--	-	n.a.
Nicaragua	--	--	--

Notes: - = significant; -- = strongly significant'0 = no significant impact

* No panel data exist for Guatemala. Comparisons are based on cross sectional data during 2000.

Source: El Salvador: Trigueros et al. (2004), Guatemala: Vakis (2004), Honduras: Coady et al (2004), Nicaragua: Vakis et al. 2004).

Household Risk Management Strategies

Limited ability of households to counteract impacts of crisis

2.28 Household survey evidence indicates that the ability of coffee households in Central America to protect themselves against the impacts of the crisis was somewhat limited. This is consistent with the findings of a broader empirical literature on consumption smoothing, which finds, in general, that households in poor countries are only partially capable to insure themselves against income shocks. Recent evidence from several Latin American countries – Nicaragua, Mexico, and Peru – suggests that, on average, households are able to protect between 60 and 75 percent of their consumption in the face of an income **shock**.³⁹ In the case of Nicaragua, new empirical tests of the extent to which negative shocks to household income translate into shocks to consumption (commissioned for this study) indicate that coffee sector households are significantly less able to “self-insure” against shocks than non-coffee households (Table 2.9). As can be seen in the table, a 10 percent decline in household per capita consumption among non-coffee households in rural Nicaragua translates into a 1.4 percent decline in per capita consumption. This compares with a 2.2 percent decline in consumption among coffee labor households and a 2.0 percent decline in consumption among coffee farm households as a result of a same sized income shock.

Households adjust consumption patterns—although in different ways

2.29 There are also differences in the way that shocks affect household consumption among those working in the coffee sector: for the coffee labor households income shocks appear more

³⁹ See Box 1.1 for a summary of findings from several recent studies of household consumption smoothing in Latin America and beyond, see Annex 1.

likely to affect food consumption, while for coffee farm households, shocks appear more likely to affect non-food expenditures. More specifically, a 10 percent shock in per capita income results in a 4.3 percent decline in food consumption among coffee labor households, but only a 1.2 percent decline in food consumption (that is not statistically significant) among coffee farm households. In contrast, the same sized income shock leads to a 3.4 percent decline in per capita consumption among coffee farm households, but only a 0.8 percent decline (that is not statistically significant) among coffee labor households.

Table 2.9: Estimated Fall in Per Capita Consumption from a 10 Percent Decline in Household Per Capita Income (in percent), Rural Nicaragua

	Total	Food	Non-Food
All rural Households	1.4**	1.4**	1.3**
Non-Coffee Households	1.4**	1.4**	1.3**
Coffee Labor Households (1998-2001)	2.2*	4.3*	0.8
Coffee Farm Households (1998-2001)	2.0**	1.2	3.4**

Notes: * statistically significant at 10% level; ** statistically significant at 5% level or above. Estimates based on a fixed effects model of (log) changes in consumption per capita regressed on changes in income per capita and household size changes for the corresponding coffee classification. Both regressors treated as exogenous. Municipal-level fixed effects are jointly significant for all the specifications.

Source: Vakis et al 2004.

Households use a variety of coping mechanisms—

2.30 Although they were not completely successful in protecting themselves against the impacts of the crisis, coffee households did use a variety of actions in an attempt to mitigate, cope or prevent its worst impacts. These included efforts to diversify their income sources, migration and remittances, adjustments in family labor supply including increased dependence on child labor, sale of assets, and reliance on informal, community-based insurance networks. Understanding which risk management strategies and mechanisms households use, how they affect family welfare in the short- and long-terms, and how they vary across locations and/or economic circumstances, is critical to designing effective public policies to address shocks.

—that reflect both ex-ante and ex-post strategies

2.31 In examining how household manage risk, it is useful to distinguish between *ex-ante* and *ex-post* strategies.⁴⁰ *Ex-ante* mechanisms address what households (and to some extent, public and private instruments) can do to reduce or *prevent* the occurrence of risks and *mitigate* the impact of a shock, should an adverse event occur. Examples of *ex-ante* mechanisms include the purchase of crop insurance or commodity futures, where such instruments are commercially available, income diversification to spread production risk, and/or migration, which can be used to spatially diversify ones income sources in advance of a shock. In contrast, *ex-post* risk management mechanisms focus on households' abilities to respond and *cope* with a shock, once the event has been realized: for example, drawing down savings, selling assets, adjusting family labor supply, including removing children from school to help generate income, and finding alternative or additional income sources.

⁴⁰ Holzmann and Jorgensen (2000).

2.32 This section examines, in turn, several of the most important risk management strategies used by coffee households during the crisis period.

Ex-ante Risk Management Strategies

Income diversification is an effective way to prevent and mitigate adverse impacts of shocks—

2.33 Agricultural **insurance** mechanisms are not widely available in Central America, especially for small-scale, family-based farmers. Households thus look for other ways to manage risk *ex-ante*. In this context, household **income diversification** in agricultural and non-agricultural activities is perhaps one of the most effective ways to prevent and mitigate adverse impacts of shocks as it spreads household production risk and can promote overall income growth and upward mobility. For example, in Nicaragua, non-coffee households, which were more income diversified (as measured by the number of different agricultural and non-agricultural income sources in the household), were more likely to experience growth in per capita consumption between 1998 and 2001.⁴¹ In contrast, coffee sector households (both labor and farm) were less diversified and, as such, did not experience the same level of consumption growth. In addition, while non-coffee households were typically diversified in both agricultural and non-agricultural activities, coffee households were at best “diversified” only within the agricultural sector. These patterns suggest that access to non-agricultural activities and incomes may have been particularly important for mitigating risk and increasing incomes and consumption.

—as are migration and remittances

2.34 In addition, evidence from El Salvador and Nicaragua suggests that **migration** and **remittances** have also been important in helping coffee households mitigate the impact of the coffee crisis. In El Salvador, coffee households that received remittances during the pre-crisis years tended to experience greater income growth during the crisis years than those who did not.⁴² Although it is not tested in the data directly, it may be that receipts of remittances provided liquidity that aided household income diversification before (or during) the crisis period. Similarly, in Nicaragua, coffee households that received remittances in 1998 were more likely to experience growth in non-food consumption between 1998 and 2001 than those who did not.⁴³

Ex-post Risk Management Strategies

2.35 Although Central American households do adopt *ex-ante* risk management strategies, the evidence suggests that the ability of coffee households – especially the poorer, labor households – to use ex-ante instruments effectively to address coffee sector risks was rather limited. As such, many families turned to ex-post risk management – and particularly *risk coping* – mechanisms. Indeed, the use by coffee households of ex-post strategies to deal with the coffee crisis was widespread, with a diverse set of *ex-post* risk management instruments being used. This diversity reflected both a diversity of household situations and country economic contexts.

Increasing non-agricultural incomes—

2.36 One common strategy involves families making household **labor and income “portfolio” adjustments**. Analysis of the Nicaragua panel data (1998-2001) shows that coffee households commonly sought to increase their non-agricultural incomes – both wage and self-employed activities – as a way to cope with the impacts of the crisis. In fact, coffee households

⁴¹ Vakis et al. (2004). This is consistent with Beneke and Gonzalez-Vega (2000) and Beneke de Sanfeliú and Shi (2004) who find positive effects of income diversification on income growth in El Salvador.

⁴² Trigueros and Avalos (2004).

⁴³ Vakis et al. (2004).

that were successful in increasing their non-agricultural incomes over the crisis period fared better than those who were not.⁴⁴ Similar patterns are seen in El Salvador as well. In general, the late 1990s-early 2000s was a period in which rural households shifted their labor allocation increasingly toward non-agricultural activities. But coffee labor and coffee farm households made more dramatic shifts than non-coffee households in their labor allocation and thus incomes, as a result of the crisis (Table 2.10). In El Salvador, adjustments in coffee households' income portfolios involved not only shifts of existing labor out of coffee and into non-agricultural enterprises, but also increases in total hours worked by households. An important element of this was the widespread adoption of household-based, non-agricultural, self-employed enterprises (often micro-enterprises) over the period.⁴⁵

Table 2.10: Changes in Labor Allocation Toward Non-Agricultural Activities in El Salvador, Coffee and Non-Coffee Households, 1995-2001
(% of total household labor supply)

	1995	1997	1999	2001
Coffee farmers	27.6	30.3	42.3	48.8
Coffee laborers	27.0	22.1	35.7	46.4
Non-coffee	36.9	38.9	42.4	45.3
All	34.2	34.7	40.9	45.8

Source: Trigueros and Avalos (2004).

—or leaving the coffee sector altogether—

2.37 A particularly dramatic form of income portfolio adjustment involves complete **exit from an activity** – in this case from coffee. Indeed, the data indicate that a significant number of coffee households, both farmers and laborers, exited the coffee sector during this period. In both Nicaragua and El Salvador, this “exit option” was higher among coffee laborers. This is partially explained by the fact that (landless) laborers may be more mobile in the event of a shock – especially when, as was the case in Central America, there was concurrent economic growth and thus market or self-employment opportunities available elsewhere in the economy. The fact that laborers in Nicaragua and El Salvador appear to have been more mobile than farmers also highlights the short-run inability of coffee farmers to exit the coffee sector due to the perennial or multi-year nature of coffee production and related investments.

—but not all households can easily make the transition

2.38 While empirically distinguishing between *choosing* to exit coffee from being *forced* to exit is challenging, the analysis highlights the critical importance of education, assets, and access to markets in facilitating households' upward mobility and coping capacity.⁴⁶ Such findings reinforce the importance of strengthening households' risk management capacity *ex-ante* so that households are better equipped to adjust and respond in the face of a shock to minimize the impact of an adverse event (Box 2.2).

⁴⁴ Vakis et al. (2004).

⁴⁵ Beneke de Sanfeliú and Shi (2004); Rodriguez-Meza and Gonzalez-Vega (2004).

⁴⁶ See Vakis et al (2004) for Nicaragua, and Beneke de Sanfeliú and Shi (2004) for El Salvador.

Box 2.2: Exiting the Coffee Sector in Nicaragua

In Nicaragua, households that exited completely from the coffee sector did better overall in terms of socio-economic outcomes than those who did not (or could not). Analysis of households' "decisions" to exit coffee provides a number of insights.

- Controlling for income, coffee farm households were less likely than coffee labor households to exit the coffee sector. This is consistent with the idea that farmers are tied to their land by the perennial nature of coffee investments and production processes.
- Among households that did exit coffee between 1998 and 2001, the main sources of income growth were related to increases in non-agricultural income. Interestingly, coffee labor households that exited the coffee sector tended to shift their effort to non-agricultural labor (wage) activities, while coffee farm households tended to shift their labor to non-agricultural enterprises (self-employment).
- Wealth, greater asset holdings (including land), and more diversified income sources were all positively associated with households' abilities to exit the coffee sector. These findings reinforce the notion that poorer households tend to face greater barriers to economic mobility, all other things being equal. They also highlight the importance of assets in enabling households to engage in new activities.
- Similarly, access to credit was found to be associated with a higher probability of exiting the coffee sector. This suggests that credit (and other forms of liquidity) can be critical in helping households mitigate the impact for shocks, not only by assisting them in smoothing their consumption in the face of an income shock, but through enabling them to diversify their economic activities.
- Several geographic features were also linked to households' abilities to exit coffee. For example, living closer to Managua and/or living outside a coffee region were both positively correlated with the probability of exiting the coffee sector. Both of these attributes capture greater access to markets, economic activity, and opportunities outside the coffee sector. Conversely, living in a region that had been affected by Hurricane Mitch decreased the probability of exiting the coffee sector, suggesting that households facing multiple shocks may face even greater barriers to economic mobility.

Source: Vakis et al (2004).

2.39 While analysis of the Nicaragua panel data suggests that **migration** did not play an important role in *ex-post* coping among coffee households, it does appear to have been a widely used strategy in El Salvador. In fact, Salvadoran coffee households that received remittances after the start of the crisis generally experienced faster income growth (or smaller welfare declines) over the crisis period.⁴⁷ While it is generally believed that in El Salvador most remittances are used for consumption, rather than investment, the evidence does suggest that the liquidity provided by remittances has enabled many rural Salvadoran households to adjust or diversify their income portfolios, *ex-post*, in the face of shocks.

