

**Report No.43920-GT**

**GUATEMALA**  
**Poverty Assessment**  
**Good Performance at Low Levels**

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Central America Department  
Poverty Reduction and Economic Management Unit  
Latin America and the Caribbean Region



## **CURRENCY EQUIVALENTS**

Currency Unit = Quetzal (Q.)

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Exchange rate effective May 31, 2008

Q. 7.43 = US\$1

1 Quetzal = US\$0.13

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## **ABBREVIATIONS AND ACRONYMS**

CCT	Conditional Cash Transfer
ENCOVI	Encuesta Nacional de Condiciones de Vida (National Living Standards Survey)
HDI	Human Development Index
INE	Instituto Nacional de Estadística (National Statistics Institute)
NEUS	Nuevas Escuelas Unitarias (New One-classroom Schools)
PEC	Programa de Extensión de Cobertura (Program for Extension of Coverage)
PER	Public Expenditure Review
PMT	Proxy Means Testing
PPP	Purchasing Power Parity
PRONADE	Programa Nacional de Autogestión para el Desarrollo Educativo (Program for Educational Development)
SEGEPLAN	Secretaría General de Planificación (National Planning Agency)
UNDP	United Nations Development Program
URL	Universidad Rafael Landívar (Rafael Landívar University)
WDI	World Development Indicators

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## EXECUTIVE SUMMARY

For many years, Guatemalan economy and society have been characterized by very high levels of poverty, lagging social indicators and extreme inequality. Indeed, virtually every study of the country's situation during the 1970's, 1980's and 1990s noted that, among Latin American and Caribbean countries, Guatemala's level of poverty and social indicators surpassed only those of Haiti. Guatemala has maintained macroeconomic stability, but with levels of tax revenue and public expenditure so low that many observers have questioned whether the country could make the necessary investments in physical and human capital to help lift large numbers of people out of poverty.

However, some changes in government policy, beginning in the mid-1990s, suggest a greater effort to address poverty. Foremost among these are: a) the 1996 Peace Accords which set higher targets for public social investment; b) a restructuring of public expenditure, with less going to defense; c) an expanded transfer program with a significant percentage of general tax revenue transferred to the municipalities; and d) a greater attention in the planning process as indicated by the preparation of a national Poverty Reduction Strategy in 2001, followed by individual poverty reduction strategies for the municipalities.

Have these changes been sufficient to turn around Guatemala's situation? Has Guatemala narrowed the gap in poverty and social indicators that existed with the rest of Latin America? Have the strong internal differences across socioeconomic groups diminished? The availability of comparable household surveys from 2000 and 2006 make it possible to attempt to answer some of these questions.<sup>1</sup> This report goes behind some of these numbers in an attempt to understand what might be driving the results, and highlights some of the policy actions that might help improve the situation.

### AN IMPROVEMENT IN THE RATE OF CHANGE IN POVERTY AND SOCIAL INDICATORS

**Chapters 1 and 2** provide information on the current level of poverty and social indicators and on the changes that have taken place between 2000 and 2006. It also describes how the indicators have evolved over time among different social groups. The comprehensive review is mainly positive, as Guatemala has made progress in reducing poverty (see Table 1) and, in many instances, has achieved large average annual changes in many key social indicators (see Table 2). Because the starting point for poverty and social indicators was so low, the level of poverty remains high and the level of social indicators remains low.

Between 2000 and 2006, Guatemala was able to reduce poverty by 5 percentage points—from 56 to 51 percent. This was achieved despite negative per capita Gross Domestic Product (GDP) growth in the initial years of the period and slow growth that subsequently accompanied the recovery of prices of key products.

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<sup>1</sup> Prior to 2006, there were no directly comparable data on poverty. The data on poverty from 1989 and 2000 are based on responses to questions that differed significantly. While some reasonable assumptions could be made to come up with a comparison, the resulting estimates of the change are subject to considerable uncertainty.

**Table 1. Poverty Patterns in Guatemala 2006 and Percentage Point Changes since 2000**

	% of National Population		Headcount Index (% of population)			
			All Poor		Extreme Poor	
	Value	Change <sup>a</sup>	Value	Change <sup>a</sup>	Value	Change <sup>a</sup>
Total Guatemala	<b>100.0</b>	0.0	<b>51.0</b>	-5.2*	<b>15.2</b>	-0.5
By Area						
Urban	<b>48.1</b>	9.5*	<b>30.0</b>	2.9	<b>5.3</b>	2.5*
Rural	<b>51.9</b>	-9.5*	<b>70.5</b>	-4.0*	<b>24.4</b>	0.6
By Ethnicity						
Non-Indigenous	<b>62.4</b>	5.0*	<b>36.2</b>	-5.2*	<b>7.8</b>	0.0
Indigenous	<b>37.6</b>	-5.0*	<b>75.7</b>	-0.5	<b>27.6</b>	1.1
By Region <sup>b</sup>						
Nororiente	<b>8.3</b>	0.1	<b>53.2</b>	1.4	<b>20.0</b>	11.0*
Suroriente	<b>8.0</b>	-0.8	<b>54.4</b>	-14.1*	<b>13.9</b>	-6.2
Noroccidente	<b>13.5</b>	0.6	<b>75.6</b>	-6.5	<b>23.6</b>	-7.9*
By Gender of Household Head						
Male	<b>81.2</b>	-4.1*	<b>53.4</b>	-4.2*	<b>16.7</b>	0.0
Female	<b>18.8</b>	4.1*	<b>40.8</b>	-7.1*	<b>8.8</b>	-1.0

<sup>b</sup> Other regions without statistically significant changes were omitted.

<sup>a</sup> Change for the 2000-2006 period in percentage points

\* Statistically significant changes at  $p \leq 5\%$ .

Source: World Bank Staff Estimates based on the 2000 and 2006 LSMS surveys.

Not all the changes related to poverty have been positive. While moderate poverty levels have improved, extreme poverty has not. This is largely due to an increase in food prices that has outpaced the movement in the general price level. The real consumption levels of the extreme poor have increased, as measured by nominal consumption levels deflated by the general price level. But as the cost of purchasing the minimum food basket has risen faster than the general price level, the extreme poverty line has shifted out, almost completely offsetting the onward shift of the real consumption level. This effect is particularly pronounced in urban areas where extreme poverty has increased.<sup>2</sup> In addition, the declines in poverty have not been uniform across social groups or across regions. Non-indigenous populations have experienced a decline in poverty. Indigenous populations have not. The south-east region has experienced a dramatic decline in poverty. The north-east region has suffered an equally dramatic increase in extreme poverty. These differences are explored further in this report.

The picture is more uniformly positive in terms of socio-economic indicators. Guatemala has experienced an improvement in most, but not all of the indicators (see Table 2). For example, primary and secondary school net enrollment rates have increased over the period by 8 and 44 percent, respectively, life expectancy increased by 2 full years and infant and child mortality declined 22 percent each. In other indicators, the improvements have been more modest. For example, GDP per capita increased only 2 percent for the entire six year period.

<sup>2</sup> As will be shown in Chapter 2, part of the change in urban and rural poverty is due to a change in the definition of urban and rural areas that occurred between the two survey dates.



**Table 2. Key Socio-economic Indicators in Guatemala: 2000-2006**

Indicator	2000	2006	Change
GDP (2000 Constant US \$) (millions)	\$19,291	\$22,834	18% increase
Poverty (all poor) Headcount (a)	56.2%	51.0%	9% decline
Net Primary Enrollment Rate (a)	79.9%	86.4%	8% increase
Net Secondary Enrollment Rate (a)	26.0%	37.5%	44% increase
Ratio of girls to boys in primary and secondary education	88.9%	92.3%	4% improvement
Life Expectancy (years at birth)	67.9	69.9	3% increase
Infant Mortality Rate (deaths per 1,000 live)	39.0	30.6	22% decline
Under-5 Mortality Rate (deaths per 1,000)	53.0	41	22% decline
Fertility Rate (births per women)	4.76	4.24	11% decline
Poverty (extreme) Headcount (a)	15.7%	15.2%	No change <sup>b</sup>
GDP per capita (2000 Constant US \$)	\$1,718	\$1,753	2.0% increase
Immunization, DPT (% of children ages 12-23 months)	85.0%	80.0%	6 % decrease

(b) The change of half a percentage point is not statistically significant.

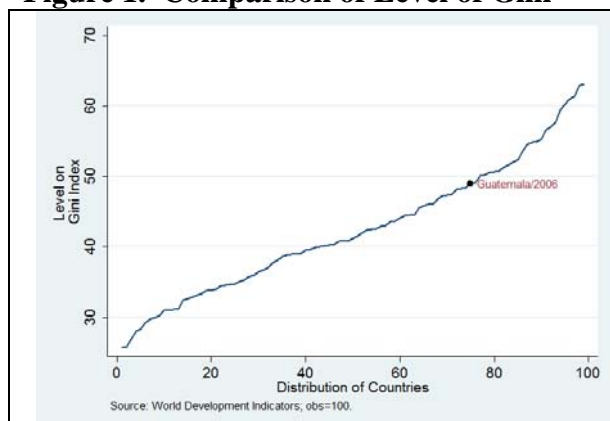
Sources: (a) Guatemala LSMS household surveys INE; all others: World Development Indicators, World Bank

## BENCHMARKING

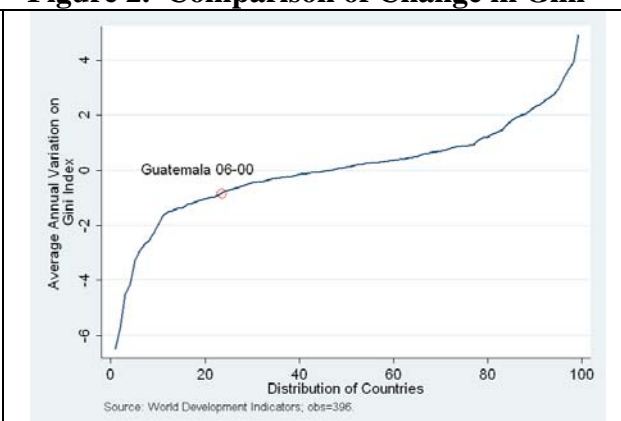
**Chapter 3** benchmarks Guatemala's changes in poverty, inequality and social indicators against those in other Latin American countries and the world. The chapter's main conclusion is that Guatemala appears at the low end of the distribution when comparing its level of poverty or social indicators to those of other countries, but, its performance is either close to the median (for poverty) or well above the median (for inequality and social indicators) when comparing the average annual change between 2000 and 2006 to changes that have taken place around the world in the last 25 years. In general, taking into account the observed characteristics of Guatemala usually places the change in a more positive light.