People with assets can sell them to smooth consumption

2.40 **Selling assets** was another strategy used by some coffee households to cope with the crisis. In Nicaragua, for example, coffee farmers (who during 1998 were among the wealthier households in terms of asset holdings) used assets, like land or livestock, to cope with the crisis. By distinguishing between poor and non-poor households, the analysis further suggests that poor

⁴⁷ Beneke de Sanfeliú and Shi (2004) for El Salvador. Earlier work by Beneke de Sanfeliú and Gonzalez-Vega (2000), also find that the presence of international migrants within a family was correlated with higher income growth during a downturn in agricultural production in El Salvador. For Nicaragua, although formal data analysis did not identify migration as an important coping strategy, its importance was highlighted during various informal interviews in rural Nicaragua.

coffee farmers were 14 percent less likely to sell land and 9 percent less likely to sell (or consume) cattle than non-poor coffee farm households (Table 2.11). As expected, given their low (long-term) income levels, coffee labor households were the most asset-poor among all households in rural Nicaragua; as a result, their ability to use assets to cope with shocks was relatively limited. In Guatemala, data collected on coping mechanisms also indicates that coffee farmers sold assets to cope with the crisis. Overall, the data indicate the importance of asset ownership in the context of risk management, and highlight the limited capacity among poorer households to use physical assets as part of their coping strategy.⁴⁸

Table 2.11: Household Coping Mechanisms in Rural Nicaragua during the Coffee Crisis
(according to pre-crisis standing in the coffee sector)

	Household experienced:				
	Increases in child labor	Increases in adult labor	Out- Migration of member(s)	Decreases in land owned	Decreases in cattle owned
Coffee labor (in 1998)	-0.08	0.18	0.01	-0.04	-0.04
Coffee farmer (in 1998)	0.21**	0.02	-0.02	0.25**	0.26**
Poor in 1998	0.16**	0.10**	-0.01	0.06**	0.02
Coffee labor * Poor (in 1998)	0.10	-0.23**	-0.01	-0.13	-0.07
Coffee farmer * Poor (in 1998)	-0.06	-0.16*	0.02	-0.14**	-0.09**
Affected by Hurricane Mitch	-0.02	0.03	0.00	-0.00	-0.04**

Notes: * statistically significant at 10% level; ** statistically significant at 5% level or above.

Source: Vakis et al 2004.

Family and social networks can act as informal insurance

2.41 **Informal “insurance” networks** are another instrument that households use to deal with shocks. For example, informal social networks established through memberships in civic, religious, or neighborhood organizations can provide households with an alternative source of resources and support in the event of an adverse shock. In addition, continuing ties with out-migrant household members may ensure support in the form of additional transfers, gifts, or emergency loans during crises. The empirical analysis shows that the role of family networks has been important, at least to some extent. In Nicaragua, for example, remittances (which can be thought of as a proxy for the existence of a family network) were positively correlated with non-food consumption growth for both coffee labor and labor households. The impact seems to be stronger for coffee labor households implying that other informal coping mechanisms may be more important for the poorer coffee households.⁴⁹

But children can suffer from ex-post coping strategies—

2.42 While many of the risk management activities undertaken by coffee households may be considered appropriate short- and long-term responses to risk (whether adjusting income portfolios, household labor supply, or drawing down assets), there is evidence that some

⁴⁸ This finding is similar to results in Conning, Olinto and Trigueros (2000) for El Salvador, who find that households owning land or other productive assets were better able to protect their income during economic downturns.

⁴⁹ In their analysis of the impacts of Hurricane Mitch, Klugman, Kruger, and Withers (2004) find that Nicaraguan households often report participating in informal insurance networks via church groups, producers' associations, out-migrants, and through emergency loan arrangements with shopkeepers, and so on. At the same time, the authors did not find that such networks had a statistically significant impact on households' ability to smooth consumption in the face of shocks.

households engaged in **harmful coping strategies**. For example, some coffee households increased their use of **child labor, withdrawing children from school**. In Nicaragua, for example, child labor among coffee households increased by 24 percent between 1998 and 2001.⁵⁰ Interestingly, the use of child labor as a coping strategy was more prevalent among coffee farm than coffee labor households (Table 2.11).⁵¹ Similar outcomes were found in Honduras. Moreover, in 2000, the incidence of child labor in Guatemala was significantly higher among coffee farmers than non-coffee households. While the existing data do not permit direct observation of changes in child labor in Guatemala, observed outcomes are similar to those seen in Nicaragua and Honduras following the crisis. Moreover, the evidence is consistent with other information on coping mechanisms among Guatemalan households that indicates that child labor is among the most important instruments households use to deal with shocks.⁵²

—particularly in the long term if they are withdrawn from school

2.43 While the use of children as part of the household labor pool is common in developing countries, child labor that involves withdrawing children from school can have particularly adverse consequences in the long-term. What starts as a short-term coping response commonly evolves into the long-term loss of human capital and productivity, raising the risk of poverty for the next generation. As such, these patterns of withdrawing children from school and the use of child labor as a coping mechanism raise serious issues about the need of policy interventions to protect children's human capital in the face of adverse shocks.⁵³

2.44 In sum, as elsewhere, Central American households use a variety of actions in an attempt to prevent, mitigate, and cope with risk and shocks. This is evident in the context of the coffee crisis, in which coffee households used a variety of approaches to try to deal with the effects of the coffee price shock, including efforts to diversify their incomes, migration and remittances, adjustments in family labor supply, sale of assets, and increased dependence on child labor. While the evidence suggests a number of similarities in household risk management strategies across Central America, it also highlights several differences across countries, the result of a number of complex factors, including people's access to alternative economic opportunities. These similarities and differences are summarized in Table 2.12.

⁵⁰ Vakis et al. (2004).

⁵¹ Table 2.11 indicates that child labor is also prevalent among the poor in rural Nicaragua in general.

⁵² Guatemala Poverty Assessment, World Bank, 2004.

⁵³ Of the countries with panel data, only in El Salvador does children's education not appear to have been significantly affected by the crisis. The fact that: (1) children's school enrollments in El Salvador do not seem to have been adversely affected in the face of the crisis, and (2) in El Salvador, coffee households appear to have relied more on income diversification strategies, pose interesting contrasts to what happened in the other Central American countries, and point the way to promising approaches to deal with development in shock-prone countries. As noted above, a recent study of the coffee crisis in El Salvador (Trigueros and Avalos 2004) suggests that the Government of El Salvador's active policies to promote rural education, such as the EDUCO program and *Escuelas Saludables* (Healthy Schools) which provides food supplements to students, worked to offset any potential declines in children's school enrollments. In terms of diversification as a risk management strategy, recent progress in education and in developing rural road infrastructure that better connects people to markets, may have provided a stronger basis *ex-ante* for economic mobility in the face of the coffee shock (El Salvador Poverty Assessment, World Bank 2004). Receipt of remittances may have substituted for credit in the absence of deep rural financial markets. Together with flexible labor markets, these factors together may have enabled relatively greater economic mobility among coffee households, both small-scale farmers and laborers, during the crisis.

**Table 2.12: Central American Coffee-households' Risk Management Strategies:
Summary**

	Nicaragua	El Salvador	Honduras	Guatemala
Ex-ante strategies				
<i>Income diversification</i>				
Agricultural income		X		
Non-agricultural income		X		
Migration	X	X		
Ex-post strategies				
<i>Income diversification</i>				
Agricultural income				
Non-agricultural income	X	X		
Migration		X		
Exit coffee	X	X		
<i>Consumption patterns</i>				
Reduce food consumption	X		X	X
Reduce non food expenditure	X	X		
<i>Adjustment of labor supply</i>				
Increase work hours		X	X	
Child labor	X		X	X
<i>Dissaving and asset sales</i>	X			X
<i>Informal networks</i>	X			

Government Responses to the Crisis

A lack of counter-cyclical safety net programs

2.45 Although the Governments of Nicaragua, Honduras, Guatemala, and El Salvador all implement social assistance programs for vulnerable and at-risk groups, none of these countries have in place counter-cyclical safety net programs designed to support those affected by shocks such as the coffee crisis. During the crisis period, most of the existing safety net programs were designed to address important structural risks facing the poor, such as child malnutrition and poor access to basic health and education services, such as school feeding programs, scholarships to promote school attendance, and/or fee waivers for basic education and health care.⁵⁴ Honduras and Nicaragua also had – and continue to have – conditional cash transfer programs that are targeted to the poor and provide eligible households with cash in return for households sending their children to school and undertaking specific investments in their children's health and nutrition.⁵⁵ In addition, all four countries have social investment funds to support the development of socio-economic infrastructure in local communities. While the Central American

⁵⁴ For recent assessments of safety net programs in Nicaragua, Honduras, Guatemala, and El Salvador, see World Bank 2001b, World Bank 2002a, World Bank 2002b, and World Bank 2003a. Marques (2003) provides a synthesis of the safety net situation in Central America.

⁵⁵ In October 2005, the Government of El Salvador began implementing a similar program, the *Red Solidaria*, that provides conditional transfers to the extreme poor in the 100 poorest municipalities in that country.

countries have some incipient capacity to address natural disasters in the wake of recent shocks like Hurricane Mitch and the 2001 earthquakes, they still do not have systems in place to deal with an external economic shock like the coffee crisis.

A post-crisis focus on debt and employment—

2.46 In this context, specific responses to the coffee crisis did not begin until the crisis had become acute – perhaps due to a presumption among policy makers that declining coffee prices simply reflected “normal” price volatility in the world coffee market. For whatever reason, in the early stages of the world price decline (1998-2000), there was little crisis-related action on the part of the region’s governments. Once governments did begin to focus on the situation – in part a response to pressure from large coffee producers’ associations – concerns focused on two main issues: first, whether the crisis would precipitate a debt crisis in the coffee sector, especially among large coffee producers (estates); and, second, whether it would lead to widespread unemployment among (often poor, landless) labor working on coffee estates. Indeed, in response to concerns about a debt crisis in the coffee sector, governments’ responses tended to focus disproportionately on programs to alleviate the debt burden of coffee farmers, particularly that of large-scale producers (Box 2.3).⁵⁶

Box 2.3: A Sample of Government Responses to the Coffee Crisis

Nicaragua. The debt situation was of primary concern in Nicaragua. Indeed, by 2002, coffee-farmers’ debts totaled approximately US\$105 million.⁵⁷ As coffee farmers’ ability to repay these loans declined, concerns increased about a potential crisis in the country’s already stressed financial system. The Government thus intervened by promoting, coordinating, and providing financing for different debt-restructuring programs.

These programs varied according to the type of debt held by a coffee producer, with the following main restructuring categories being created: (i) debts to solvent commercial banks (US\$55 million – 684 cases); (ii) debts to bankrupt commercial banks (US\$32 million – 665 cases); (iii) debts to micro-finance organizations (US\$6 million – 7,520 cases); and (iv) debts to exporting firms (US\$12 million – 2,300 cases). The first two categories targeted mainly medium and large coffee farmers (with farms sizes of at least 20 *manzanas*), the third focused on small farmers (5 *manzanas* or less) while the final category did not distinguish based on farm size. It is important to note that the majority of the government restructuring schemes (more than 80 percent) – and the bulk of the government financial support – focused on large coffee farmers.

The government of Nicaragua did field a couple of safety net programs, but they were of much smaller scale than the debt restructuring programs. For example, in 2001, the Government of Nicaragua financed and implemented a small-scale workfare program, which benefiting 300 coffee workers (representing about 1,000 family members). In addition, in 2002, the Government of Nicaragua implemented a “Food-for-Work on Coffee Farms” program through the Ministry of Agriculture (MAGFOR). With a budget of US\$574,336, this program was implemented in 21 coffee municipalities and provided family food rations to 8,212 households; 6,317 of these were small coffee farm owners (6 *manzanas* or less), while 1,895 were coffee farm workers. Participating households received the food complement in exchange for working on a variety of activities on coffee farms.⁵⁸

El Salvador. El Salvador was the only one of the four study countries that had established an Emergency Fund for Coffee in 1992 in response to the 1989 price declines.⁵⁹ The fund, which focused on debt relief, began with

⁵⁶ These debt relief and restructuring programs were launched, at least in part, in the face of Central American governments’ concerns about the broader effects on their countries’ banking and financial sectors of widespread default by large-scale coffee estates. In that sense, it can be argued that debt relief to predominantly large coffee farmers had a wider economic rationale. Nonetheless, the policy approach adopted by the region’s governments entailed important trade-offs – both in terms of limiting (or delaying) necessary structural changes in the coffee industry as a result of structural changes in the world coffee market and in terms of drawing policy attention away from the social and poverty impacts of the crisis, which fell most squarely on small-scale coffee producers.

⁵⁷ Nicaraguan Coordination and Strategy Secretariat of the Presidency (SECEP).

⁵⁸ Prior to this program, the Government financed a small-scale workfare program benefiting 300 coffee workers (representing about 1,000 family members) in 2001.

⁵⁹ Costa Rica had a similar fund.

\$45 million obtained through an international loan, and was intended to be distributed to all farmers, irrespective of their debt or size. By 2000, however, the fund did not have sufficient money to satisfy demand. In fact, even with a second emergency fund of \$80 million established in 2000, an additional \$250 million was needed to fully address the coffee farm sector debts. By the end of 2001, a third program (*Programa de Rescate Cafetalero*) was created, which aimed at restructuring some of the coffee producers' debt, providing supplemental credit to farmers, and eliminating some of the lowest quality coffee.