The benchmarking of poverty and social indicators is carried out with respect to both the level and change in the indicator. It is important to take note of the change in the indicator, in addition to the level. In most comparisons of the level, Guatemala fares very poorly—reflecting a legacy of past neglect. In comparisons of the change, Guatemala typically compares much more favorably. Figures 1 and 2 illustrate this point graphically in comparing the level of the Gini index and the average annual change in the Gini index in Guatemala between 2000 and 2006. The comparison of the level is based on the most recent year available for all countries in the World Development Indicators (WDI) data base. The comparison of the annual rates of change in the Gini index is based on all measured changes for all the countries in the World Bank's WDI over the past 25 years.

**Figure 1. Comparison of Level of Gini**



**Figure 2. Comparison of Change in Gini**



Note: as a higher value of the Gini is bad, the ranking of Guatemala is transposed to be at the 25<sup>th</sup> percentile in comparisons of the level and in the 75<sup>th</sup> percentile in comparisons of the annual rate of change.

Considering the change in the Gini index, it appears that Guatemala is starting to address some of the factors that have led to a high level of inequality. Indeed, Guatemala has improved at a faster average rate of change than in 75 percent of the observed changes in the last 25 years. However, as indicated by the level of the indicator in 2006, even with the positive change, Guatemala still ranks poorly when comparing the Gini level across all countries.

Table 4 presents Guatemala's rankings in the level and change in key social indicators. The average annual rates of change in water and sanitation and in a variety of education indicators are particularly noteworthy. Some of the changes compare very favorably to changes that have occurred across the world in the last 25 years. As was the case for the Gini index, the dramatic differences in the rankings, depending on whether one compares the level of the indicator or the average annual change, are also of note. For example, in the case of completion of primary education, Guatemala is still in the 27<sup>th</sup> percentile in 2006: it is better than only 27 percent of all other countries. In comparing the unconditional distribution of the rate of change, which is simply to look at the changes without making any adjustments for Guatemala having different characteristics from the rest of the countries, Guatemala's change is better than 88 percent of the observed changes. If one controls for the differences, Guatemala is seen to be better than 94 percent of the observed changes.

An important conclusion that can be drawn from comparing both the level and the change of an indicator is that looking at only one dimension is insufficient and potentially misleading. Looking only at the level would paint too pessimistic a picture of the situation. Looking only at the rate of change would paint too optimistic a picture of the situation. The relatively high average rate of change of some of the key indicators must go on for quite a few years before Guatemala can finally overcome its legacy of past neglect in the social sectors.

The one indicator that has not improved, and where Guatemala has, unfortunately, one of the worst indicators in the world is in chronic malnutrition or stunting. The considerable improvement in health indicators and water and sanitation may portend an imminent improvement in chronic malnutrition. However, it is impossible to say because there have been no more recent data collected since 2002. While data are now being collected, one of the urgent

actions to improve the information system is to put in place a more timely monitoring system to measure one of Guatemala’s most serious social problems.

**Table 4. Benchmarks for Guatemala’s Performance in Key Social Indicators**

Indicator	Level of Indicator		Average Change in Indicator		
	2006 Value	Uncond. Percentile a/	Avg. Change From 2000 to 2006	Uncond. Percentile b/	Cond. Percentile c/
Persistence to 5 <sup>th</sup> grade – total	68.9*	18	2.62***	83	60
Persistence to 5 <sup>th</sup> grade – female	67.6*	15	2.74***	85	60
Persistence to 5 <sup>th</sup> grade-male	70.2*	27	2.54***	82	62
Repetition rate –total	12.09	20	-0.40	92	73
Repetition rate – female	11.14	19	-0.43	92	81
Repetition rate – male	12.96	22	-0.36	88	71
Primary Completion Rate – total	76.5	27	3.14	88	94
Primary Completion Rate – female	72.6	24	3.37	88	92
Primary Completion Rate – male	80.4	29	2.92	88	94
Infant mortality	30.6	40	-1.40	65	95
Under 5 mortality	41	38	-2.00	70	70
Improved water	95	70	1.0	86	76
Improved sanitation	86	68	2.0	97	92

Source: WB, World Development Indicators

\* Data from 2005; \*\* Data from 2002; \*\*\* Change from 2000 to 2005

a/ indicates the position of Guatemala in the ranking of countries by centiles. For example, 18% of countries have a worse performance than Guatemala in persistence to 5<sup>th</sup> grade, while 82% of countries do better.

b/ similar to a/ but comparing the ranking of countries according to changes in the indicator.

c/ similar to b/ but controlling for how characteristics that might be expected to be related to the ease of achieving good results differs in Guatemala from those of other countries.

## EDUCATION, HEALTH AND SOCIAL PROTECTION

**Chapter 4** looks into the social programs in Guatemala including expenditure levels, incidence of poverty and evolution of social indicators in education, health and social assistance. From 1996 to 2000 Guatemala’s public expenditures in social programs increased from 3.5 to 5.6 percent of GDP. By 2006, expenditures had reached 6.4 percent of GDP, the highest value ever in Guatemalan history. Within the social programs, education receives half of the budget. Despite these dramatic increases, Guatemala’s public expenditure in social programs remain among the lowest in Latin America. Changes in social indicators should take into consideration the relative low expenditure levels.

The standard incidence analysis reveals that education, health and social assistance programs are poverty neutral with the poor receiving around half of the benefits, a very similar proportion to their population share of 51.0 percent. But for individual programs the picture varies considerably. For example, primary education is pro-poor while tertiary education is not: and within primary education the community-managed Program for Educational Development (*Programa Nacional de Autogestión para el Desarrollo Educativo*, PRONADE) is especially pro-poor. Services provided by the health centers, health posts and community centers are also pro-poor while services provided at public hospitals are not.

The school supplies program is a social protection program that is a good example of a transfer that reaches an important segment of the population (12.9 percent) and is pro-poor

(64.5 percent of its benefits are received by the poor). The Guatemalan government should learn from that experience to design or modify other social programs aimed at the poor. For other programs like the “powdered milk program” and “school scholarships,” most of the benefits are captured by the non poor.

The increase in social expenditures has contributed to improved outcomes in education. From 2000 to 2006, the net enrollment rate increased over 11.2 percentage points in primary schools and 6.5 percentage points in secondary schools. The significant improvements in primary enrollment rates were shared by all income groups. Enrollment in primary school is around 90 percent with only small variations among quintiles. But similar to many other indicators in Guatemala, the enrollment rates in 2000 were low and improvements in the 2000-2006 period did not fully compensated for past performance; for example, secondary education gross enrollment rates remain very low for the country (47.7 percent) with important disparities among poverty groups: extreme poor 9.5 percent, all poor 22.5 percent and non poor 76.4 percent.

Poor health and lack of interest are the most common causes to dropping out of primary for all groups (above 60%). The main reason not to enroll in secondary school is economic (above 60% for all income and economic groups), followed by lack of interest (above 25% for all groups). Efforts to reduce drop out rates and repetition in primary schools should emphasize access to health and quality of education, including activities like sports and arts. The Guatemalan government should strongly consider lowering the mandatory age for first grade in primary enrollment from seven to six years of age, which would put it in line with most Latin American countries.

The health and social protection situation in Guatemala is more complicated: some indicators have improved and some remain basically unchanged. Lack of resources and lack of access to health facilities (supply side limitations), remain the main barriers, especially for the poor and rural population. Low initial indicators, limited investment and a reduction of personal expenditures in health make any improvements even more difficult. There are indications that the extremely high malnutrition rates have not changed. The lack of updated nutrition information is only a symptom of how a fundamental problem is not being addressed.

Improving human capital through improved health and education is justified not only as a basic service the government should provide its citizens, but also as a way to improve everybody’s wellbeing: “lower poverty levels result in high growth and high growth in turn results in lower poverty” (Perry 2006).

Social protection programs have to be evaluated individually. Integrated evaluations are good to know where we are but are useless to identify where the problems are and which programs are reaching the poor and which are not. Information to evaluate social programs is not always available—making it more difficult to identify strengths (to build on) and weaknesses (to correct) of the different social protection programs.

### **IMPROVING WELLBEING THROUGH A CONDITIONAL CASH TRANSFER PROGRAM**

Given the lack of improvement in extreme poverty and the need to continue to make progress in social indicators, the government’s introduction of a conditional cash transfer (CCT) program

would appear to be a potentially very valuable addition to the set of public policies directed towards poverty reduction.

Reducing extreme poverty is within Guatemala's reach. There are several critical implementation aspects to consider for any program's success; proper and transparent selection of beneficiaries, timely co-responsibilities verification, efficient information technology (beneficiary registry, payment orders, eligibility update, etc.), access to services (education and health), information access to make the rules of the program clear to all potential beneficiaries, and a good monitoring and evaluation system to identify and correct weaknesses over time.

Moreover, a CCT program should not be a standalone program: rather, it should be a part of an integrated package of social policy interventions. To be effective, it requires integration with supply-side interventions as well as active labor market policies.

Disbursement of money itself is not a measure of the program's success. It is very easy to disburse money, but it takes a lot of effort to make sure the money goes to the people with the biggest needs and to improve human capital formation and not only increase income levels. Guatemala has made a real commitment to make the CCT program "*Mi Familia Progresada*" an important part of the social assistance agenda. While the quick implementation of the first phase of the program has been a very positive achievement for the new government, the scaling up of the intervention should be done gradually. The government should ensure that the targeting mechanism and the monitoring systems for the co-responsibilities have been put in place and are working properly.

**Chapter 5** carries out micro simulations that show how the CCT program design (amount and type of transfer, selection criteria, targeted population and coverage) has a large impact on program cost, coverage of the extreme poor and leakages to the non-extreme poor, and on the amount of poverty reduction. Some of these decisions are not technical but political in nature (different CCT designs can be technically sound). Considerations such as budget restrictions, constituency, government goals and welfare conditions in the country play a major role in designing the appropriate CCT program.

Our analysis shows that while geographic targeting can be a cost-effective mechanism to target the extreme poor in municipalities with high concentrations of poverty, as the program expands the government should adopt a rigorous household level targeting mechanism (like a proxy-means test) to ensure the efficient use of resources.

A proxy-means test is a very useful tool as it can: (i) reduce the leakage of the program by improving the ability of the government to identify the target population, (ii) reduce costs, and (iii) maximize poverty reduction per unit cost. For example, Table 5 shows how the use of a non-geographical tool for targeting the poor like a proxy means test (PMT) lowers costs from 2.33 percent of GDP to 0.53 percent and reduces leakages by almost half.

**Table 5.5 Summary of simulation results for different scenarios**

Targeting		Beneficiary households (,000)		Coverage Rate	Leakage Rate	Poverty reduction*	Total Cost**	
Geographic	PMT	Total	Extreme poor			Extreme poor	Million Q.	%GDP
<i>National program***</i>								
No	no	1,879	251	97	87	40	6,245	2.33
No	yes^	321	166	69	48	24	1,065	0.40
<i>Program in Alta Verapaz***</i>								
Yes	no	127	51	97	60	5.2	422	0.16
Yes	yes^	58	42	84	28	4.4	191	0.07

^ Proxy Means Test with a cutoff point of 30; \* Poverty reduction at the national level as measured by the percentage change in head count ratio for the extreme poor; \*\*Costs correspond to total amount of transfers; \*\*\* With a monthly transfer of Q. 277 per household.  
Source: World Bank staff estimates based on ENCOVI 2006

The use of geographic targeting and a PMT further improves the overall program efficiency. A CCT program targeted to the poorest department in Guatemala (Alta Verapaz) and using a PMT improves coverage rates by 15 percentage points and reduced leakage to almost half (from 48 percent down to 28 percent).<sup>3</sup> These efficiency improvements would be attained without any extra effort but by choosing to work in the poorest area of the country.

### INCOME GENERATION AND POVERTY REDUCTION

In the face of a reduction in national poverty of 5 percentage points, and of contrasting regional changes with poverty falling by 14 percentage points in the Southeast and extreme poverty increasing 11 percentage points in the Northeast, **chapter 6** attempts to uncover some of the factors that might be driving these changes by looking into the evolution of households' sources of income and into the bottlenecks that constrain investment, climate and productivity.

From the analysis of the evolution of the different sources of income, we find that:

- a. International and local remittances have doubled in importance as sources of household resources, with twice as many households receiving remittances in 2006 compared to 2000, and the average size of the transfer rising by 30 percent in real terms. Remittances have become especially more prevalent among poorer households, in particular among those at or near the poverty line. This suggests remittances have had a relevant role in helping households rise out of poverty. On the other hand, it also means that households have become more remittance-dependent, which increases their vulnerability to external conditions.
- b. Diversification of income generation across agricultural and non-agricultural sectors has improved, especially for poorer households. In addition, households who diversify have experienced higher rates of increase in income. Individuals have also increased their ability to diversify their activities across sectors and multiple jobs.
- c. Labor productivity is modestly improving, led by the agricultural sector and the positive shock received with the recuperation of prices of the country's primary agricultural exports.

<sup>3</sup> Extreme poverty in Alta Verapaz is the highest in the Household Survey but not as high as many municipalities. The simulation is intended to show how different poverty levels have an impact in the program performance

Workers in the commerce and manufacturing sectors have also seen improvements in productivity, unlike workers in services and construction. Given that workers from poorer households are relatively more concentrated in agriculture than workers from richer households, changes in productivity have disproportionately benefited the poorer households more than the richer.

In our complementary analysis of the bottlenecks to firms' investment decisions, which draws from a recent World Bank study (2008), we find evidence that helps to explain some of the previous results:

- a. Firms considered infrastructure among the main obstacles to business. Guatemala has been making progress in this front, but it still suffers from poor levels of infrastructure conditions, with a road network of worse quality than its Central American counterparts. On the upside, the improvements in roads seem to have contributed to increased household diversification of income sources across agricultural and non-agricultural activities
- b. Firms also consider inadequate skills of the workforce another primary obstacle to investment. The country is making good progress in schooling indicators and as the new and better-educated cohorts enter the labor force firms should be less constrained by unskilled workers and productivity should improve across more sectors. In addition, the CCT program will contribute to improved educational attainment among the poor. These, however, are solutions that will have an impact in the medium term. As a complement, for a more short term solution, different strategies to improve the quality of the labor force should be considered. One such possibility is to draw from lessons emerging from international experience by considering the implementation of worker training programs. These need to be carefully structured and appropriately designed, developing public-private partnerships to take into account knowledge of the private sector and firms about the needs and particular skills required, and public sector ability to fund and cover for the undersupply of training that occurs since firms cannot fully capture the benefits of training investments.

Finally, when focusing on the regional contrasts of the Southeast and Northeast, we observe how some of the aforementioned factors interact to produce changes in poverty levels:

- a. In the Southeast, better road infrastructure and favorable climate and agricultural conditions, have helped achieve the highest poverty reduction in the country. This has allowed households to have better connections to markets and helped individuals to diversify and work in both the agricultural and non-agricultural sectors.
- b. In the Northeast, poor infrastructure coupled with adverse climate shocks (irrigation variability and droughts) and low economic and agricultural potential, have conspired to produce a dramatic increase in extreme poverty

Overall, the findings of this ongoing study thus far highlight the importance of good infrastructure, the necessity to improve on the quality of the labor force and strengthen safety nets for areas more exposed to negative shocks.

#### **VULNERABILITY**

There are events and conditions beyond the control of individual households that influence the wellbeing of its members. Poor households are more vulnerable to these “external factors” and changes that do not look significant for the country as a whole, can have an important negative

impact on their wellbeing. Traditionally, weather events are included in this category, but other types of incidents, such as reduced remittances, food price changes, and crime and violence, are also important.

**Chapter 7** aims at providing some insights regarding the impact of shocks, remittances, food prices, and crime and violence; however, it is not a substitute for a more comprehensive analysis on each of these factors. This study is part of a longer time frame engagement between the World Bank and the Guatemalan government, and more in depth analysis should follow up.

Hurricane Stan showed the high level of vulnerability of many Guatemalan households and the lack of preparation to confront natural disasters. The Guatemalan government should improve disaster prevention plans.

Remittances have dramatically increased with more families (poor and non-poor) receiving international remittances in 2006. International remittances represent 38.1 percent of the poor's consumption. Up to March 2008 and according the Bank of Guatemala, the growth rate of international remittances has not decreased. Nevertheless, given the worsening economic climate in the United States and the poor's dependency on remittances, the government of Guatemala should be prepared to deal with a possible reduction of remittances in the future.

Between April 2007 and April 2008, food price increases have had only a limited impact in Guatemala, but, given the the poor's high levels of vulnerability, the Guatemalan government might find it necessary to follow very closely the evolution of prices and supply levels and take all necessary precautions to avert a crisis. The government's ten-point plan to deal with food price increases is the appropriate type of preventive measure necessary. Implementation of the plan should not be delayed.<sup>4</sup>

Crime and violence are a severe and worsening problem. High impunity and social exclusion, an ineffective criminal justice system, and youth facing perverse incentives for decision making are some of the factors contributing to criminal activity. An integrated and serious approach should be designed and implemented based on prevention, action by local communities and improvement of the police and judicial systems.

## CONCLUSIONS

The analysis of the levels and average annual changes in social indicators reveals that Guatemala is beginning to address the long-standing problems of poverty, low levels of social indicators and inequality. With the greater effort being made by the government, there is an observable and notable change. One area where the indicators have not improved and remain at one of the worst levels in the world is in chronic malnutrition. While there have been some recent efforts to improve the situation in a limited area, the magnitude of the problem would seem to warrant making combating chronic malnutrition a national priority. There is considerable attention and effort being given internationally to combating chronic malnutrition

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<sup>4</sup> The plan is divided in three areas: (i) solidarity accords to slow price inflation for selected agricultural products; (ii) solidarity actions to promote agricultural production and costs reductions; and (ii) economic stability, investment promotion and increased competition.



and a good information base about what works and what doesn't. With strong political backing and an adequate institutional arrangement, rapid progress is possible.

The government's introduction of a CCT program would seem to provide an instrument that is well suited to addressing Guatemala's particular problems. It could help address extreme poverty and help improve social indicators. Given the nature of the chronic malnutrition problem, it would be useful to examine how conditionality could be used to help improve the nutrition situation. The quality of the implementation will be key, and this report contains several recommendations on how best to proceed.

As effective implementation is so central to the success of the program and as many Guatemalans are facing a particularly risky environment—with increases in food prices and potential drops in remittances—it is strongly recommended that the existing social protection mechanisms not be dismantled before the CCT program is fully functioning. The CCT program should play a pivotal role in the government's effort to strengthen its poverty reduction strategy. With time, the CCT program can gradually replace other social assistance programs aimed at similar target groups and with similar goal. But CCT programs cannot address all problems faced by the poor. Hence it should coordinate with other social protection reform, like pensions, labor market and taxation, since they complement each other.

The large increase in extreme poverty in the Northeast suggests that there are some holes in the social safety net. It is recommended that this be reviewed, particularly on the coverage outside the western highlands. While the western highlands are extremely poor, there are pockets of extreme poverty throughout the country. A review of the functioning of the system of social protection is warranted to ensure that those most vulnerable do not suffer unduly when there is a shock. As they are living close to the edge of extreme poverty, they can easily be pushed over the edge with even a small shock caused by natural disaster, changes in the economic environment or changes in the health status of a family member. International evidence indicates that it takes a long time for the families to recover and it is best to try to have policies in place that help mitigate the size of the fall in the first place.

The analysis of the different outcomes in poverty in the Northeast and Southeast only scratched the surface and more work needs to be done. The dramatic differences suggest that if one cannot explain why there were different outcomes when the differences are so great, it will be very hard to understand what drives different outcomes when they are not so pronounced. The preliminary analysis suggests that the increase in poverty was partly due to the increased vulnerability to climatic conditions and the lack of an adequate safety net. Clearly, families pursued some coping mechanisms and remittances helped their problems from getting worse. The improvements in poverty appeared to come about because the families could take advantage of economic infrastructure and diversify production to farm and off-farm. Where poverty declined, the families were able to become more connected to markets, whereas where poverty increased, families became less connected. This does not constitute proof that this was a decisive factor, but it is suggestive. In addition, it is striking that the spatial map of economic potential, developed at the beginning of the period of comparison, turned out to fairly accurately portray what happened over the six year period.

All of the suggested investments—whether to continue progress in social indicators, launch more of an effort in malnutrition, combat extreme poverty with a CCT, plug holes in the social safety net or expand economic infrastructure in areas with high economic potential – will require more resources. Guatemala compares very unfavorably with other countries in its tax revenue and government expenditure as a percentage of GDP. A fiscal reform would seem to be urgently needed. In the past, efforts to enact a fiscal reform have met with limited success. One of the arguments used against such a reform is that the government is so inefficient that providing more money to it would just be a waste. The evidence from the international benchmarking exercise and previous analysis in the World Bank’s Public Expenditure Review debunks this argument. When the government has received additional resources (as it has after the reallocations and the modest increases as part of the Peace Accords), it has been able to generate changes in social indicators that rival the top improvements that have been observed in any country over the last 25 years. While greater efficiency is certainly desirable and possible, the evidence does compare favorably to that of other countries.