In addition to the debt relief and restructure programs, in 2000 a broader program aimed at addressing some of the long-term dimensions of the coffee crisis was established by the Ministry of Agriculture and the *Banco Multisectorial de Inversiones* (BMI). Financed through the banking system, it made available \$100 million for the renovation of coffee farms. The program was oriented toward financially solvent producers with more than 25 manzanas of land, situated in areas 800 meters or higher. The basic idea of this program was to allow coffee farmers upgrade their farms by improving farm productivity. While this program did address some of the longer-term dimensions of the coffee crisis, the objective of the program and related technical assistance was focused on enhancing coffee production practices, as opposed as considering alternative crop production and/or production diversification.

Honduras. In early 2000, Honduras created the National Coffee Fund (*Fondo Cafetero Nacional*) with approximately \$20 million available to provide price supports to coffee farmers during the crisis. The program aimed at providing a support of \$6 per quintal of green coffee produced. In addition, in 2002 the Government proposed a \$70 million fund aimed to help coffee farmers reschedule bank debt. These efforts were complemented by assistance from the World Food program, which agreed in mid-2002 to provide 1,500 tons of food aid families living in drought stricken areas as well as to coffee farmers in need of food.

Guatemala. In 2001, a trust fund was established in Guatemala to finance coffee farmers undertaking a number of different activities, including: (i) enhancing agro-processing; (ii) improving marketing; (iii) debt restructuring; and/or (iv) exiting from coffee production. The Trust Fund, administered by the Bank of Rural Development (BANRURAL), was established through bonds offered in the domestic market, bearing an interest rate of 8.5 percent. Out of the \$100 million that was initially raised, only \$40 million were targeted toward the estimated 50,000 small farmers, while the remaining \$60 million went to the 12,000 medium and large-scale farmers. This corresponds to an average of \$800 per small farmer, as compared to an average of \$5,000 per medium and large scale farmers.

—reduced policymakers' effectiveness in addressing the social impacts of the crisis

2.47 Governments' focus on producer debt (on one hand) and on employment losses (on the other) may have been reinforced – perhaps inadvertently – by donor focus and attention to the problem. In April 2002, when the world coffee price was at its depths, the World Bank, along with the Inter-American Development Bank (IDB), and USAID, co-sponsored a regional workshop in Antigua, Guatemala, to assess the situation and identify possible lines of public action. In preparation for the workshop, the donors produced a joint assessment that identified several areas for action focusing largely on production-side issues – e.g., on improving the competitiveness of coffee farmers, where feasible, and on promoting farmer diversification out of coffee, in situations where improved competitiveness seemed unlikely.⁶⁰

2.48 At about the same time, CEPAL published its own assessment of the economic and social impacts of the coffee crisis featuring, among other things, some gross estimates of the expected employment losses associated with the crisis.⁶¹ A World Bank team also produced a more in-depth study of the crisis impacts in follow-up to the regional workshop.⁶² That study, like the workshop report, focused largely on the production side of the crisis – although it did provide a preliminary assessment of the crisis's social impacts, again based on broad estimates of employment. The World Bank study also provided a note of caution that it was not clear how the

⁶⁰ Inter-American Development Bank, United States Agency for International Development, World Bank (2002).

⁶¹ Flores et al (2002).

⁶² Varangis et al (2003).

aggregate employment estimates translated into changes of welfare among those involved in the coffee sector. Yet, a detailed assessment of the welfare impacts of the coffee crisis was not available at the height of the coffee crisis. Indeed, each of these efforts highlighted the need to understand better the social impacts of the crisis to enable effective government action.

2.49 In sum, the dominant focus on producer-side issues and, in particular, on debt, combined with a limited understanding of the household-level impacts of the crisis, hampered the ability of policymakers to address the social impacts of the crisis in a suitable and effective way. Indeed, review of the programs Central American governments had in place and/or that were implemented in response to the coffee crisis indicates that:

- The governments of Central America did not have programs in place *ex-ante* that were poised to respond to the social impacts of the coffee crisis (or a comparable sector-wide or aggregate economic shock); nor was there in place a particular mechanism for “counter-cyclical” financing in the face of a shock.
- The majority of government responses to the coffee crisis focused on “short run” dimensions of the crisis and, most commonly, on assisting producers with dealing with their debt burdens in the face of dramatically lower world coffee prices. Relatively few of the programs (or resources) were dedicated toward enabling farmers or workers to adjust to long-term structural changes in the world coffee market.
- The interventions that were implemented were frequently oriented toward larger scale farmers and estates, while only a relatively small share of the resources going towards smaller farmers who comprise the majority of the actors in the coffee sectors in these four countries.
- An even smaller share of resources allocated in response to the coffee crisis seems to have been dedicated toward social protection type interventions to support either laid off workers or poor farmers.

2.50 In general, the government responses to the coffee crisis appear to have been designed with little information about the crisis impacts (beyond its impact on producer debt) and with little regard for their incentive compatibility – or incompatibility – with the longer-run structural transformation of the world coffee market and of the rural economies in Central America. Indeed, to date, no evaluation has been done regarding the impact or effectiveness of these debt-restructuring schemes – either from the perspective of the economics of coffee or from a social protection perspective.

A need to distinguish between the long- and short-run dimensions of the crisis

2.51 In designing programs to protect those adversely affected by crises, like the coffee crisis, a more comprehensive approach is needed to enable policy makers to distinguish between the long- and short-run dimensions of the problem. While some of the short-term dimensions may have been addressed, the longer-term issues related to structural changes in the coffee market – efforts that would have involved increasing coffee farmers’ competitiveness or supporting agricultural diversification and/or movement out of the coffee sector – were largely unaddressed. The outcome may, unwittingly, have been to keep some producers and workers attached to the coffee sector when economic circumstances dictate otherwise. In doing so, they may be making these producers and workers even more vulnerable to future coffee-related shocks.

Conclusions

2.52 Although the specific impacts differed across the four countries – and across groups within countries – the evidence reveals significant effects of the crisis on several dimensions of household and individual welfare, *especially among small-scale, coffee farming households*. The fact that small-scale coffee farmers appear to have been the worst affected by the crisis, while not surprising in retrospect, defies early expectations that coffee laborers would bear the brunt of the shock through the employment effects of the crisis. As importantly, in addition to income effects of the crisis, the evidence suggests strong pass-through effects from the income shock to investments in children’s human capital (education and/or nutrition) in the study countries.

2.53 The evidence also shows that coffee households used a mixture of *ex-ante* and *ex-post* risk management strategies in their attempt to soften the impacts of the crisis. While many of the coping mechanisms households used could be considered appropriate – e.g., income diversification, household labor adjustments, exit from coffee, migration and remittances – there is evidence that households also often employed harmful coping mechanisms, such as withdrawing children from school to contribute to family earning activities, which may have important long-term costs to family productivity and welfare.

2.54 Thus, in spite of their private, informal risk management strategies, households involved in the coffee sector in Central America were not able to protect themselves fully from the effects of the sharp decline in the coffee price. This is consistent with a broader body of policy research on consumption smoothing and household self-insurance. It is possible that government programs launched in response to the crisis may have helped to soften the blow to affected households. But to the extent they did, the support was indirect via debt relief to mostly large coffee producers. Moreover, even if public responses served to partially offset some of the adverse impacts, programs appear not to have targeted effectively those who faced the most serious welfare impacts of the crisis; nor did most government responses focus on ensuring incentives that were compatible with both the short- and long-term dimensions of the coffee crisis.

3. Elements of a Strategy to Deal with Shocks

3.1 Effective, country-level strategies to deal with shocks require an integrated approach that includes efforts to:

- ensure macroeconomic stability and growth,
- strengthen people's ability to manage risk *ex-ante*,
- develop appropriate, well-targeted safety nets, and
- strengthen data, information, and monitoring systems for crisis management.

High returns to a stable macroeconomic environment

3.2 Although it is outside the realm of what is generally considered social protection, a critical element of managing shocks effectively is prudent economic management – policies that ensure macroeconomic stability and growth. Terms-of-trade shocks like the coffee crisis may be exogenous, but economic management is not. And it is clear that there are high returns to sound economic policies. Stable economic environments, coupled with flexible labor markets, can help to soften the blow of an economic shock, and facilitate households' adjustment to changing economic circumstances. Indeed, in El Salvador and Nicaragua, stable economies and moderate growth during the coffee crisis were critical to coffee laborers' abilities to find alternative sources of employment and income, which enabled them to mitigate the impacts of the crisis. Such labor force adjustments would not have been easy – perhaps not even possible – in unstable or stagnant economies.

3.3 From a strict social protection perspective, the evidence from the coffee crisis highlights the importance of focusing both on strengthening people's ability to manage risk *ex-ante* and on providing targeted assistance *ex-post* to those who are unable to protect themselves adequately from a shock. The evidence also indicates that to design effective safety nets, it is important to understand the precise nature of the shock and who is affected. This requires the development of data, information and monitoring systems to assure that programs appropriately address the most pressing challenges generated by the shocks and that *ex-post* interventions can be adequately targeted. This chapter focuses on these latter three elements of a strategy to deal with shocks, drawing both on the lessons from the coffee crisis and on other recent experiences with shocks and social protection in the region.

Strengthening People's *Ex-ante* Risk Management Capacity

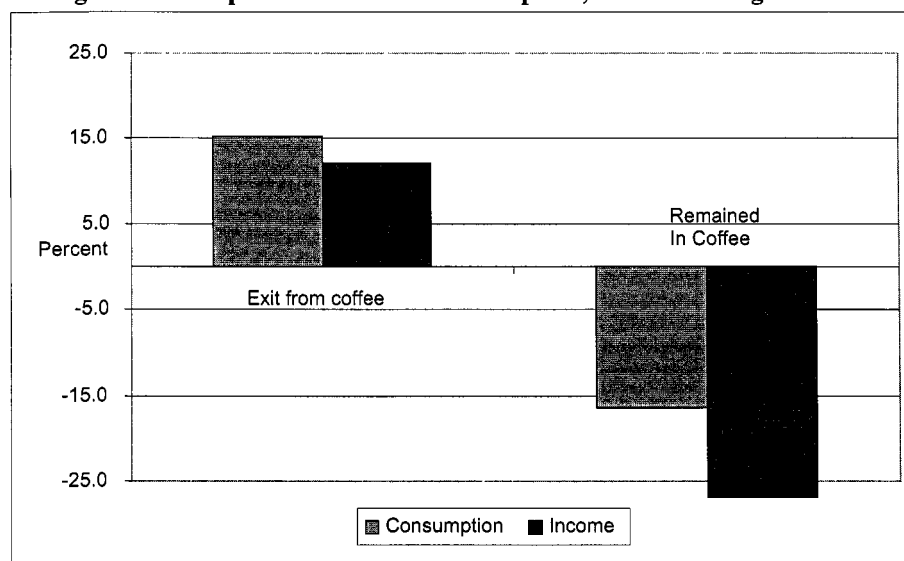
Ex-ante strategies can be particularly effective in enabling households to deal with crises

3.4 The evidence indicates that certain households were better prepared to deal with the coffee crisis than others. In Nicaragua, for example, coffee households that used *ex-ante* risk management strategies (e.g., had diversified income portfolios, had out-migrant members and received remittances) appear to have done better in mitigating the negative impacts of the crisis and protecting themselves from poverty than those that solely relied on *ex-post* coping instruments (e.g., selling assets, taking children out of school, employing child labor) to deal with the income shock.⁶³

⁶³ Vakis et al. 2004. Similarly, Beneke de Sanellu and Shi (2004) find that households that had a greater number of non-agricultural enterprises and that received remittances were less likely to fall into poverty during the coffee crisis period than those that did not.

3.5 In addition, some households possessed characteristics that made them more economically mobile and helped them make the necessary economic adjustments in the face of the shock. This economic mobility is perhaps most exemplified by the households who exited the coffee sector during the crisis period to diversify their income portfolios. Indeed, households that exited the coffee sector were not only able to distance themselves from the effects of the crisis, but experienced high growth in both income and consumption, based largely on increases in non-agricultural incomes (Figure 3.1, for the case of Nicaragua).

Figure 3.1: Households that Exited the Coffee Sector and Those that Remained: Changes in Per Capita Income and Consumption, Rural Nicaragua 1998-2001



Source: Vakis et al. (2004).