There are likely to be additional gains from improving the information systems. Having directly comparable data in two household survey data sets was critical to being able to ascertain where Guatemala stands today and where some improvements may be necessary. In contrast, the lack of up-to-date information on the situation in chronic malnutrition was a severe handicap in looking at where improvements need to be made.

In conclusion, between 2000 and 2006 Guatemala did reasonably well, given the level of resources and effort in implementing its poverty reduction strategy. But the poverty reduction strategy was relatively modest. To make better progress, a stronger effort would be required, with high returns to putting the marginal resources into a CCT program, greater economic infrastructure in areas of high economic potential, continued support for programs in education and health which appear to be producing very respectable improvements in social indicators and greater attention to attacking the serious problem of chronic malnutrition.

**PART I ASSESSING POVERTY LEVELS, CHANGES OVER  
TIME AND BENCHMARKING**



## CHAPTER 1. INTRODUCTION

1.1 This report is organized into three sections with seven chapters. The **FIRST SECTION** assesses poverty levels and changes over time within Guatemala and compares both the levels and changes to those of other countries. It summarizes the overall conditions and changes in Guatemala (**chapter 1**); presents the country's poverty profile and analyzes the evolution of poverty over time and space using monetary and non-monetary indicators, population changes and inequality (**chapter 2**); and benchmarks Guatemala's social progress against other countries in the region and the world(**chapter 3**). The **SECOND SECTION** analyzes social programs and considers how existing policies and programs could improve their impact on poverty. It highlights some of the key features of social programs in education, health and social assistance (**chapter 4**); and estimates the potential impact of an expansion of a conditional cash transfer program on poverty (**chapter 5**). The **THIRD SECTION** focuses on the sources of income of the poor. It documents the evolution of the sources of income examines regional specific characteristics that promote or hinder households potentials (**chapter 6**) and carries out a preliminary analysis of shocks and vulnerability influencing household wellbeing covering the impact of hurricane Stan, a potential reduction in remittances, food price increases and crime and violence (**chapter 7**).

1.2 For many years, Guatemalan economy and society have been characterized by very high levels of poverty, lagging social indicators and extreme inequality. On the other hand, the government has maintained macroeconomic stability, but with a level of tax revenue and public expenditure so low that many observers have questioned whether the country could make the necessary investments in physical and human capital to help lift large numbers of people out of poverty.

1.3 Throughout this report, an important distinction is made between where Guatemala is today (as reflected in its poverty level and its level of social indicators) and how Guatemala has evolved over the recent past (as reflected in the change in social indicators between 2000 and 2006). In terms of the level, Guatemala does not compare favorably in health and education outcomes compared to Latin America and Central American countries. Indeed, Guatemalan social indicators are well below Latin American averages (Table 1.2). Compared to the other five Central American countries Guatemala ranks at the bottom or near the bottom on seven of the nine indicators presented in Table 1.2. These include expected years of schooling, primary completion rates, DPT immunization, fertility and mortality (under five) rates as well as in the more comprehensive measure, the Human Development Index. Guatemala ranks in the middle of Central America for GDP per capita (in PPP) and in PPP US\$2 day poverty.

**Table 1.1: Key Socio-economic Indicators in Guatemala: 2000-2006**

Indicator	2000	2006	Change
GDP (2000 Constant US \$) (millions)	\$19,291	\$22,834	18% increase
Poverty (all poor) Headcount (a)	56.2%	51.0%	9% decline
Net Primary Enrollment Rate (a)	79.9%	86.4%	8% increase
Net Secondary Enrollment Rate (a)	26.0%	37.5%	44% increase
Ratio of girls to boys in primary and secondary education	88.9%	92.3%	4% improvement
Life Expectancy (years at birth)	67.9	69.9	3% increase
Infant Mortality Rate (deaths per 1,000 live)	39.0	30.6	22% decline
Under-5 Mortality Rate (deaths per 1,000 live)	53.0	41	22% decline
Fertility Rate (births per women)	4.76	4.24	11% decline
Poverty (extreme) Headcount (a)	15.7%	15.2%	No change <sup>b</sup>
GDP per capita (2000 Constant US \$)	\$1,718	\$1,753	2.0% increase
Immunization, DPT (% of children ages 12-23 months)	85.0%	80.0%	6 % decrease

(b) The change of half a percentage point is not statistical significant.

Sources: (a) Guatemala ENCOVI household surveys INE; all others: World Development Indicators, World Bank

1.4 According to the United Nations Development Program's (UNDP) 2007 Human Development Report, within Latin America, Guatemala ranks among the lowest four positions (with Bolivia, Haiti and Guyana) for the overall Human Development Index, Infant Mortality rate, Under-five mortality rate, Maternal Mortality rate, Adult Illiteracy and Net Secondary Enrollment rates.

1.5 Guatemala's poor position in international comparisons is a legacy of past decisions on priorities and investment. As noted in the 2005 World Bank Public Expenditure Review (PER), in 2000 (prior to the recent increase), Guatemala's level of social indicators was well behind other countries and had spent roughly half of what other countries in Latin America had spent in the social sectors.<sup>5</sup> However, since the mid-1990's the Guatemalan government has made significant progress in several strategic areas. These include: (i) success in promoting transparency and improvement in public financial management; (ii) increases in social spending from 5 percent of GDP in 2004 to about 6 percent in 2006 as well as improvements in education quality and establishment of new community-based maternal and child health and nutrition programs; and (iii) continued advances in the growth and competitiveness area, including trade openness, improvements to business climate and enhanced public-private partnerships in infrastructure. Moreover, macroeconomic management has overall been sound, with low fiscal deficits, declining inflation, a low debt/GDP ratio and a comfortable reserves position.

<sup>5</sup> World Bank (2005b). Past studies have also indicated that Guatemala's social expenditure is relatively inefficient compared to other Latin American countries (Herrera and Pang 2004). Economies with similar levels of expenditure obtain better outcomes. The study estimated that if Guatemala could reduce its efficiency gap and raise its public efficiency to the Latine American and Caribbean average, its education indicators could be increased by as much as 38 percent and its health indicators by around 11 percent. The strong performance over the last six years suggests that efficiency might well have improved.

**Table 1.2: Key Socio-economic Indicators -How Guatemala Compares to Central American countries and Latin American average in 2006 <sup>a</sup>**

	Guatemala value/rank <sup>b</sup>		Nicaragua	Honduras	El Salvador	Costa Rica	Panama	Latin America
GDP per capita, PPP (constant 2005 international \$)	5,015	4	2,703	3,433	5,587	9,269	8,969	8,690
Expected years of schooling	10.1	6	10.7 <sup>c</sup>	11.3	11.9	11.7 <sup>d</sup>	13.4	13.1
Primary completion rate, (% of relevant age group)	76.5	5	73.4	88.7	87.9	89.1	94.5	99.3
Immunization, DPT (% children ages 12-23 months)	80	6	87	87	96	91	99	92
Fertility rate, total (births per woman)	4.2	6	2.8	3.4	2.7	2.1	2.6	2.4
Mortality rate, under-5 (per 1,000)	41	6	35.8	26.95	25.4	11.84	23.1	26.4
HDI (2005) (e)	68.9	6	71.0	70.0	73.5	84.6	81.2	N/A
Life expectancy at birth (years, 2005) (e)	69.7	5	71.9	69.4	71.3	78.5	75.1	72.8
Poverty PPP 2\$ (most recent year) (e)	32%	3	80%	36%	41%	10%	18%	N/A

<sup>a</sup> Precise year which differs by indicator or country is noted alongside the indicator or the country.

<sup>b</sup> Second column is the Guatemalan ranking within the six Central American countries; <sup>c</sup> 2003; <sup>d</sup> 2005.

Source: (e) Human Development Report 2007/2008, UNDP; all others World Development Indicators, World Bank

1.6 The increased focus on the social sectors is beginning to become visible and, in terms of the **change** in poverty and social indicators, Guatemala compares much more favorably to other countries. From 2000 to 2006 Guatemala has made important progress increasing Gross Domestic Product (GDP), reducing overall poverty and improving most social indicators (Table 1.1). For example, GDP grew 18 percent in six years and according to official estimates, the extent of poverty declined from 56.2 percent of the population in 2000 to 51.0 percent in 2006. Also, primary and secondary school net enrollment rates have increased over the period by 8 and 44 percent, respectively, life expectancy increased by two full years and infant and child mortality declined 22 percent each. Less progress was achieved in GDP per capita, extreme poverty and some health indicators such as DPT immunization, which deteriorated between 2000 and 2006.

1.7 Due to the low starting point for most social indicators, it is apparent that Guatemala has far to go before the level of poverty and social indicators match those of other comparable countries. Continued efforts will be needed to maintain the rate of progress in those indicators that did improve and to modify policies to bring about improvement in indicators that have not shown much progress—notably extreme poverty and chronic malnutrition—will likely require additional expenditure. This report is being prepared as an aid to the public debate that is now taking place and will continue to take place in Guatemala as to the best way to build upon past successes and accelerate progress in reducing the poverty that still affects one in two Guatemalans.





## CHAPTER 2. POVERTY EVOLUTION AND DISTRIBUTION OVER TIME

2.1 This chapter presents a profile of poverty in Guatemala largely based on the two national representative LSMS<sup>6</sup> household type surveys, the *Encuesta Nacional de Condiciones de Vida (ENCOVI)*, conducted by the National Statistics Institute of Guatemala (*Instituto Nacional de Estadística, INE*) in 2000 and 2006. The chapter is organized in five sections as follows: first, a Poverty Profile including issues in poverty measurement, levels, and trends and patterns in Guatemala; second, a series of non-monetary wellbeing indicators and their changes over time; third, the impact of shifts in the urban and rural populations on poverty; fourth, growth and inequality; and finally, an analysis on the correlates of poverty. This chapter places special attention on the evolution of poverty over time for the 2000 to 2006 period. Gender and race are considered throughout the various topics.

2.2 Several important messages and recommendations emerge from the chapter:

- a. Wellbeing has improved for all Guatemalans (with the exception of the richest 10 percent) and overall poverty declined by 5 percentage points. The extreme poverty headcount did not change between 2000 and 2006. High levels of food inflation between 2000 and 2006 offset any welfare gains achieved by the extreme poor segment of the population. Non-monetary wellbeing indicators also show improvements in the 2000-2006 period for all Guatemalans, including the poor.
- b. Stagnant extreme poverty levels are cause for concern. The Guatemalan government should provide targeted assistance to improve the human capital and opportunities available to this sector of the population. Programs like CCTs are an excellent vehicle to achieve this goal but improvements in the supply side (health, education, social assistance) should accompany such efforts.
- c. Important demographic changes were identified: Guatemala is becoming a mostly urban country with female-headed households representing almost one-fifth of the population, a proportion that is among the highest in the region. Services provided by the government should evolve to satisfy the needs and demands of these sectors of the population.
- d. Higher consumption levels are observed among urban households in the Metropolitan area (Guatemala City), non-indigenous households headed by a middle-age female with few children, heads of households not working in agriculture and those with the highest education level.
- e. Inequality measured by the Gini coefficient declined from 47.6 to 44.8. The consumption share of the lowest four quintiles increased while decreasing for the highest quintile. While lower levels of inequality help the poor share the benefits and opportunities and improve wellbeing, such improvements are not possible without continuous economic growth.

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<sup>6</sup> Living Standard Measurement Survey.

## POVERTY PROFILE

### Poverty Measurement in Guatemala

2.3 In 2006, Guatemala conducted the second ENCOVI type survey. It was a result of INE's commitment to improve the poverty monitoring system in the country. The preliminary data analysis and the assessment of welfare measures including poverty estimates was a joint effort between INE, the National Planning Agency (SEGEPLAN), Rafael Landivar University (URL), the United Nations Development Program (UNDP) and the World Bank.

2.4 Most of the poverty analysis in this chapter uses consumption and not income as the measure of wellbeing because it fluctuates less than income, tends to be measured with less error, and is more comprehensive. To ensure that the resulting poverty estimates were comparable over time, the same methodology used in 2000 was applied to the 2006 ENCOVI.

2.5 The consumption aggregate includes consumption of purchased and non-purchased (own production, gifts, donations) foods, transport and communications, spending on consumer goods, household services and legal costs, basic services (water, electricity, telephone, etc.), and the annual values of housing, durable goods, education and health expenditures.<sup>7</sup> Average consumption in Guatemala increased three percent from Q. 9,410.07<sup>8</sup> in 2000 to Q. 9,697.60 in 2006 (Table 2.1).

**Table 2.1 Guatemala Poverty Line and Income Aggregate Values, 2000 and 2006 <sup>a</sup>**

Extreme Poverty Line			Overall Poverty Line			Consumption Aggregate		
2000	2006	Change %	2000	2006	Change %	2000	2006	Change %
2,920	3,206	9.8%	6,596	6,574	-0.3%	9,410	9,698	3.1%

<sup>a</sup> All values are in Constant Guatemala City June 2006 Quetzals

Source: INE 2000 and 2006 official estimates

2.6 The 2006 poverty lines are an update of the 2000 estimates using the Consumer Price Index (CPI).<sup>9</sup> The Food CPI index is used to update the extreme poverty line. The overall poverty line is computed by adding the extreme poverty line value plus an allowance for basic non food items. The allowance for basic non-food items is the same value as the one used in 2006 updated with the non food part of the CPI.<sup>10</sup>

<sup>7</sup> For a complete description of the consumption aggregate's construction, see Annex 1 in Poverty in Guatemala, World Bank, October 2003.

<sup>8</sup> In Guatemala City, June 2006 Quetzals. The original average consumption value was Q. 6,161 per capita per year in October 2000 Guatemala City Quetzals. Consumption Price Index increase between the 2000 and 2006 surveys was 52.74% (from 98.23 to 150.03).

<sup>9</sup> Small modifications were introduced to reflect the change in population composition between 2000 and 2006 in Guatemala. The new extreme poverty line is estimated on the basis of 2,173 Kcal/day per capita.

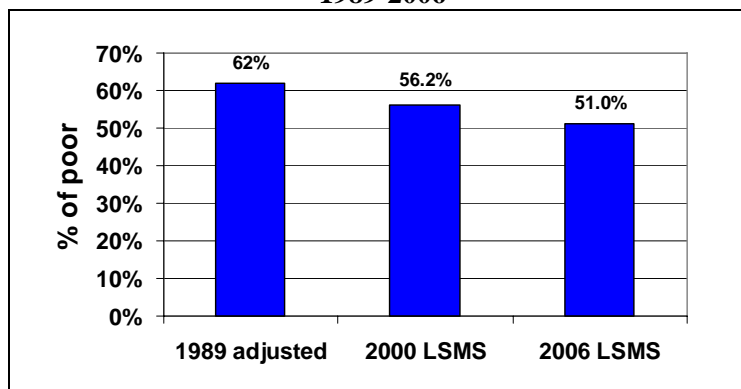
<sup>10</sup> In 2000, the Government of Guatemala requested the extreme poverty line to be estimated using the consumption patterns of all Guatemalans (and not the patterns of the poor). Using the CPI to update the values is in line with the way the original lines were constructed.

## Poverty Levels, Trends and Patterns

### 2.7 There is a steady but slow tendency for poverty reduction in Guatemala.

Overall poverty in Guatemala has decreased from 62 percent in 1989<sup>11</sup>, to 56 percent in 2000 and again to 51 percent in 2006, an average of 0.7 percentage points per year for a period of 17 years (Figure 1.1). The change in poverty was not limited to the headcount index but important reductions in the

**Figure 2.1 Trends in Overall Poverty in Guatemala 1989-2006**



Sources: 1989 Socio Economic Survey, 2000 and 2006 ENCOVI, INE-Guatemala.

FGT1 and FGT2 indexes were experienced between 2000 and 2006.<sup>12</sup> The FGT1 Index decreased 3.1 points to 19.5 and the FGT2 index decreased 2.2 points to 9.5 (Table 2.3). Reductions in both indexes are a product of the new poverty rate in Guatemala and a change in the distribution of income within the poor. Poor people are not as poor as before and there are less extreme cases (i.e. with consumption levels well below the poverty line) of poor households.

2.8 **Extreme poverty did not change between 2000 and 2006.** Indeed, the extreme poor Head Count Index experience almost no change between the six year period with only a small but not statistically significant reduction from 15.7 to 15.2 percent in 2006 (Table 2.2). The Depth and Severity Indexes for extreme poverty also experienced smaller reductions (in absolute and relative terms) than the overall poverty indexes. In other words, in 2006 there was the same proportion of extreme poor persons with very little change in how poor they were in 2000.

**Table 2.2 Headcount Rate, Depth and Severity<sup>a</sup> of Poverty, Guatemala 2006 and Change**

Year	All Poor			Extreme Poor		
	% Poor	FGT1	FGT2	% Poor	FGT1	FGT2
2006	51.0	19.5	9.5	15.2	3.4	1.1
Value Change 2000 to 2006	-5.2	-3.1	-2.2	-0.5	-0.3	-0.2

<sup>a</sup> FGT1 (also known as the Poverty Gap Index) represents the amount needed to bring all poor individuals up to the poverty line, expressed as a percentage of the poverty line and the population. FGT2 (also known as the mean of squared proportionate poverty gaps) is a derivation of the Depth that gives more weight to individuals with lower consumption among the poor. All the indexes are known as the FGT measures (Foster et. al., 1984).

Source: World Bank Staff Estimations using the 2000 and 2006 ENCOVI

2.9 Further reductions in poverty require income increases (labor or non-labor income) by the poor or the extreme poor. One way to assess the size of the poverty gap is

<sup>11</sup> Using the 1989 Socio-Economic Survey. The original estimate was 75% but due to the limited numbers of questions used for that number, an adjusted poverty headcount, comparable to the 2000 ENCOVI results, was estimated by the World Bank (Poverty in Guatemala, World Bank 2003)

<sup>12</sup> See notes in Table 2.2 for the definition of the FGT measures.

to estimate the income necessary to eradicate poverty or extreme poverty as a percentage of actual consumption levels and as a percentage of GDP.

**2.10 The minimum permanent income increase to eradicating overall poverty in Guatemala is high but extreme poverty reduction does not require important income increases.** Taking into consideration the average consumption of the poor, the minimum permanent income increase to eradicate overall poverty is Q. 16,334.0 millions, or 7.2 percent of GDP,<sup>13</sup> but it will take only Q. 1,404.5 millions, or 0.6 percent of GDP to eradicate extreme poverty. On average, each poor person would have to increase consumption by 62 percent or Q. 2,510 to eliminate poverty, but to eradicate extreme poverty each extreme poor person would have to increase consumption by only 28 percent or Q. 711.<sup>14</sup>

2.11 These are the minimum permanent increases assuming each poor or extreme poor household increases its income by the exact amount necessary to move out of poverty. A social program costs would be much higher because of administrative costs and leakages,<sup>15</sup> which are inevitable in all social programs. Identifying the poor and transferring resources can make up a significant share of any social program costs and the estimates presented here should be considered a lower limit.

2.12 Social programs like Conditional Cash Transfers (CCT) targeting the extreme poor have a tremendous potential and the government should consider such programs to improve the wellbeing of extreme poor citizens. A chapter in this report includes an impact simulation of such a program and describes the “Mi Familia Progresá” program, the first CCT program in Guatemala being designed and implemented in 2008. The CCT chapter provides more realistic estimate of the poverty reduction a social program can achieve.