3.6 But what characteristics or factors influenced certain households' success in dealing with the coffee crisis? As noted in Chapter 2, households' abilities to exit from the coffee sector in Nicaragua was positively associated with several key factors, including family education levels, control of physical assets (including land), access to credit, and access to markets and alternative (non-coffee) market opportunities. The importance of these factors is corroborated by several other analyses of poverty, vulnerability and economic mobility in the region. In rural El Salvador, households with higher levels of education, greater asset holdings, and greater proximity to markets were not only less likely to fall into poverty during the coffee crisis, but they tended to experience faster real income growth over the period.⁶⁴

Education helps to enhance people's economic mobility—

3.7 Similar analysis for Nicaragua also shows that higher levels of education significantly increased growth of household per capita consumption, reducing vulnerability to poverty and, indeed, increasing the likelihood of exiting poverty during the crisis period. Access to alternative (non-coffee) economic opportunities, as proxied by residence outside a coffee growing region,

⁶⁴ Beneke de Sanfeliu and Shi (2004). Similar household characteristics and strategies were found to be important to mitigating the impacts of the El Salvador earthquakes. See Beneke de Sanfeliu and Shi (2004) and El Salvador Poverty Assessment, World Bank (2004) for additional details.

also translated into a lower probability of experiencing a consumption shock and a greater likelihood of exiting from poverty.

—as does investment in infrastructure & access to rural financial markets

3.8 The collection of evidence thus suggests that public policies and investments to strengthen households' risk management capacities and facilitate greater economic mobility *ex-ante*, including investments in:

- education,
- socio-economic infrastructure, e.g., roads, transportation and communication infrastructure that reduce transactions costs and improve people's access to markets and opportunities, and
- deepening of rural financial markets.

are all key components of a strategy to strengthen households' abilities, *ex-ante*, to deal with risk, shocks, and economic change.⁶⁵ While not part of the statistical analyses underpinning this report, qualitative evidence further suggests that improving availability of market information, including on prices, price trends, and changing market circumstances, improves people's capacity to make rationale economic decisions in the face of changing economic circumstances.

Market-based instruments can be important to managing risk—

3.9 There are also several market-based risk management instruments, including insurance mechanisms that show promise with respect to strengthening producers' ability to mitigate (before the fact) the impacts of risk and shocks.⁶⁶ For example, in the case of internationally traded commodities, including **coffee**, maize, soybeans, sugar, wheat, and some livestock, market-based risk instruments like *futures* or *options markets* already exist and can play an important role as part of a strategy to help producers manage price risk and shocks. These instruments have long been available and used extensively in developed countries, as well as by large producers in many developing countries. A key challenge remains, however, with respect to making such instruments available to small-scale producers in rural areas of developing countries – like those adversely affected by the coffee crisis in Central America.

—but are not often available to small-scale producers

3.10 Indeed, there are still many obstacles associated with small producers' access to such "price risk markets", given that contracts in these markets are generally associated with large underlying volumes and that futures and options trading involves large fixed costs. Several recent efforts have been made, however, to provide access of smaller-scale producers to price risk markets by "aggregating" local demand via some large intermediary, whether through specially designed programs, through cooperatives or other producer associations. In Mexico, for example, the Agricultural Products Options Program (*Programa de Cobertura de Precios de Productos Agrícolas*) offers subsidized dollar-denominated futures options to maize, cotton, sorghum, and soybean farmers.⁶⁷ In Guatemala, the National Coffee Association, *Asociación Nacional de*

⁶⁵ These findings are consistent with recent work by the World Bank on ensuring that the poor can benefit from regional trade benefits like NAFTA or the recent Central America Free Trade Agreement, CAFTA. This work highlight the importance of a "complementary" policy agenda that includes investments in education, infrastructure, and financial sector strengthening to ensure that poor and remote rural households are able to adjust appropriately to changing terms of trade and relative prices in the economies. See Lederman, Maloney, and Serven (2003) and World Bank (2005, forthcoming).

⁶⁶ For a more comprehensive review of these instruments, see Larson et al (2004). For further discussion in the context of the Central American coffee crisis, see Varangis et al (2003).

⁶⁷ Varangis and Larson (1996).

Café, facilitates price-hedged credit for smallholder producers.⁶⁸ In El Salvador and Nicaragua, pilot efforts by the World Bank are currently being undertaken to identify practical ways to provide access to these risk markets to smallholder farmers in those countries.⁶⁹

3.11 Several other market-based approaches to managing agricultural producers' price risk also exist – or are being explored – including using inventory management, using long-term “guarantee” contracts, and/or linking price insurance to loan agreements. As with futures and options instruments, producer size has tended to be a barrier to access; nonetheless, efforts are underway in different contexts to aggregate demand for these instruments as well, through intermediate organizations and institutions (Box 3.1).

Box 3.1: Market-based Approaches to Managing Producer Price Risk

While several tools to manage price volatility already exist, small and medium-size agricultural producers in developing countries have tended not to access them, even when they might be appropriate, due to high transaction costs, and limited understanding of the instruments or how they work. Moreover, there tend to be few actors or institutions at present that help to aggregate demand for such instruments among small producers – although cooperatives and/or other producer organizations and associations can potentially play this critical role. A recent World Bank study outlines market-based risk instruments that exist – or are being explored – that could potentially help coffee (and other) farmers manage price risks, *if* appropriate links can be facilitated between risk markets and small producers. These include:

- *Using inventory management.* Small-scale producers (via *cooperatives* or other producer organizations) may not wish to sell all their product immediately after harvest, but hold back some or all of their product in storage until price conditions are more favorable. Indeed, by providing greater flexibility in the time of sale, this type of price risk management can allow producers (whether of coffee or other crops) to protect the value of their inventories from unexpected price declines within a limited time duration (e.g., during a crop year).
- *Using guarantee contracts.* There are several types of price-contracting arrangements in place between farmer organizations and downstream users (e.g., processors, traders, in the case of coffee) that provide price protection to farmers. Long-term, guarantee contracts, *Fair Trade*, is one such instrument. Fair Trade contracts are particularly attractive as they guarantee a price to farmers that is not only higher than the prevailing market price, but also fixed over time. Indeed, Fair Trade contracts, when they could be negotiated, have been an effective way to provide particularly strong price protection to coffee producers (e.g., some contracts provided for \$1.20 – to \$1.30 per pound lb. even when market prices declined to \$0.50 – \$0.60 per lb.).
- *Linking price insurance to loan agreements.* In principle, a farmer with price insurance who borrows should be a better credit risk than one who borrows without it. From the perspective of the lender, a portfolio of debt that is insured should strengthen the lending institution. From the perspective of the borrower, ongoing access to credit can improve their ability to income smooth over difficult periods. It should also improve the flow of credit for farmers who agree to buy price insurance. This arrangement may be useful to countries seeking to improve the flow of credit to coffee (and other agricultural) sectors.

The efficacy of these instruments depends on a number of factors, including the critical challenge of linking small and medium-sized producers to the appropriate instrument. In this context, there is scope for continued experimentation and piloting of programs that work to aggregate demand for risk management instruments, along with technical assistance to small farmers to strengthen their understanding of the role of market-based risk management instruments. Monitoring and evaluation of experience will also be critical to identify and, then, replicate particularly effective program models.

Source: Adapted from Varangis et al (2003).

⁶⁸ Larson, Anderson, and Varangis (2004).

⁶⁹ Varangis et al (2003).

While moral hazard and adverse selection can make traditional crop insurance problematic—

3.12 Several insurance instruments may also hold promise with respect to helping rural producers manage risk and shocks, ex-ante – particularly yield risks associated with adverse weather, pests, and/or diseases.⁷⁰ Formal agricultural insurance institutions are generally better suited to address covariate yield risks than are informal (“mutual”) insurance mechanisms. Nonetheless, the track record of traditional crop insurance schemes has been problematic; as such schemes have often been plagued by serious moral hazard and adverse selection problems. Moral hazard arises when farmers are able to take actions that affect insurance payouts; adverse selection arises when those purchasing insurance have better information about risks than the insurance provider. In both cases of moral hazard and adverse selection, the self-selected pool of insurance participants will have above-average risk/payouts, adversely affecting the viability of the scheme.

3.13 To address the problems associated with moral hazard and adverse selection, several emergent insurance products, broadly termed “index insurance” have been developed. These insurance products attempt to eliminate moral hazard and adverse selection by using an insurance trigger linked to farm losses that cannot be manipulated by the insured party, such as weather or average product yield over a defined group of producers. Area-yield crop insurance is a contingent contract that pays out when average yield for a group, usually geographically defined, falls below a specified trigger, while weather-based index insurance pays out based on the occurrence of a weather event, rather than on actual crop losses.

—emerging instruments, such as weather-based or area-yield insurance, hold promise

3.14 Although experience with these types of insurance products, particularly weather-based insurance, is relatively limited, several recent applications are being watched with interest to see if they might have broader applicability in developing countries. For example, weather indices are currently being used for agricultural insurance in Ontario and Alberta, Canada.⁷¹ In Argentina, in light of the positive correlation between rainfall and milk yields, a rainfall insurance contract is being used by a milk-producing cooperative. And in Mexico, AGROSEMEX, the agricultural reinsurance company recently used weather derivatives to protect part of its crop reinsurance portfolio exposed to weather risks. Indeed, there is growing interest in their promise to help rural producers deal ex-ante with common production risks in developing countries. In this context, in 2001, the International Finance Corporation (the private-sector lending arm of the World Bank Group) joined with private investors to create a US\$80 million facility to reinsure weather risks in developing areas.

3.15 In sum, analysis of the effectiveness of various risk management instruments to mitigate the impact of the coffee crisis, enhance upward mobility and reduce vulnerability to poverty suggests that households that use ex-ante rather than ex-post coping mechanisms did better along those welfare dimensions. This suggests that strengthening ex-ante risk management strategies – including long-term investments in education, socio-economic infrastructure, and financial intermediation – that enhance economic mobility – may be among the most powerful instruments for dealing with shocks. Indeed, long-term efforts to address shocks and risk exposure should include consideration of ex-ante mechanisms as among the key instruments for managing risk. Moreover, although insurance markets or other market-based risk management instruments are not that well developed at the moment in Central America, serious consideration should be given to the development of such instruments to strengthen the risk management capacity of

⁷⁰ This section on insurance instruments draws heavily on Larson et al (2004).

⁷¹ Larson et al (2004).

households, especially in rural areas, as part of a comprehensive strategy to deal with risk and shocks.⁷² This would include further piloting of promising approaches, such as those aimed at reducing the (transaction) costs associated with small farmers accessing market-based risk management instruments.

Developing Appropriate, Well-Targeted Safety Nets

3.16 Even if ex-ante risk management instruments are strengthened and investments are made to enhance people's ability to adapt to changing circumstances, the development of flexible, well-targeted, counter-cyclical safety net instruments is crucial, especially in the event of covariate shocks like the coffee crisis.

Key principles of safety net responses:

Recent experience highlights the importance of several key principals:

- Developing an effective safety net response to a shock requires ***pre-shock preparation*** for a variety of contingencies, including which institutions and types of programs can play the most effective roles in the face of different shocks and differentially affected groups. As noted in Chapter 1, social investment funds played an important role in responding to Hurricane Mitch and the El Salvador earthquakes, but different types of shocks require different institutional and/or programmatic responses.
- Developing an efficient safety net response also requires ***effective targeting*** of shock-affected groups. Ensuring that the safety net is well-targeted is important for several reasons. First, in Central America, fiscal resources are generally scarce. So, to be feasible, let alone effective, targeting is critical to conserving scarce public financial resources. Second, targeting is important because even the most incentive compatible safety net programs may create perverse production and labor force incentives for those who have not been affected by the shock, but who receive program benefits.
- Developing the capacity for ***counter-cyclical financing and implementation*** is also important to ensuring impact, establishing appropriate incentives, and using fiscal resources effectively and efficiently. Developing counter-cyclical mechanisms requires that governments develop the fiscal discipline, as well as reliable financing mechanisms that can take effect in the face of a shock.
- Developing effective counter-cyclical safety nets also requires that governments prepare – prior to a shock – ***eligibility rules and exit strategies*** (such as time-limited eligibility) to ensure that participants exit from the program once the shock-related need has passed. This is again critical to minimize perverse incentive effects (or create aid dependency), as well as to ensure effective use of scarce government resources.

⁷² While a detailed analysis of macroeconomic policy is beyond the scope of this report, it is critical to highlight the importance of sound macroeconomic policies, including a sound fiscal position, as part of a comprehensive strategy to for dealing with shocks, ex ante. A stable macroeconomic environment is important, for example, to minimizing the likelihood that a sector or location-specific shock grows into an economy wide-crisis. As noted above, the fact that the Central American countries continued to grow in the face of the coffee crisis was critical to coffee laborers' ability to find new economic opportunities in other sectors when demand for coffee labor declined. Moreover, sound fiscal management is a necessary prerequisite to undertaking the types of counter-cyclical spending on interventions that are often needed to respond appropriately and forcefully to a shock. See de Ferranti et al (2001) for an in-depth discussion of the macroeconomic elements of managing crisis and shocks, as well as for a discussion of the rationale for counter-cyclical financing for safety nets. "Lesson 3: Developing an Appropriate, Well-targeted Safety Net," below, discusses further the importance of counter-cyclical safety nets as part of a comprehensive strategy for dealing with shocks in Central America.