**2.13 Real consumption increased for all the poor and near poor.** From 2000 to 2006, real consumption increased for over 90 percent of Guatemalans, and more importantly, real decreases in income occurred only within the highest consumption decile (Figure 2.2).<sup>16</sup>

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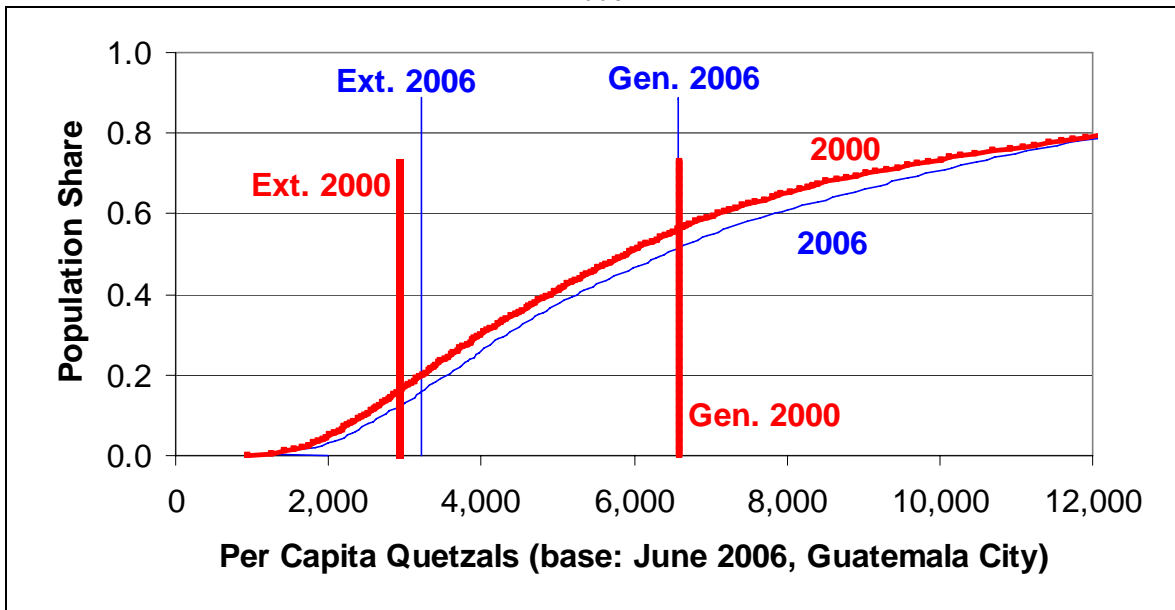
<sup>13</sup> The 2006 GDP in Guatemala was Q. 229,584.2 (Guatemala Central Bank Web Page)

<sup>14</sup> Increase consumption and keep it at the new level thereafter.

<sup>15</sup> Leakages are resources received by individuals or households not included as the target population. For this case, any income received by a poor household above the minimum necessary to escape poverty would also be considered a leakage increasing the overall cost of the program.

<sup>16</sup> Figure 2.2 was truncated to illustrate the interaction between poverty lines and consumption aggregates. A complete exercise compared the entire distribution for stochastic dominance and the 2006 values were higher than the 2000 values for the first 90.90% population share. Compared to 2006, real per capita consumption was higher in 2000 for most of the persons in the 9.9% upper bound population share.

**Figure 2.2 Poverty Lines, Per capita Consumption and Population Share, Guatemala 2000, 2006**



Yearly per capita consumption increased in the 2000-2006 period from Q. 2,230 to Q. 2,495 for the extreme poor; from Q. 3,941 to Q. 4,063 for all poor; and decrease for the non poor from Q. 16,425 to Q. 15,565.

Source: World Bank Staff Calculations based on ENCOVI 2000 and 2006, INE Guatemala

**2.14 It has become more expensive to escape extreme poverty in Guatemala.** While higher income levels reduced overall poverty in Guatemala by 5.2 percentage points from 2000 to 2006, no change in extreme poverty was reported during the same period. The reason lies in the fact that, while the overall poverty line value was basically unchanged, the extreme poverty line real value increased, offsetting any “extreme poverty gain” (reduction) achieved by the higher consumption levels.<sup>17</sup> What looks at first glance like a methodological issue has very strong real life implications:<sup>18</sup> it has become more expensive to buy the food items that provide the minimum calorie requirement for the average Guatemalan (2,173 Kilo-calories per day per person).<sup>19</sup> The problem of higher food inflation rates, compared to overall inflation, became a major problem not only in Guatemala but in many countries all over the world especially during the second half of 2007 and 2008. Some initial estimates of recent food price increases and the subsequent impact on the poor are presented in chapter 7.

**2.15 Poverty among children declined but remains high in Guatemala.** In 2006, over 62 percent of children zero to six years old are in poverty, a decrease of 5.3 percentage points from 2000, reflecting overall poverty level reductions and not real changes in the contribution to poverty. Extreme poverty for the same age group

<sup>17</sup> The value of the overall poverty line did not change because the real value of the non food component decreased proportionally to the increase in the food component.

<sup>18</sup> The World Bank recommended poverty methodology uses a bundle of food value as the basis for the extreme poverty line in order to keep the benefit provided by such value constant over time.

<sup>19</sup> The 2000 extreme poverty line was based in a bundle of food providing 2,172 Kilo-calories per day per person. The new minimum caloric requirement of 2,173 Kilo-calories reflect changes in the population composition of Guatemala (population shares by age and sex).

remained at 22 percent. Very similar trends are observed in the elderly with a 40 percent poverty rate among people 60 years and older (5.3 percentage points decrease) and a 8.3 percent extreme poverty headcount (from 9.7 in 2000). Poverty rate changes for the elderly are very similar to overall poverty evolution but with much lower incidence than the national averages of 51.0 and 15.2 percent.<sup>20</sup>

**2.16 Guatemala has become more urban, less indigenous and with more female household heads.** Indeed, from 2000 to 2006 important shifts include: (i) a 9.5 percentage points increase of urban population<sup>21</sup>; (ii) a reduction of the indigenous population from 42.6 to 37.6 percent<sup>22</sup>; and (iii) an increase of 4.1 percentage points of household headed by females, from 14.7 to 18.8 percent: almost one in five households in Guatemala reported a women as the head of the house (Table 2.3).

**2.17 Poverty is concentrated in rural areas, especially extreme poverty.** Concentration of poverty in the rural areas is much higher than the share of rural residents in the country. With rural contribution rates of 72 percent for overall poverty and 83 percent for extreme poverty and a population share of 52 percent, rural households concentrate a disproportionate amount of poverty in Guatemala (Table 2.3). The 2006 contribution rates to poverty by rural households are significantly lower than the 2000 values. Nevertheless, the almost 10 percentage point reduction in contribution rates by rural households is almost exactly the same population shift observed in the country: 9.5 percent of the population classified as rural in 2000 is now considered urban.

**2.18 Rural poverty declined while urban extreme poverty increased.** Within the urban and rural populations, the only statistically significant poverty headcount reduction was rural poverty (4 percentage points). Extreme Urban poverty almost doubled between 2000 and 2006. But new definitions and updates on the household's urban/rural classifications have to be taken into consideration to fully understand these changes. Latter in the chapter the classification update impact is evaluated and presented in Table 2.4.

**2.19 Poverty and extreme poverty are significantly higher among indigenous households, with no change from the 2000 estimates.** Overall poverty rates among indigenous households remain over 75 percent (50 percent higher than the national average) and extreme poverty is almost double the national average. Furthermore, while poverty among non indigenous households decreased by the same amount as the national poverty rate -5.2 percentage points-, indigenous poverty rates did not change<sup>23</sup>(Table 2.3). Within the different indigenous groups, only the Mam experienced significant poverty reductions by 2006.

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<sup>20</sup> Source: World Bank staff calculations based on ENCOVI 2000 and 2006.

<sup>21</sup> The reduction in rural population is a product of real migration within the country and of new urban/rural classification implemented by the National Statistical Institute after the 2002 census.

<sup>22</sup> Indigenous classification is based on self identification by the household members. If no information was provided, the predominant ethnic classification of the household was used a proxy.

<sup>23</sup> The 0.5 percentage point reduction was not statistically significant at  $p < 0.1$ .

2.20 **Two regions experienced changes in extreme poverty but in opposite directions. Only one region, the Southeast, experience a significant poverty reduction.** In 2000 the extreme poverty rate in the Northwest (31.5 percent) was over three times the one in the Northeast region (8.9 percent) (Table 2.3). By 2006 both regions have almost the same poverty rate (20.0 and 23.6 percent). Reasons for the different evolutions will be examined in another section of the study including factors such as labor and non-labor income sources, infrastructure and weather differences between the two regions.

2.21 **Female headed households have substantially lower poverty rates than those headed by males, and the gap is increasing.** Incidence of extreme poverty among female headed households (8.8 percent) is almost half of male headed households (16.7 percent) (Table 2.3). Overall poverty rates gaps between female and male headed household has increased from 9.8 percentage points in 2000 to 12.6 percentage points in 2006.

**Table 2.3 Poverty Patterns in Guatemala 2006 and % points changes from 2000**

	% of National Population		Headcount Index (% of population)				Contribution to Poverty (% of category)			
			All Poor		Extreme Poor		All Poor		Extreme Poor	
	Value	Change <sup>a</sup>	Value	Change <sup>a</sup>	Value	Change <sup>a</sup>	Value	Change <sup>a</sup>	Value	Change <sup>a</sup>
Total Guatemala	<b>100.0</b>	0.0	<b>51.0</b>	-5.2*	<b>15.2</b>	-0.5	<b>100.0</b>	0.0	<b>100.0</b>	0.0
By Area										
Urban	<b>48.1</b>	9.5*	<b>30.0</b>	2.9	<b>5.3</b>	2.5*	<b>28.3</b>	9.7	<b>16.8</b>	9.9
Rural	<b>51.9</b>	-9.5*	<b>70.5</b>	-4.0*	<b>24.4</b>	0.6	<b>71.7</b>	-9.7	<b>83.2</b>	-9.9
By Ethnicity										
Non-Indigenous	<b>62.4</b>	5.0*	<b>36.2</b>	-5.2*	<b>7.8</b>	0.0	<b>44.3</b>	1.9	<b>31.9</b>	3.6
Indigenous	<b>37.6</b>	-5.0*	<b>75.7</b>	-0.5	<b>27.6</b>	1.1	<b>55.7</b>	-1.9	<b>68.1</b>	-3.6
Kiche	<b>10.1</b>	0.7	<b>68.5</b>	4.1	<b>19.4</b>	0.3	<b>13.6</b>	2.8	<b>12.9</b>	1.4
Queqchi	<b>7.2</b>	0.7	<b>86.3</b>	2.8	<b>46.8</b>	8.9	<b>12.2</b>	2.6	<b>22.2</b>	6.5
Kaqchiquel	<b>6.8</b>	-2.0	<b>65.0</b>	2.4	<b>16.2</b>	2.6	<b>8.7</b>	-1.2	<b>7.3</b>	-0.4
Mam	<b>5.0</b>	-3.2	<b>76.3</b>	-13.5*	<b>25.9</b>	-8.3	<b>7.5</b>	-5.7	<b>8.6</b>	-9.4
Other Ind.	<b>8.4</b>	-1.2	<b>83.5</b>	-0.1	<b>31.4</b>	0.1	<b>13.7</b>	-0.5	<b>17.2</b>	-1.7
By Region										
Metropolitana	<b>22.9</b>	1.3	<b>16.3</b>	-1.6	<b>0.5</b>	-0.2	<b>7.3</b>	0.4	<b>0.7</b>	-0.2
Norte	<b>8.9</b>	0.9	<b>77.1</b>	-6.9	<b>38.8</b>	-0.3	<b>13.5</b>	1.4	<b>22.8</b>	2.7
Nororiente	<b>8.3</b>	0.1	<b>53.2</b>	1.4	<b>20.0</b>	11.0*	<b>8.6</b>	1.1	<b>10.9</b>	6.2
Suroriente	<b>8.0</b>	-0.8	<b>54.4</b>	-14.1*	<b>13.9</b>	-6.2	<b>8.5</b>	-2.2	<b>7.3</b>	-3.9
Central	<b>10.8</b>	0.2	<b>47.5</b>	-4.3	<b>10.4</b>	1.7	<b>10.1</b>	0.3	<b>7.4</b>	1.5
Suroccidente	<b>24.1</b>	-2.3	<b>59.4</b>	-4.6	<b>16.9</b>	-0.1	<b>28.1</b>	-2.0	<b>26.8</b>	-1.9
Noroccidente	<b>13.5</b>	0.6	<b>75.6</b>	-6.5	<b>23.6</b>	-7.9*	<b>20.0</b>	1.2	<b>21.0</b>	-4.9
Petén	<b>3.4</b>	0.1	<b>57.0</b>	-10.9	<b>14.5</b>	1.7	<b>3.8</b>	-0.1	<b>3.3</b>	0.6
By Gender of Household Head										
Male	<b>81.2</b>	-4.1*	<b>53.4</b>	-4.2*	<b>16.7</b>	0.0	<b>85.0</b>	-2.5	<b>89.1</b>	-1.7
Female	<b>18.8</b>	4.1*	<b>40.8</b>	-7.1*	<b>8.8</b>	-1.0	<b>15.0</b>	2.5	<b>10.9</b>	1.7