- Cross-country experience also indicates that responses to shocks are most effective – and easiest to scale up and down in the face of changing circumstances – if they **build on existing program and institutional capacity** prior to the shock. In general, waiting to establish a program and/or response institution until the time of a shock or crisis is too late, and results in slow and inefficient action. Recent experience from the Latin America region indicates that establishing a new safety net program from scratch can be a multi-year enterprise.
- Finally, designing **flexibility** into safety net responses *and* institutions is important for several reasons. As noted above, to be effective, the program needs to be able to respond to the specific nature of the shock, its geographic location, and the characteristics of the affected individuals or households. As importantly, with advanced planning, existing programs and institutions can be designed, *ex-ante*, to be *agile* in responding to shocks.

3.17 Recent experience with natural disasters in the region, and the relatively successful public responses, demonstrate the importance of being able to build on existing programs and institutions when it comes to responding to shocks. Indeed, quick mobilization of existing country-level institutions – like the Honduras Social Investment Fund (FHIS), the Nicaragua Emergency Social Fund (FISE), and the Social Fund for Local Development (FISDL) in El Salvador – enabled quick and effective responses (Box 3.2). The experiences with Hurricane Mitch and the El Salvador earthquakes also highlight the importance of building in flexibility to selected implementing agencies’ procedures – e.g., establishing contingency procedures and agreeing on them in advance with financing agencies – to ensure appropriate responses to shocks. Indeed, in the wake of recent natural disasters in the region, many social investment funds now have such “contingency manuals” that enable them to adapt and move quickly in the event of a shock.⁷³

Box 3.2: Responding to Natural Disasters: Building on the Strengths of Existing Institutions

Honduras after Mitch. The Honduras Social Investment Fund (FHIS) played a pivotal role in the government’s response to Mitch, responding to requests from both local and central levels to help rebuild the country’s critical infrastructure. Already engaged in developing social infrastructure in local communities across Honduras, and with built-in operational flexibility and a relatively lean structure, the fund was able to respond to the crisis immediately.

To confront the challenges in a quick and efficient manner, the FHIS established 11 temporary regional offices, and delegated responsibilities and resources to senior staff appointed as regional directors. Its technical experts were in affected areas within hours of receiving the news of hurricane’s impact to assess damage. Regional offices worked closely with community members and municipal representatives to assess clean-up needs and to repair or replace water and sanitation systems, access roads, bridges, health centers, and schools. Recognizing the need for quick action, FHIS simplified its subproject cycle, reducing the required number of steps from 50 to 8, and increased its use of standardized subprojects and simplified procurement methods. It also established safeguards in each of the regional offices to ensure accountability and transparency.

Within 100 days, FHIS approved 2,100 projects with a total value of \$40 million, with critical support from IDA, the International Development Agency, in securing funds. By the end of 1999, about 3,400 emergency subprojects had been financed. FHIS’s immediate focus on restoring economic activity and basic social services prevented the emergency from aggravating poverty. To this end, the FHIS financed highly labor-intensive projects – labor accounted for up to 70 percent of some clean-up activities – generating temporary employment in precisely the communities where productive activities had been disrupted. Indeed, FHIS created about

⁷³ Warren (2003).

100,000 person-months of employment during the first three months—on a par with workfare programs in other countries, such as Argentina's *Trabajar*.

FHIS demonstrated that a social fund can play a vital role as part of a social safety net in times of natural disaster. In many ways, social funds are ideally suited to meet the combination of a sudden need for employment and rehabilitation of community infrastructure. Indeed, some of the same qualities that FHIS had acquired as the principal government agency responsible for small scale civil projects proved invaluable in an emergency – its unique presence in communities throughout the country; its existing partnerships with municipal governments and other local entities; its track record in financing and overseeing implementation of large numbers of small-scale projects quickly, effectively, and with operational transparency; and its ability to adapt procedures to new circumstances.

El Salvador after the earthquakes. Following the earthquakes, the Government of El Salvador charged the Social Investment Fund for the Local Development (FISDL) with developing an Emergency Program to assist the most adversely affected families and areas, drawing on FISDL's unique experience in working with municipal governments and communities on local development projects. The program focused on two key sets of activities:

- ***Debris removal.*** Families whose homes were destroyed were provided with incentives to remove debris and place it near the public highways, where municipal governments could then dispose of it. Specifically, affected families were given vouchers and a set of tools, made available through municipal governments; additional resources were made available to municipalities to support debris disposal. This program enabled families to clear their living spaces of debris, facilitated timely support by municipal governments, and helped to catalyze resumption of local economic activities, as materials and transport services were purchased directly in earthquake-affected areas.
- ***Temporary housing reconstruction.*** Affected families were provided with construction materials for easy assembly of provisional housing, to ensure that they had basic shelter and to reduce the risk of disease after the earthquake. As with debris removal, FISDL channeled needed tools and materials to families through the municipalities. In the case of temporary housing, the FISDL also engaged in direct distribution of materials and, on the basis of information prepared by affected municipalities, coordinated delivery of provisional housing by the Salvadoran Army and several NGOs.

The first deliveries of goods began three days after the earthquake, and in less than three months, over 150,000 aid packages, with vouchers and tools, had been distributed. Materials for building more than 210,000 provisional houses were also moved, with local coordination and participation, contributing to the reconstruction of significant amounts of housing and social infrastructure over the following two years.

Even with FISDL's experience in working with municipalities and local communities, implementing the process often involved a steep learning curve – e.g., in small towns that were not accustomed to standard (transparent) accounting systems or had no experience in implementing large community projects. To support the process, therefore, the central government undertook promotional campaigns, clarifying the objectives of the Program and encouraging municipalities to deliver resources quickly and efficiently under the Emergency Plan.

Sources: Warren (2003); FISDL (2004).

The effectiveness of specific programs depends on the nature of the shock and those affected

3.18 But how do governments (and donors) identify the type of safety net program that would be most appropriate in the context of events like the coffee crisis? Table 3.5 highlights four different safety net – or potential safety net – instruments that have been used recently in Latin American and Caribbean countries, including: (i) workfare programs, (ii) “decoupled” income support programs, (iii) conditional cash transfers, and (iv) fee waivers and related support provided by education and health service providers to prevent adverse impacts on human capital investment. The table summarizes the key features of each type of program; including the nature (or type) of event or shock they are particularly responsive to, the program's main beneficiary group, their administrative and targeting requirements and their incentive effects.

Table 3.5: A Typology of Safety Nets				
	Workfare (Food- or Cash-for-Work)	Cash Transfers (Decoupled Income Support)	Cash Transfers (Conditional, CCTs)	Facility-based Interventions (e.g., fee waivers for school, health visits, etc.)
Type of event or shock	Employment shock, whether seasonal or due to specific event; particularly open unemployment	Income shock to agricultural producers, generally associated with trade adjustment – i.e., loss of tariff or other protection, adverse changes in terms of trade	Traditionally used to address structural poverty promote children's human capital development, some evidence in Central America, Mexico, of ability to mitigate income shocks, adverse pass-through effects on children's human capital investments	Used on some contexts to promote long-term education and health access among the poor; can also be used to address adverse effects if income or employment shocks on human capital investment – e.g., children's education and nutrition, child and maternal health
Beneficiary Group	Un/under-employed adults, youth	Producers, cultivators of designated crops	Structurally poor, especially children through investments in human capital; potentially households affected by shock or in shock area	Individuals – e.g., children, pregnant mothers (beneficiaries can differ depending on specific sector and design of intervention)
Administrative Complexity/Institutional Capacity	Relatively simple; has capacity to be flexible; can be scaled up or down reasonably quickly as needed	Moderately-to highly complex, e.g., related to ability to target and verify program eligibility	Complex administratively; requires good system for targeting, verifying need, and monitoring conditions	Relatively simple, at least in context of a shock with a strong geographic dimension; requires adequate administrative capacity (and accountability) among local service providers
Targeting Mechanism, Requirements	Potentially self-targeting through setting of (below market) wage or other design features; can be combined with regional targeted when shock has geographic dimension	Effective implementation requires ability to identify affected producers, generally (to date) through the existence of good cadastral and/or land use records	Requires ability to target geographically or at household level (though means test, proxy means test or self assessment), or both, depending on the nature of the shock	Requires at least an ability to target geographically; could include second-tier household, or individual-level targeting at level of service facility
Incentive Effects	If designed to be self-targeting, will attract largely those in need; disincentives to private employment can be minimized	Mixed. Some evidence of adverse work incentives, but also of increased investment and income multipliers among some producers via increased enterprise liquidity	Can create dependency, perverse incentives to work – e.g., if not time limited or if no exit criteria/strategy exist	No strong disincentives to work; possible incentives to over-use health services (?), depending on design

Table 3.5: A Typology of Safety Nets (continued)				
	Workfare (Food- or Cash-for-Work)	Cash Transfers (Decoupled Income Support)	Cash Transfers (Conditional, CCTs)	Facility-based Interventions (e.g., fee waivers for school, health visits, etc.)
Limitations/Constraints	Evidence suggests that workfare is more effective for (open) employment shock than price or income shocks affecting self-employed	Without sufficient administrative and targeting capacity, risks of program leakage and of not reaching those in need	Same as unconditional and decoupled transfers; plus, traditionally not established as a flexible interventions – although efforts are underway in Nicaragua to test CCTs' responsiveness to shocks. Adequate supply of services a prerequisite to program effectiveness	Most appropriate for shocks with strong geographic dimension
Other Comments	Cash payment more efficient from an economic perspective than food or in-kind payment	Impact evaluation find evidence of income protection, consumption benefits, and income multiplier effects among medium-to-large scale farmers	Impact evaluation find CCTs effective in promoting children's human capital; open questions regarding flexibility to address specifically short-term shocks	---
Link to the Coffee Crisis	In 2001 and 2002, the Government of Nicaragua implemented small-scale workfare programs in response to the crisis	No explicit link; used by Mexico in response to agricultural price changes due to NAFTA	Although not implemented in response to crisis, CCTs did play safety net role among coffee sector households in Nicaragua and Honduras; evidence of CCT playing safety net role in Mexico as well	No explicit link to coffee crisis, although the approach was used in parts of Indonesia in the late 1990s in response to the East Asia crisis
Examples in Latin America and the Caribbean	<i>Trabajar</i> , and more recently, <i>Jefes y Jefas</i> (Argentina)	PROCAMPO (Mexico); also in Turkey, European Union, and the United States	PROGRESA/Oportunidades (Mexico), <i>Red de Protección Social</i> (Nicaragua), PRAF (Honduras), <i>Bolsa Familia</i> (Brazil), <i>Familias en Acción</i> (Colombia), PATH (Jamaica), <i>Red Solidaria</i> (El Salvador); also in Turkey	While this approach has not been used explicitly as a response to shocks, several countries in the region have used fee waivers as a way to promote basic education and health service access among the poor (e.g. in El Salvador)

The table also notes the link each program has (or not) to the coffee crisis, and where the instrument has been implemented in the region.

Workfare programs can be effective in addressing employment shocks—

3.19 As can be seen in the table, *workfare* programs (e.g., cash-for-work, food-for-work) are well-suited to address *employment shocks*, whether due to seasonal factors (say, in agricultural) or to specific economic or natural events. They are particularly effective in addressing open unemployment, situations in which the opportunity cost of participating in and benefiting from the program is low. From a comparative perspective, administering workfare programs is *relatively* simple, which may account in part for why they have been used across developing countries to address employment shocks.⁷⁴ If designed properly, workfare programs have the benefit of being “self-targeting”. For example, by setting the benefit payment (at least slightly) below the prevailing market wage, workfare programs tend to attract only those with few or no alternative opportunities; this simplifies the administrative requirements for targeting and minimizes disincentives to participants seeking regular market employment when it is available.

—but may provide little relief to self-employed coffee (or other perennial crop) farmers

3.20 Although workfare programs or some variant have been work-horses of employment crises in Latin America (e.g., *Trabajar/Jefes de Hogares* in Argentina) and beyond, it is not clear that they were the most appropriate choice of safety net in the context of the coffee crisis. While it is possible that the programs fielded in Nicaragua had some impact on the welfare of laid-off coffee laborers there, the size of the programs were so small that it is unlikely that they had much impact on crisis outcomes in aggregate. More importantly, given the nature of the coffee crisis, it is unlikely that workfare programs could do much to mitigate the impacts on the small-scale coffee farmers who were hardest hit by the crisis. Specifically, since self-employed coffee farmers needed to dedicate at least part of their labor time to protecting their investments in this perennial crop (in the expectation that prices would eventually rise again), the opportunity cost of participating in a workfare program was relatively high. This made it difficult for coffee farmers to participate in workfare programs.

Decoupled income transfers can buffer producers from the effects of price and income shocks

3.21 In this context, some other form of social assistance in the face of the coffee crisis may have been more appropriate and more effective. Indeed, other types of safety net programs could potentially be used to address *price and income shocks* – the most salient features of the coffee crisis. These include different types of transfer programs, such as: (i) “decoupled” income support payments, and (ii) conditional cash transfers. So-called “*decoupled*” *income payments* are agricultural support programs to farmers that base payments on clearly defined and fixed historical measures rather than linking them to current or future prices or production. This delinking of payment from prices and production helps to minimize the distortionary effects of these transfers on economic decision making.⁷⁵ Decoupled transfers have been used to compensate farmers for the loss of trade protection and the concomitant terms of trade “shock”.

3.22 This is the case in Mexico, for example, where the PROCAMPO program provides income support to Mexican farmers who cultivated one or more of the agricultural commodities liberalized under NAFTA. While, in principle, decoupled income supports could be designed as

⁷⁴ Workfare programs have implemented widely in developing countries outside of Latin America and the Caribbean, including in a number of countries in Africa and Asia. Among the most well-known workfare programs outside Latin America is the Maharastra Employment Guarantee Scheme (for further details on workfare programs, their design and effectiveness, see Subbarao 2003).

⁷⁵ In principle, decoupled income transfers avoid creating the economic distortions caused by many traditional agricultural support programs through their influence on domestic prices, input use, technology choice, or current or future production decisions. By not distorting production and, in turn, trade, properly designed decoupled transfer programs also fall into the “Green Box” category of income support programs as agreed under WTO rules (see Baffes and de Gorter 2003; Castañeda 2004; Mason 2005).

an unconditional transfer to those working in a shock-affected sector, in practice, they have often included restrictions. In Mexico, for example, PROCAMPO is targeted solely to cultivators – farm owners or operators – and not to wage laborers; and while the program does not link the transfer to production of specific crops, it does incorporate some restrictions on land use.

Conditional cash transfers may help protect children's human capital during crisis—

3.23 Conditional cash transfers – such as the *Red de Protección Social* (RPS) in Nicaragua, the *Programa de Asignación Familia* (PRAF) in Honduras, the *Red Solidaria* in El Salvador, and PROGRESA/Oportunidades in Mexico – provide a cash transfer to households *conditional* on families sending their children to school, visiting health facilities and/or undertaking training in preventative health care and nutrition. Traditionally these programs have been used to address structural poverty and to promote family investments in children's human capital development, rather than as responses to shocks. But, there is a growing body of evidence that conditional cash transfers (CCTs) also can play an important safety net role, protecting household consumption during an income shock and helping to mitigate the negative pass-through effects of a shock on children's human capital investments.

—although transfers can be relatively complex to administer

3.24 Both categories of transfer programs presented in table 3.5 are more administratively complex than workfare programs, particularly with respect to targeting beneficiaries and verifying their eligibility. Both categories of programs require the capacity to identify and target beneficiaries via an information-intensive targeting mechanism. In the case of decoupled income supports, effective targeting of beneficiaries generally requires the existence of good cadastral and/or land use records or some related method of verifying program eligibility. In the case of CCTs, programs have tended to use some combination of geographic and household-level targeting mechanisms; CCTs also require some mechanism for monitoring and enforcing beneficiary households' compliance with the conditions. Even with good targeting capacity, transfer programs risk some incidence of targeting errors – excluding those affected by the shock as well as including those who were not affected. In contrast to well-designed workfare programs, transfer programs can also generate perverse incentives for work, especially if they are not designed and implemented with clearly defined (and communicated) time limitations and/or exit strategies.

3.25 There are several considerations that might guide policymakers' choices among transfer programs – whether within or outside the context of the coffee crisis. If, for example, temporary income replacement to affected farming households is considered sufficient to address the negative impacts of the crisis – including the pass-through effects of the shock on investments in children's human capital – then a decoupled income support program might be appropriate. The need to have and maintain good cadastral or land-use records might make this approach difficult or impossible to implement in some countries, however, at least in the short-term.⁷⁶ In principle, eligibility for decoupled income support programs could be broadened to include shock-affected labor as well as self-employed farm households. In such a case, a different targeting mechanism would be needed – e.g., geographic or household-level targeting or some combination – depending on the geographic dispersion of the shock.

⁷⁶ One original expectation of decoupled income support programs, like PROCAMPO, is that they would facilitate households' economic adjustment in the face of terms-of-trade changes. This rationale might be appealing in the context of a terms-of-trade shock like the coffee crisis, given the long-term secular decline in world coffee prices. Nonetheless, while a recent impact evaluation of PROCAMPO shows that the program has had income multiplier effects – especially among medium-to-large scale farmers – there is little evidence that the program has helped to generate significant structural change in the economy of rural Mexico (Sadoulet de Janvry, and Davis 2001). Indeed, Mexican officials acknowledge that from the perspective of promoting economic adjustment in rural areas, PROCAMPO has not met expectations (SAGARPA, verbal communications, October 2004).

3.26 Among the most important features of household income shocks, including the coffee crisis, is that their impacts are often passed on to children in significant ways – through increased school drop-outs, reduced enrollments, increased child labor, and adverse impacts on child nutrition. These impacts are important because if they are not addressed, even ostensibly short-term impacts on children’s human capital can result in long-term losses of human capacity, productivity, and family welfare. For this reason, governments may see as a priority not only to provide temporary income support to shock-affected households, but to ensure the protection (and further development) of children’s human capital. In this context, conditional cash transfer programs may be appropriate and more effective than either unconditional or decoupled transfers, as they directly address *both* salient dimensions of a shock’s impact – the effect on household income/consumption and the effect on investments in children’s human capital.

Temporary fee waivers may be effective when the shock has a strong geographic dimension

3.27 Finally, for a variety of reasons, policymakers may prefer to focus solely on the protection of children’s human capital during an income or employment shock, rather than providing direct income support or short-term employment. In such cases, a reasonable alternative might be to provide assistance to families in affected areas in the form of *temporary fee waivers for school and healthcare services*.⁷⁷ By targeting transfers to local service providers and allowing them to administer benefits, this approach has simpler administrative requirements than household-based transfers at the central government level – although there may be compensating issues of administrative capacity and accountability at the local level. Fee waivers and other facility-based interventions are most effective when the shock has a strong geographic dimension (as is the case in the coffee crisis). If the impacts of the shock are regionally dispersed, then the benefits of simpler geographic targeting mechanisms may be (more than) offset by leakage of program benefits. Fee waivers for school were effective in maintaining children’s education in parts of Indonesia during the East Asian crisis of the late 1990s.

Choice of a safety net should account institutional capacity and constraints

3.28 Beyond the particular strengths and administrative requirements of a given safety net, the choice and effectiveness of a given instrument in the event of a shock will be dictated, at least in part, by the broader institutional environment prevailing in a country at the time of the shock. For example:

- *Information bases/targeting capacity.* As suggested above, the presence or absence of cadastral records or other information on which to base household-level targeting will dictate what type of targeting mechanisms are feasible during a shock response.
- *Labor regulations.* A country’s minimum wage laws can affect the ability of a government or donor to design a workfare program that is self-targeting. Specifically, if the labor code prohibits the government from paying workers below the minimum wage, and if the legislated minimum wage is “binding”, then it might be impossible to design a workfare program that is self-targeting in practice, since paying at or above the minimum wage might serve to attract those not affected as well as those affected by the shock. This would serve to eliminate one of the important administrative and targeting advantages of the workfare approach, all other factors being equal.
- *Financial sector regulations.* Laws that enable – or prohibit – households from using cash transfers as collateral for loans also help to determine the extent to which the

⁷⁷ While not associated with a particular shock, this approach has been adopted recently in El Salvador to promote greater education and health service access among the poor in that country.

transfers can be used to support new investment activities by the household or to which they are used mainly to address consumption shortfalls as a result of a shock.

3.29 These considerations will be important as the Central American governments examine their options for future responses to shocks. To illustrate: in the context of the Central America Free Trade Agreement, CAFTA, the region's policymakers will be faced with choices about how best to assist households, most notably farm households, who will face changing terms of trade for their products as a result of the Agreement. CAFTA allows for a phasing-out of trade protections as well as other safeguards, but implementing rapid liberalization coupled with targeted transfers to affected groups may be preferable from an economic perspective (World Bank 2005, forthcoming). Nonetheless, administrative and institutional factors, as well as fiscal issues, are likely to determine which approach is adopted in practice (Box 3.3).

Box 3.3: Managing CAFTA's Terms-of-Trade Effects

Although the Central American economies are already relatively open, due to unilateral trade liberalization efforts undertaken in the 1990s, a handful of “sensitive” agricultural commodities (e.g., maize, beans, dairy, and poultry) still have significant levels of protection. Much of the current trade protection on these items will be reduced or eliminated as a result of CAFTA. Given current levels of protection in each country, liberalization of the sensitive agricultural commodities can be expected to lead to lower domestic prices for these goods in each country – in some cases significantly lower. In this context, if not managed, the liberalization process could, potentially, result in employment and income losses among *net producers* of those goods, at least in the short-term, as they make the economic transition to new and more remunerative economic opportunities arising from the Agreement.

For this reason, CAFTA was negotiated to include a wide range of provisions for dealing with the liberalization of sensitive goods, including grace periods for initiating liberalization, extended phase-out periods for tariffs, interim quotas and/or phase-downs of TRQs, as well as special safeguard measures to protect local farmers from undue harm. Indeed, the Agreement includes generous timetables for reducing protection on sensitive goods. For some commodities, phase-out periods are as long as 20 years and, at least for a few countries, white maize (an important staple crop produced by the poor) was exempted from liberalizing. These provisions represent important protections for producers of sensitive crops, giving them an extended timeframe over which to undertake the necessary economic adjustments.

While CAFTA has a number of important safety net features built into it, the negotiated approach is not without its economic costs. Although phasing of reforms provides producers an extended period to make the necessary economic adjustments, it also deprives consumers for that same extended time period of the benefits associated with lower prices for important agricultural staples. A new World Bank study on the impacts of the Agreement (World Bank 2005, forthcoming) suggests that under the right circumstances, the governments of Central America could even do better. A more economically efficient approach would involve rapid liberalization of the sensitive commodities, coupled with transfers targeted to adversely affected groups. In principle, this approach is more efficient economically than phased liberalization, as consumers do not have to wait up to 20 years to reap the full benefits of lower prices. Coupling well-targeted transfer programs with quick liberalization would enhance households' welfare in the short-term on the consumption side while providing producers with a reasonable period of support to make the economic transition.

Nonetheless, to be effective, the targeted transfer approach would require certain conditions to hold in-country. For example, fielding a program of targeted transfers would require the government's to make available sufficient fiscal resources to finance the transfers. The World Bank study finds that, should Central American countries choose to pursue rapid liberalization coupled with targeted transfers, two categories of transfer programs hold particular promise: (i) “decoupled” income supports; and (ii) conditional cash transfers (CCTs). The choice of the most appropriate transfer program would depend on a number of country-specific factors, however, including the country's institutional capacity vis-à-vis safety nets (Nicaragua, Honduras and El Salvador all have operating CCT programs), the country's administrative capacity to target and verify program eligibility, and the country's desire to build on existing programs and institutional structures or to use the opportunity to create new ones.

While not originally designed as such, evidence suggests that CCTs can play a safety net role

3.30 While not designed as a traditional safety net program in the sense of reacting or adjusting to crises or shocks, CCTs have received a fair bit of attention recently with respect to whether or not they can play a safety net as well as a poverty reduction function. Indeed, two CCT programs in Central America – the *Red de Protección Social* in Nicaragua and the *Programa de Asignación Familiar* in Honduras appear to have performed like safety nets in the face of the coffee crisis. Recent impact evaluations of these two programs indicate that these CCTs have had a significant protective effect on coffee households enrolled in the program – on a

number of socio-economic indicators – relative to coffee households that did not participate in the program.⁷⁸ This raises a question about whether such interventions could be developed more systematically to address risk exposure and shocks – strengthening both ex-ante and ex-post risk management instruments available to poor households.

3.31 In **Nicaragua**, the *Red de Protección Social* (RPS) had been established to target poor households and help them by providing income transfers for long-run investments in children's human capital and health. The incidental participation by poor coffee households in the program enabled the evaluation of the impact of the program on mitigating the adverse effects of the coffee crisis.

3.32 The evaluation of the RPS in Nicaragua did indeed show that the RPS has performed like a crisis safety net, with larger estimated program effects for those who were more affected by the coffee crisis.⁷⁹ It protected coffee households against declines in per capita expenditures in the face of the crisis. It also served to protect household investments in child human capital, as measured by school enrollment rates, decreased child labor, and improved anthropometric outcomes. And while there was no evidence that participation in the program significantly depressed household labor supply relative to before the program, the RPS seems to have muted additional labor effort for beneficiaries in coffee growing areas (relative to similar coffee sector households outside the program).