<sup>a</sup> Change for the 2000-2006 period in percentage points

\* Statistically significant changes at  $p \leq 5\%$ . No test was applied to the contribution of poverty changes

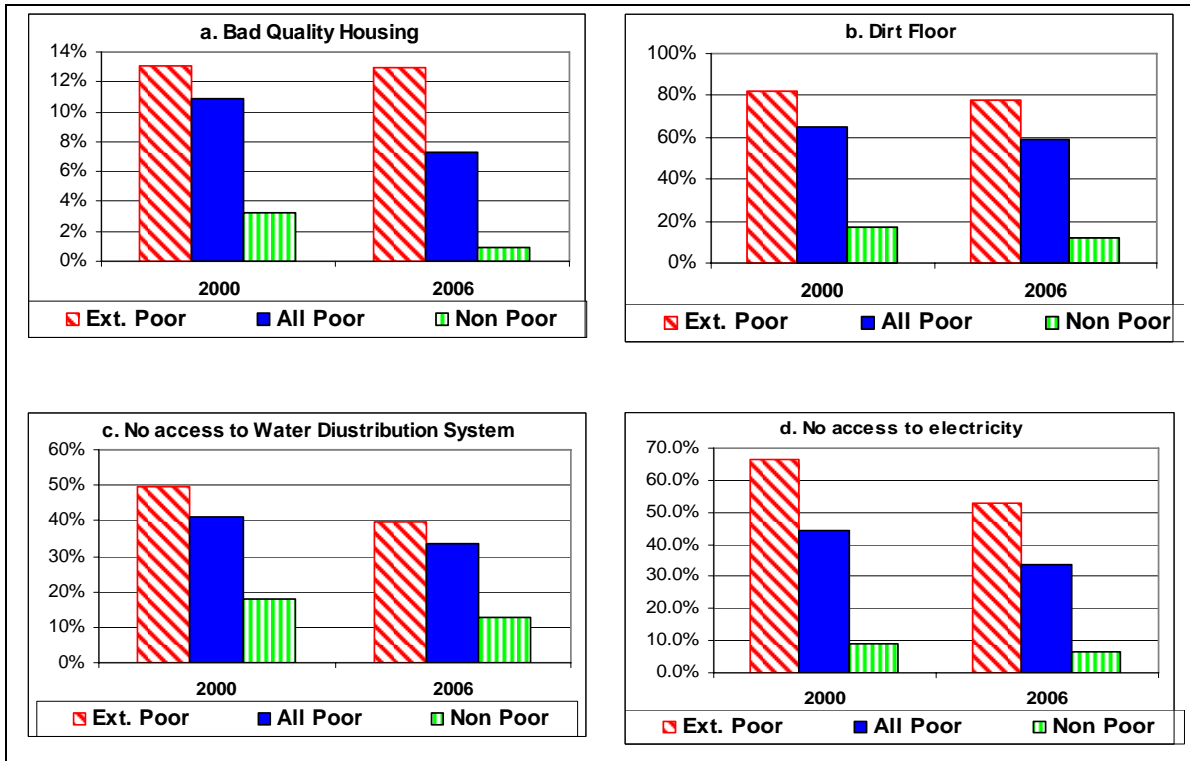
Source: World Bank Staff Estimates based on the 2000 and 2006 ENCOVI surveys.

## NON MONETARY WELLBEING INDICATORS

**2.22 Non-monetary wellbeing indicators show significant progress in Guatemala for all poverty groups between 2000 and 2006.** Between 2000 and 2006 poor people living in bad quality housing<sup>24</sup> decreased by almost a third, dirt floor housing (reduction of one tenth), lack of access to a water distribution system (one fifth less) and lack of access to electricity (one quarter reduction). The extreme poor also significantly reduced lack of access to a water distribution system and to electricity by one fifth each. Conditions for the non-poor also improved, with reductions in all four indicators ranging between 26 percent (lack of electricity) and 50 percent (bad quality housing) (Figure 2.3).

**2.23 Asset improvements for all poverty groups suggest a form of saving or consumption smoothing over time.** Improvements in living conditions are normally associated with a reduction of poverty. The fact that even within the extreme poor and the overall poor, housing conditions have improved, suggests an even greater progress in income generation that is invested into assets and fully utilized over a longer period of time (more than one year). Improvements in capital investment within the poor were also found in education and health indicators (see Social Programs in chapter 4).

**Figure 2.3: Household Quality and Access to Services by Poverty Groups, Guatemala 2000, 2006**



Source: World Bank Staff Calculations based on ENCOVI 2000 and 2006, INE Guatemala

<sup>24</sup> Bad quality housing defined as living in huts, shacks or temporary houses (*improvisada*).



## URBAN AND RURAL POPULATION SHIFTS: GROWTH, MIGRATION AND CLASSIFICATION

2.24 **New urban/rural classifications have to be taken into consideration when comparing population changes between 2000 and 2006.** As part of the 2002 Census, a new urban/rural classification was applied to each census segment. The new definitions and updates account for two thirds of the 9.5 percentage point population shift reported earlier. Indeed, the new classification is responsible for 6.6 percentage points of the rural to urban movement; migration and growth account for the other 2.9 percentage points (Table 2.5).

2.25 **Without the urban rural re-classification, urban extreme poverty increase was non significant,<sup>25</sup> overall urban poverty decreased and the reduction of overall rural poverty would have been 5.6 percentage points** (instead of 4.0 percentage points) (Table 2.4). The new classification actually over-estimated the change in urban poverty (by 4.2 percentage points) as well as the change in rural poverty (by 1.6 percentage points). It is important to mention that the re-classification does respond to real changes in the population, mainly the urbanization of Guatemala, which is about to become urban in its majority<sup>26</sup>. These changes have important public policy implications.

**Table 2.4 Impact of Migration, Growth and New Urban/Rural Classification on Population and Poverty Changes, Guatemala 2000, 2006**

		2000	2006		Changes <sup>a</sup>		
			New <sup>b</sup>	Old (2000)	Migration	Growth	Classification
<b>Impact on Population Changes</b>							
# of persons	Urban	4,397,854	6,250,578	5,399,043	1,001,189		851,535
	Rural	6,987,587	6,737,251	7,588,786	601,199		(851,535)
%	Urban	38.6%	48.1%	41.6%	<b>2.9%</b>		<b>6.6%</b>
	Rural	61.4%	51.9%	58.4%	-2.9%		-6.6%
<b>Poverty</b>							
<b>Impact on Poverty and Extreme Poverty</b>							
Extreme	Urban	2.8%	5.3%	4.3%	1.5%		1.0%
	Rural	27.1%	24.4%	25.8%	-1.3%		-1.4%
Overall	Urban	27.1%	30.0%	25.8%	-1.3%		<b>4.2%</b>
	Rural	74.5%	70.5%	68.9%	<b>-5.6%</b>		<b>1.6%</b>

<sup>a</sup> The % are percentage points.

<sup>b</sup> "New" is the actual classification used in the rest of the study.

Source: World Bank Staff Calculations based on ENCOVI 2000 and 2006, INE Guatemala.

<sup>25</sup> Not statistically significant at a  $p \leq 5\%$ .

<sup>26</sup> The 2000 ENCOVI uses the urban rural classification defined and applied during the previous census (1992). Even with the same definition, changes in the classification of any specific census segment can be done. Guatemala did not update the census segments classification between the 1992 and 2002. This lack of update is believed to be the main source of the changes observed between the two household surveys.

## GROWTH AND INEQUALITY

2.26 There are three fundamental factors affecting poverty changes over time: consumption levels, poverty line values, and the distribution of consumption. As mentioned before, the extreme poverty line value increased from 2000 to 2006 due to increases in real food prices and overall consumption levels. This section will first look at changes in the distribution of consumption and later will integrate the impact of growth and distribution on poverty.

2.27 **Guatemala as a whole has become a more equitable society but inequities at the rural level remain unchanged.** From 2000 to 2006 the Gini coefficient in Guatemala fell from 47.6 to 44.8 (Table 2.5). Given the rigidities of the Gini coefficient a 2.8 point reduction is a significant change.

**Table 2.5 Gini's <sup>a</sup>, 2000, 2006**

Year	National	Urban	Rural
<b>2006</b>	<b>44.8</b>	<b>42.7</b>	<b>35.2</b>
2000	47.6	44.3	35.2

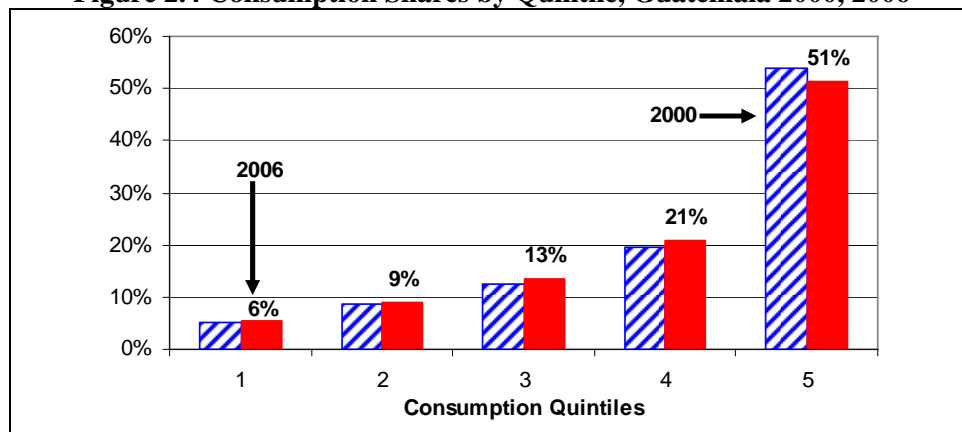
<sup>a</sup> Values reported in a 0 to 100 scale  
Source: World Bank staff estimates

Urban areas experienced a more modest reduction (1.6 points) but inequality within rural households remained the same. Income inequality as well as poverty changes at the urban and rural levels have been impacted by the new urban/rural classification used in the 2006 ENCOVI.