3.33 The evidence is more mixed, however, as to whether RPS enabled households to reallocate their resources in a fashion consistent with the historical downward trends in coffee prices. Beneficiaries, who worked in the coffee industry, as laborers, were more likely to exit the coffee industry, whereas those who participated as producers were less likely to have exited. At the same time, beneficiaries residing in coffee growing areas, while working fewer total hours in agriculture, increased the role of agriculture in their portfolio—to the detriment of non-agricultural activities. Overall, the RPS appears to have played an important part in the risk coping of households, a conclusion also supported by separate analysis of individual household idiosyncratic shocks.

3.34 In **Honduras**, a similar analysis was undertaken to evaluate how a similarly styled program, the *Programa de Asignación Familiar* (PRAF), has helped poor coffee households to protect their welfare in the face of the coffee shock. The analysis indicates that the cash transfers given out by PRAF, which are conditional on school enrollment, has significantly affected the labor allocation decision of credit-constrained coffee farmers.⁸⁰ Specifically, the additional liquidity provided by the transfers seems to have allowed families to maintain their children in school, while increasing the time dedicated by adults in the household to tending and maintaining coffee trees. That is, the fact that the transfers have been conditioned on investments in child education seems to have ensured that higher on-farm investments and labor activities have not come at the expense of investments in children's human capital.

3.35 Similar findings are found elsewhere in Latin America. A recent study of the PROGRESA conditional cash transfer program in **Mexico** evaluates the role of the Program in mitigating the impact of shocks (Sadoulet et al. 2004). The study highlights several interesting and relevant findings. First, the study finds that children who are taken out of school (partly due to shocks) are less likely to return to school subsequently, reinforcing the notion that there are

⁷⁸ See Maluccio (2004) and Coady et al (2004), presented in Volume II of this report.

⁷⁹ Maluccio (2004).

⁸⁰ Coady et al. (2004).

long-term consequences from short-term decisions. PROGRESA appears to mitigate these long-term effects, however. Second, a number of shocks – including unemployment or illness of the household head or younger children, drought, a natural disaster in the community, and loss of land, harvest, or animals – all have strong effects on children’s schooling attainment, indicating that that children are employed by their families as risk-coping instruments. While this generates benefits for the household in terms of short-run consumption smoothing, such a coping strategy also risks long-term losses of human capital for children, given the reduced probability of children returning to school. Again, the impact evaluation shows that conditional transfers from PROGRESA compensate for these shocks, protecting children’s schooling from a range of adverse events. Finally, the shocks that households report facing also seem to induce children to work; this is particularly true for girls and for children of farm workers when their parents are affected by unemployment. The evaluation of PROGRESA’s impact, however, suggests that transfers conditional on children’s school attendance serve to deter the use of child labor as a risk coping strategy.

3.36 While none of these programs was designed as a “risk management” or “emergency” intervention, such results show that they can play an important safety net role, protecting child human capital investments from a range of idiosyncratic and covariate shocks. This raises a question about how, in practice, it might be possible in the future to adapt these or similar existing policy instruments to address shocks more deliberately. Possible ways to address this issue would include incorporating risk exposure and/or shock incidence criteria in the design of such programs’ eligibility rules, or by building into the programs flexibility, in terms of scaling up or down such interventions, to address large covariate (or idiosyncratic) shocks. This area requires further work and piloting, but based on the findings presented here appears to be a potentially worthwhile direction for and use of such programs (Box 3.4).

Box 3.4: Redesigning the Nicaraguan *Red de Protección Social* to Address Shocks

Nicaragua is a country where natural disasters are frequent and the impact of Hurricane Mitch is still visible in some parts of the country. In addition, the coffee crisis and the findings in this report also indicate that adding flexibility to already existing interventions may be a useful and effective approach to allow poor households to smooth consumption and mitigate adverse impacts of shocks like decreases in school attainment or increases in child labor. Still, issues like how flexible these interventions should be in the case of an emergency or where they fit or compare with other potentially appropriate instruments are generally unexplored. As such, learning from these extensions can be useful in designing policies targeted at the extreme poor and vulnerable to various risks.

The Ministry of MIFAMILIA in Nicaragua is currently designing a number of pilot programs that use conditional cash transfers (CCT) to reach extreme poor households that are vulnerable to various risks (natural, economic). This pilot builds on and expands a successful CCT program (the *Red de Protección Social*), which has been operating for about 4 years. The basic structure of the pilot has 4 phases: (i) construct an information database with a set of alert/vulnerability indicators that can easily monitor and verify various covariate and idiosyncratic shocks (both natural and economic); (ii) select extreme poor households affected by large shocks; and (iii) implement the CCT for a limited length of time. The pilot will incorporate a number of variations in terms of the conditionality rules, the type of shocks and the length of the transfer. A formal impact evaluation will also be conducted.

This pilot is also part of a larger effort of the Ministry to reorganize its various programs using a "Social Risk Management" model with the aim of exploring both ex-ante and ex-post instruments using an umbrella of interlinked and coordinated interventions.

Strengthening Data, Information, and Monitoring Systems

Policy responses were hindered by weak understanding of the crisis and its impacts—

3.37 Policymakers' abilities to respond to the crisis in an effective and timely manner were hindered, in part, by lack of an adequate understanding of the nature of the coffee crisis and its impacts. Indeed, there were considerable differences between policymakers' initial expectations about the impacts of the crisis and its ultimate effects. This divergence underscores the importance of strengthening data, information, and monitoring systems for crisis management. In the case Nicaragua, for example, workfare programs implemented by the government were probably less effective than hoped, given that such programs are better-suited to assist newly unemployed laborers than to support farmers who faced a dramatic decline in the value of their product. Indeed, the evidence suggests in retrospect that programs oriented towards mitigating the price and income effects of the crisis – as well as the effects on children's human capital – would have been more effective. Better, timelier, information on the nature of the crisis impacts and the worst-affected groups, may have helped to ensure more effective programmatic responses; better monitoring of the crisis and program impacts may also have facilitated mid-course corrections to make the governments' responses more effective.

—highlighting the need to improve capacity to gather information locally

3.38 The ability to gather information locally and to identify emergency needs as perceived by local populations is an important element in strengthening policymakers' ability to respond quickly and appropriately in the face of a crisis. In this respect, efforts to strengthen local capacities for information gathering, planning and implementation – and to strengthen local institutions by building linkages between central and local governments and between local governments and communities – can all have important impacts on countries' capacities to respond to crises. These features of capacity and institution-building were important to the abilities of the region's social funds to respond effectively to recent natural disasters, such as Hurricane Mitch or the 2001 earthquakes in El Salvador.⁸¹

No one-size-fits-all in designing crisis responses

3.39 While there are a number of important similarities in the patterns of impacts of the coffee crisis across countries, there are also a number of important differences between the countries that suggest that one size does not fit all in designing effective responses to shocks.

3.40 For example, the household survey data indicate that approximately 50 percent of the Nicaraguan coffee households are attached to the coffee sector through wage employment, while the other 50 percent are attached to the sector through direct coffee production. Contrast this with El Salvador, where over 80 percent of the households involved in the coffee sector are involved via labor. This may help, in part, to explain the weaker impacts of the coffee crisis in El Salvador, as well as the apparently greater economic mobility among coffee sector households during the crisis. While CCTs or other types of transfers may be appropriate to support self-employed coffee farmers in Nicaragua, more traditional workfare type programs might be more effective to reach the high concentration of workers in El Salvador, should the employment impacts have been deemed severe enough to warrant public intervention there.

⁸¹ As highlighted in this chapter, social funds have played important roles in responding to recent natural disasters in Central America. While it is not clear that countries would want to establish social funds simply as a response to shocks, if they have a productive role to play in increasing access among poor communities to basic infrastructure, then they can also play a valuable role in dealing with shocks, whether in generating local employment or in mobilizing communities to identify their needs.

3.41 As noted above, the choice of the most cost-effective form of the transfer or safety net may depend, at least in part, on the types of programs that are already operating in the country and how much institutional capacity they have. In Nicaragua, for example, building a shock response on the foundation provided by the RPS may make a lot of sense. Given its functioning institutional infrastructure and a demonstrated program impact, it may be worthwhile to extend and adapt the institution to deal with crises, rather than to create a new crisis response apparatus. In contrast, in El Salvador, where its safety net program is currently under development, there are more degrees of freedom to develop an institutional response “from the ground up”; in that case, there may be other institutional arrangements and programmatic designs that would greater impact and cost effectiveness.

3.42 In sum, even in the case of a similar shock across countries – differences in countries’ socio-economic structure – as well as institutional and fiscal capacity, the existing set of social protection programs and institutions, and information base – will all influence the choice of the most appropriate and effective instrument to use in the event of a shock.

4. Implications for Policy

Central America is vulnerable to a range of shocks

4.1 Central America is a shock-prone region. Since the mid-1990s, the countries of Central America have experienced a number of natural shocks, including Hurricane Mitch (1998), earthquakes (El Salvador, 2001), and a series of seasonal droughts and floods (often associated with El Niño and La Niña); as small open economies, the Central America countries are also open to a variety of economic shocks, whether in the form of external terms-of-trade shocks (e.g., declining coffee prices, rising oil prices) or more generalized slowdowns in the U.S. and global economies.

4.2 Among the most important economic shocks to hit Central America recently was the “coffee crisis” – a sharp decline in world coffee prices between 1997 and 2001 that had important impacts on the region’s economies and on the families who depend on coffee-sector income. While world coffee prices have since rebounded somewhat, the dramatic price decline associated with the crisis was a cause of great concern throughout the Central American region. Several early assessments of the coffee crisis raised serious concerns about the poverty and social impacts of the crisis – especially related to the apparently large declines in the demand for permanent and seasonal labor in the coffee sector. Yet, these early assessments were based largely on aggregate firm and industry-level data – providing little information on the household-level impacts of the crisis or guidance on the types of government responses that would be most effective in protecting individuals and families from the worst effects of the crisis.

4.3 This report was undertaken in response to requests from several Central American governments to better understand the impacts of the coffee crisis on people’s welfare – and the lessons of the crisis for public responses to shocks. To that end, much of the report has focused on the case study of the coffee crisis in four countries – Nicaragua, El Salvador, Honduras, and Guatemala. Indeed, the study has brought together a rich set of new empirical evidence on the coffee crisis – analyses that have enabled a more detailed understanding of the crisis impacts than had been available previously. Based on the findings on the crisis impacts – and related evidence from other shocks in the region – this report has outlined a broader set of lessons for Central America regarding shocks and social protection, so that the region’s policymakers and their development partners are better prepared to deal with a range of shocks in the future.

4.4 This chapter summarizes the key insights emerging from analysis of the coffee crisis and outlines the emerging lessons for crafting effective responses to future shocks.

Key Insights from the Case of the Coffee Crisis

4.5 **Impacts of the Coffee Crisis.** Detailed new analysis of household survey data from Nicaragua, El Salvador, Honduras, and Guatemala paints a consistent picture of the impacts of the crisis. Although there are some country-specific differences, the coffee crisis has had significant negative impacts on small coffee farm households throughout Central America – on their per capita income and consumption, on poverty, and on their children’s education and nutritional status.

Small-scale farmers were the hardest hit

4.6 While the broad areas of impact are not surprising, there are some important differences between the actual effects of the crisis and what observers had initially expected. Early assessments of the crisis suggested that the most devastating effects of the crisis were occurring

through the large-scale loss of employment by (often landless) laborers in the coffee sector. In fact, although coffee labor households are consistently among the poorest groups in rural areas, *small-scale, self-employed coffee farmers were unambiguously the hardest hit by crisis*. Moreover, these farmers were affected mostly through the effect of the price decline, rather than through the loss of employment.

4.7 Coffee sector workers *did* experience some increase in unemployment as a result of the crisis. Nonetheless, in the face of continued economic growth in Central America and expanding economic opportunities outside the coffee sector, labor households seem to have been able to shield themselves from many of the negative effects of the crisis – by shifting into non-agricultural activities and increasing the labor effort and earnings by other household members.

4.8 **Household Risk Management Strategies.** Coffee sector households in all four countries used a variety of *ex-ante* and *ex-post* strategies in efforts to prevent, mitigate, or cope with the effects of the crisis. This involved efforts to diversify household income sources (including exiting the coffee sector all together), migration and remittances, increasing family labor supply, sale of household assets, and reliance on informal “insurance” (or “mutual help”) networks.

Ex-ante crisis response strategies are generally more effective than ex-post—

4.9 Households that were better prepared for shocks *ex-ante* – e.g., with higher levels of education, more diversified incomes, or existing sources of remittance income – generally did better in protecting themselves from the effects of the crisis than those who simply coped with the problem, *ex-post*. Nonetheless, coffee sector households were generally only partially able to “insure” themselves against the effects of the crisis. This suggests the need for efforts to strengthen and/or supplement households’ own efforts to deal with risk.

—particularly as some ex-post strategies can have adverse long-term impacts

4.10 Moreover, while several of the strategies households used can be considered “appropriate” ways to manage economic risk, others have potentially harmful long-term effects on household productivity and welfare. In Nicaragua and Honduras, for example, coffee households commonly withdrew their children from school and put them to work, as part of their efforts to maintain and protect family incomes. These negative effects on schooling – coupled with the adverse nutritional effects of the crisis – raise serious concerns about the long-term effects on children’s human capital, including potentially *irreversible* impacts on children’s future economic productivity and welfare. Such effects on children’s human capital increase the risk of poverty being passed on from one generation to another.

4.11 **Regional Government Responses.** In light of significant welfare impacts of the crisis – and the fact that even a short-term shock could have negative long-term effects on household welfare and productivity – there was a strong rationale for government interventions to strengthen households’ own risk management efforts and to mitigate the impacts of the crisis.

The initial focus on debt and employment—

4.12 Against this background, initial government responses focused largely on debt restructuring for (mostly large and medium sized) coffee producers. Although some governments in the region subsequently implemented small-scale “workfare” (e.g., food-for-work, cash-for-work) programs to address some of the employment effects of the crisis, only a relatively small percentage of the crisis-response resources went toward safety net type interventions. This raises concerns about the impact of regional governments’ actions and potentially important gaps in their responses.

—may have impeded necessary adjustments in the coffee sector—

4.13 First, regional governments' focus on debt restructuring in the face of the large structural changes occurring in the world coffee market, raises questions about whether the incentives created by such programs were appropriate. While the focus on debt may have reflected, in part, a concern about the broader economic impacts of a crisis in the coffee sector, it is possible that debt relief also served to delay the exit of coffee producers who will not be competitive in the long-run, in the face of the changing nature of the world market. This may just defer the need for further sector adjustments – and set the stage for additional “crises” – in the future.

—and led to inadequate protection of the hardest hit households

4.14 Second, review of the main government responses to the crisis raises questions about the adequacy of the response to the human dimensions of the crisis. On one hand, the analysis suggests that the government responses were regressive; the vast majority of resources benefited large- and medium-scale producers, as opposed to small-scale farmers or laborers. On the other hand, the workfare programs that were implemented appear to have had little impact on small-scale, self-employed coffee farmers who have experienced the most serious poverty and welfare impacts of the crisis. Together, the analysis suggests considerable scope for strengthening government support to adversely affected groups in the face of a shock.

Implications for Policy – Elements of a Strategy to Deal with Shocks

4.15 The long- and short-run dimensions of the coffee crisis suggest the need for a policy approach – both within and outside the context of the coffee crisis – that: (i) facilitates people's economic mobility, *ex-ante*, and (ii) strengthens households' abilities to manage risk and shocks, both *ex-ante* and *ex-post*. In this context, the evidence argues for an integrated, multi-level approach that includes efforts to:

- Ensure macroeconomic stability and growth
- Broaden and strengthen people's ability to manage risk *ex-ante* through
 - investments in people's long-run economic mobility, and
 - development of more effective insurance and market-based risk management mechanisms
- Develop appropriate, well-targeted safety nets, and
- Strengthen data, information, and monitoring systems

Ensure macroeconomic stability and growth

4.16 The evidence suggests there are high returns to a prudent macroeconomic policy that facilitate growth. Stable macroeconomic environments, coupled with flexible labor markets, can help to soften the blow of an economic shock, and facilitate households' adjustment to changing circumstances. Indeed, these factors along with moderate growth environments in Nicaragua and El Salvador appear to have enabled coffee laborers to find alternative sources of income – something that would not have been possible in unstable or stagnant economies.

Broaden and strengthen ex-ante risk management instruments—

4.17 Households that engaged in risk management investments and strategies, *ex-ante*, did better in mitigating the impacts of the coffee crisis than those that did not. Another key element of a country's strategy to strengthen its risk management capacity is thus to strengthen people's ability to manage risk *ex-ante*. This includes both *investments to enhance people's economic*

mobility and the development of more effective insurance – and other market-based risk management – mechanisms. Indeed such investments, along with suitable *ex-ante* risk management instruments, can also help to reduce the pressure to introduce measures, such as debt relief, that can create perverse incentives *ex-post*.

—by enhancing economic mobility—

- *Key measures to strengthen people’s long-run economic mobility include:*
 - Investments in *education* to promote greater mobility, adaptability to changing economic circumstances
 - Deepening of *rural financial markets* to break liquidity constraints to enterprise development
 - Investments in *road and transportation infrastructure* to increase people’s access to labor and product markets, reduce transactions costs, and raise enterprise profitability
 - Improving *information*, for example, on prices, trends, and changing market circumstances improves the environment for investments and economic planning among individuals, households, and firms.

4.18 It is useful to note these measures coincide quite closely with the core elements of the “Complementary Agenda” set forth in recent World Bank work on strengthening countries’ abilities to benefit from the Central America Free Trade Agreement (CAFTA). Indeed, they operate through many of the same channels, enabling people to adapt better to changing economic circumstances.

—and strengthening insurance and other market-based mechanisms

- *Insurance and other market-based risk management mechanisms*
 - In the case of shocks to internationally traded commodities, such as coffee, maize, soybeans, sugar, wheat, and some livestock, market-based risk instruments like *futures or options markets* can play an important role as an integrated risk management tool-kit. While these instruments have long been available to large-scale producers, pilot efforts by the World Bank are currently underway in El Salvador and Nicaragua to explore practical ways provide access to these risk markets to smallholder farmers.
 - Emerging “index insurance” instruments, such as *area-yield and/or weather-based insurance*, may also hold promise for helping farmers deal with natural or economic shocks in agriculture (while reducing the problems of “moral hazard” and “adverse selection” associated with traditional crop insurance). Ongoing applications of weather-based insurance in Canada, Mexico, and Argentina may provide valuable lessons for future use in Central America.

Develop appropriate, well-targeted safety nets—

4.19 Even with strong *ex-ante* investments and risk management instruments, households will often still require additional support following a shock. Shocks take a myriad of forms, whether natural shocks, such as hurricanes, earthquakes, droughts or floods, or economic shocks, such as the coffee crisis or other terms of trade shocks. As such, the development of a flexible safety net is a critical element of a country’s response to shocks. Several key principles stand out:

- Developing an effective safety net response to shocks requires *pre-shock preparedness* for various contingencies, including which institutions and types of programs might play the most effective roles in the face of different shocks.

- Ensuring that a program is *well-targeted* to affected groups is important to ensuring program impact, particularly in Central America where governments face tight fiscal constraints. In addition to increasing the efficiency of interventions, targeting can also serve to minimize the risk of perverse work incentives to non shock-affected populations.
- Developing the *capacity for counter-cyclical financing and implementation* is also important to ensuring impacts, establishing appropriate incentives, and using fiscal resources effectively and efficiently. Developing counter-cyclical mechanisms requires governments develop the fiscal discipline and a reliable financing mechanism that can take affect in the face of a shock.
- It also requires that governments consider prior to a shock *eligibility rules* and *exit strategies* (such as time-limited eligibility) to ensure that participants exit from the program once the shock-related need has passed.
- Cross-country experience also suggest that responses to shocks are most effective – and easiest to scale up and down in the face of changing circumstances – if they *build on existing program and institutional capacity prior to the shock*.
- Finally, designing *flexibility* into a country's response mechanisms is paramount. This includes developing contingency procedures into existing social assistance institutions and programs, procedures that will enable agencies to respond quickly and appropriately once the specific nature of the shock and its impacts have been determined.

—*that reflect the nature of the shock and existing institutions and capacity*

4.20 Several different types of programs that have been implemented recently in Latin America have – or could be – used to address covariate economic shocks like the coffee crisis. Recent experience indicates, however, that different programs have different strengths, depending on the nature of the shock; different programs also different administrative and implementation challenges. For example:

- *Workfare programs* (e.g., food-for-work, cash-for-work) are particularly well-suited to address employment shocks, circumstances in which the opportunity cost of participation is low among affected groups. Workfare programs are relatively simple to administer and, if well-designed, they can be self-targeting. The ability to make workfare programs self-targeting depends on whether the legal and regulatory environment permits authorities to set the program wage below the prevailing market wage, so as to attract only those who are truly in need.
- *Decoupled income payments*, in which payments are de-linked from current (or future) prices or production to minimize distortions in economic decision-making, are better suited to addressing price and income shocks faced by rural producers – say, from trade liberalization or an external terms-of-trade shock. Decoupled transfers are more complex to administer than workfare programs; this is due in large part to the requirements for identifying affected producers and verifying their eligibility which, historically, have relied on the existence of good cadastral and/or land-use records.

In principle, decoupled transfers could be extended to both affected producers and laborer; however, this would require other mechanisms to identify beneficiaries, whether through geographic or household-level targeting, or some combination.

- *Conditional cash transfers (CCTs)* provide cash payments to families in return for their making specified investments in children's human capital. While traditionally CCTs have

been designed to reduce poverty through promoting human capital development among the poor, recent evidence indicates that they are effective in protecting families against price and income shocks, as well as the negative pass-through effects on children's education, health, and nutrition. CCTs are relatively complex to administer, however, requiring both the capacity to target affected groups and to monitor compliance with program conditions.

In contrast to well-designed workfare programs, both decoupled transfers and CCTs also can create perverse labor force incentives, especially if there are no clearly defined time limitations and/or exit strategies.

- *Temporary fee waivers for school and healthcare services* specifically address the possible negative impacts of shocks on people's human capital, rather than focusing on providing direct income support or short-term employment. By administering benefits through local service providers, this approach uses a relatively simple targeting mechanism, although its effectiveness depends on local institutional capacity and accountability. Fee waivers and other facility-based interventions are most effective when the shock has a strong geographic dimension; if impacts are regionally dispersed, the benefits of targeting facilities can be offset by considerable leakage of program benefits.

Strengthen data, information, and monitoring systems

4.21 The differences between observers' initial expectations about the coffee crisis impacts and its actual impacts highlight the importance of establishing data and surveillance systems to understand the both the nature of the crisis, and the key characteristics of affected groups. In the case Nicaragua, for example, the workfare programs implemented by the government were probably less effective than desired, as they were better suited to assist newly unemployed laborers than to farmers who faced a dramatic decline in the value of their product. In contrast, based on evaluation of the *Red de Protección Social*, which addressed both the income and human capital dimensions of the crisis, some kind of conditional or unconditional transfer program might have been more effective. Better information on impacted groups earlier on, as well as explicit monitoring of program impacts, may have facilitated the fielding of more appropriate programs with greater impact.

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4.22 Finally, it is important to note that in spite of the similarities of coffee crisis impacts across the four study countries, no one size fits all when it comes to designing a public risk management system that can effectively respond to shocks. The most effective responses are likely to differ across countries, given: (i) differences in the structures of the coffee (or other affected) sector and the economy as a whole; (ii) different geographic distributions of poor and vulnerable groups and the specific geographic impacts of the shock, including across rural vs. urban areas; and (iii) differences in existing programs, public and non-governmental institutions and the government's capacity to target and administer programs. Indeed, the presence of significant country-level differences reinforces the need for good forward planning and information in ensuring effective responses to shocks.

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Annex 1:

A number of recent empirical studies – within and outside Latin America – have tried to measure how effectively households smooth their consumption – or “self-insure” – in the face of adverse income shocks. While the specific findings differ from country to country, these studies find that households are partially – but not fully – effective at mitigating the impacts of shocks to household income. Overall, the evidence suggests that households, on average, are able to protect between 60 and 90 percent of their consumption per capita in the face of changes in income (Table 3). That is, a 10 percent “shock” to household per capita income translates into a roughly 1 to 4 percent change in per capita consumption. In general, poor households seem to have fewer instruments available – and are less successful – in insuring themselves against risk than non-poor households. In China, for example, the wealthiest households only experienced a 1 percent decline in per capita consumption in the face of a 10 percent decline in per capita income; in contrast, the poorest households experienced a 4 percent decline in consumption response to the same decline in income (Table 3).

Annex Table 1.1: Household Consumption Smoothing: A Summary of Recent Evidence from Developing Countries:

Country	Change in Household Per Capita Consumption Resulting from a 10 Percent Change in per capita Income (Percent)	Source
Mexico (rural)	3.7	Skoufias (2002)
Nicaragua (all country)	2.5	Klugman, Kruger, and Withers (2004)
Peru (Urban)	3.0-3.6	Glewwe and Hall (1998)
China (Rural)		Jalan and Ravallion (1999)
Poorest	4.0	
Richest	1.0	
India (Rural)	1.2-4.6	Ravallion and Chaudhuri (1997)