Nevertheless, using the new urban and rural assignment does reflect real changes in Guatemala and the conclusions are valid and useful to understand the reality of both groups.

2.28 **Lower quintile groups have slightly increased their share of total consumption.** Indeed, the first four quintiles have increased their consumption share between 0.5 and 1.0 percentage points while the top quintile's consumption share decreased by 2.8 percentage points (Figure 2.4). Nevertheless, important disparities remain in Guatemala and public policies and programs should take them into consideration.

**Figure 2.4 Consumption Shares by Quintile, Guatemala 2000, 2006**



Source: World Bank staff estimates based on ENCOVI 2000 and 2006

2.29 **For a given poverty line, poverty reduction is only possible when consumption levels increase for a segment of the population.** Between 2000 and

2006, the consumption levels of the people between the 51 and 56 percentile increased enough to lift them out of poverty.<sup>27</sup>

2.30 To evaluate the relative importance of growth and changes in consumption distribution over poverty changes, an estimate of each effect was computed by holding the other constant and evaluating the impact in poverty.<sup>28</sup> For this exercise, the term growth is used in reference to the average consumption of the entire country and can be independent of consumption changes for specific segments of the population.

2.31 **Changes in the distribution and growth effects are both important for poverty reduction in Guatemala.** Without the changes in the distribution of consumption, overall national poverty reduction would have been only 1.7 percentage points and not 5.1; however, real growth has reduced overall poverty in the rural areas and increased extreme urban poverty. Indeed, changes in consumption distribution are responsible for two thirds of overall poverty reduction in Guatemala and real growth accounts for the other third (Table 2.6). For rural households, growth accounts for over 100 percent of poverty reduction.<sup>29</sup> On the other hand, the growth effect explains over two thirds of the increase in extreme urban poverty with only a small contribution from changes in consumption distribution.

**Table 2.6 Growth and Changes in Consumption Distribution:  
Decomposition of Poverty<sup>a</sup> Changes in Guatemala 2000 to 2006**

	% rates		Change in Incidence of Poverty			
	2000	2006	Actual Change	Growth	Redistri- bution	Interac- tion
<b>Overall National Poverty</b>	56.13	51.02	-5.11	-1.72	-3.53	0.15
<b>Overall Rural Poverty</b>	74.50	70.50	-3.99	-4.50	0.07	0.43
<b>Extreme Urban Poverty</b>	2.78	5.32	2.53	1.60	0.47	0.46

<sup>a</sup> Only significant changes in poverty were analyzed

Source: World Bank staff estimates based on ENCOVI 2000 and 2006

## CORRELATES OF POVERTY

2.32 Important household characteristics associated with poverty (or poverty reduction) can be identified using a multi variable regression between consumption<sup>30</sup> and a series of household variables. By taking into consideration all household characteristics at the same time, the impact of individual characteristics on consumption can be isolated, that is, the results show the impact of each variable after controlling for the other variables included in the analysis. Two limitations are important to mention: first, the statistical relationships are not strictly determinants but correlates of poverty; and second, the conclusions are limited to the variable included in the analysis and no inference can

<sup>27</sup> It is not the same people, but the people in those percentiles according to consumption.

<sup>28</sup> The growth impact was estimated by holding constant the 2000 observed distribution and the 2006 consumption levels. The redistribution impact was estimated by using the 2000 consumption levels with the 2006 observed consumption distribution.

<sup>29</sup> Individual effects (growth or redistribution) can be negative or more than 100 percent. The total impact is captured by the sum of both effects and the interaction effect.

<sup>30</sup> The natural Log of consumption.

be made over other variables not used. This includes observable characteristics as well as cultural and historical aspects.

2.33 One regression was estimated for the entire country. Also, to take into consideration that household characteristics relate to consumption differently in urban and rural areas, two more regressions were estimated. The variables used and the estimated coefficients are presented in Table 2.7. Positive coefficients indicate a positive relationship between the variable and consumption and negative coefficients indicate a negative relationship. Specifically, each coefficient represents the total value used on the EXP<sup>31</sup> function to estimate consumption if the corresponding variable increases by one unit<sup>32</sup>.

2.34 Geographic location is an important determinant of consumption even after taking into consideration other factors, especially in the rural areas. Living in Guatemala City increases consumption, and more so when compared to rural households. This is the case even after discounting by household size, assets, working in agriculture, education level, ethnicity, household head gender and age; there remain significant regional differences with a larger than expected consumption level in the Metropolitan Region.

2.35 The long-held belief that Guatemala has a rural, indigenous and female face is only partially true. Being indigenous and having a male household head is associated with lower consumption levels independently of area of residency.<sup>33</sup> Indeed, households with a majority of self-identified indigenous member have lower levels of consumption as well as households headed by males. Female headed household are associated with higher levels of consumption.

2.36 **Bigger households, less consumption.** As the household size increases, the per capita consumption decreases. The consumption reduction of a new household member is bigger with children under six years of age. For urban households the elderly also reduce consumption substantially more than other household members.

2.37 **Working in agriculture, Household head is associated with lower consumption; age increases it.** Compared to any other type of job, household heads working in agriculture significantly lower the level of consumption of all members. This is true regardless of the place of residency. Also, as the household head gets older, the consumption level improves at a decreasing rate.<sup>34</sup>

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<sup>31</sup> The EXP value is the X value in the formula:  $e^X$  = estimated coefficient, where  $e = 2.71828$ .

<sup>32</sup> The Quetzal value changes with the evaluation point chosen. For example, a 0.5 increase has different impact when evaluated at 5 or at 8. The minimum value to evaluate is at the constant coefficient value.

<sup>33</sup> Urban or rural.

<sup>34</sup> The negative sign in the Age Squared term reduces consumption with age.

<b>Table 2.7 Estimate of Consumption in Guatemala 2006</b>				
		<b>National</b>	<b>Urban</b>	<b>Rural</b>
<b>LOCATION</b>	Urban Area	0.15**		
	<b>Region (Metropolitan Excluded)</b>			
	Norte	-0.32**	-0.27**	-0.42**
	Nororiente	-0.23**	-0.15**	-0.36**
	Suroriente	-0.20**	-0.19**	-0.28**
	Central	-0.19**	-0.18**	-0.27**
	Suroccidente	-0.19**	-0.20**	-0.26**
	Noroccidente	-0.21**	-0.24**	-0.28**
	Petén	-0.16**	-0.05	-0.30**
<b>DEMOGRAPHY</b>	Indigenous	-0.21**	-0.18**	-0.22**
	Female Head	0.04**	0.04*	0.03*
	<b>Number of Household Members</b>			
	0 to 6 years old	-0.19**	-0.20**	-0.19**
	7 to 24 years old	-0.10**	-0.12**	-0.09**
	25 to 59 years old	-0.07**	-0.08**	-0.06**
	60 or more years old	-0.11**	-0.16**	-0.07**
Age	0.02**	0.02**	0.02**	
Age Squared	-0.00**	-0.00**	-0.00**	
<b>ASSETS</b>	<b>House Ownership (Other ownership excluded)</b>			
	Owned and paid	0.16	0.53**	-0.01
	Owned and not paid	0.21*	0.57**	0.04
	Rented	0.17	0.51**	0.07
	Borrowed or given	0.07	0.37*	-0.05
<b>LABOR</b>	HH Head works in agriculture	-0.18**	-0.20**	-0.17**
<b>HH HEAD EDUCATION</b>	<b>Level (No Education and preschool excluded)</b>			
	Primary (0-6)	0.23**	0.27**	0.20**
	Secondary: basic (7-9)	0.44**	0.46**	0.41**
	Secondary: advanced (10-12)	0.72**	0.75**	0.66**
	College: undergraduate	1.07**	1.07**	1.25**
	College: graduate	1.37**	1.32**	2.04**
	Constant	8.72**	8.51**	9.00**
	Observations	13638	5797	7841
	R-squared	0.58	0.58	0.46

Independent variable: natural log of yearly per capita consumption.

\* Significant at  $p \leq 5\%$ ; \*\* significant at  $p \leq 1\%$ .

Source: World Bank staff estimates based on ENCOVI 2006

**2.38 Education has the biggest positive impact on the consumption level of the household.** Completing even primary education has as much impact as living in the metropolitan areas: the higher the education level achieved, the bigger the impact on consumption. This characteristic is true at the national level as well as for urban and rural households.

**2.39 Highest levels of consumption are related to urban households in the Metropolitan area (Guatemala City), non-indigenous headed by a middle-age female with few children, not working in agriculture, with the highest level of education.**



### **CHAPTER 3. BENCHMARKING GUATEMALA'S PERFORMANCE IN POVERTY AND SOCIAL INDICATORS**

3.1 In this chapter, we place in context the changes in poverty, inequality and social indicators that were described in chapter 2 by benchmarking them against changes that have taken place in Latin America and the rest of the world. The main conclusion is that when comparing the level of poverty or social indicators to that of other countries, Guatemala appears at the low end of the distribution, but when comparing the average annual change between 2000 and 2006 in Guatemala to changes that have taken place around the world in the last 25 years, Guatemala is either close to the median performance (for poverty) or well above the median performance (for inequality and social indicators). In general, taking into account the observed characteristics of Guatemala usually places the change in a more positive light. For example, based on PPP comparisons and without controlling for Guatemala's observed characteristics, the average annual change in poverty in Guatemala is slightly worse than the median performance of all countries over the last 25 years. When Guatemala's observed characteristics are taken into account, the average annual change in poverty is seen to be slightly better than median performance. It is important to note that this was a period of first declining per capita GDP and then a slow recovery in Guatemala. As there are many instances worldwide when poverty increased over a business cycle, it is not surprising that controlling for the observed characteristics in the country placed the change in a more positive light.

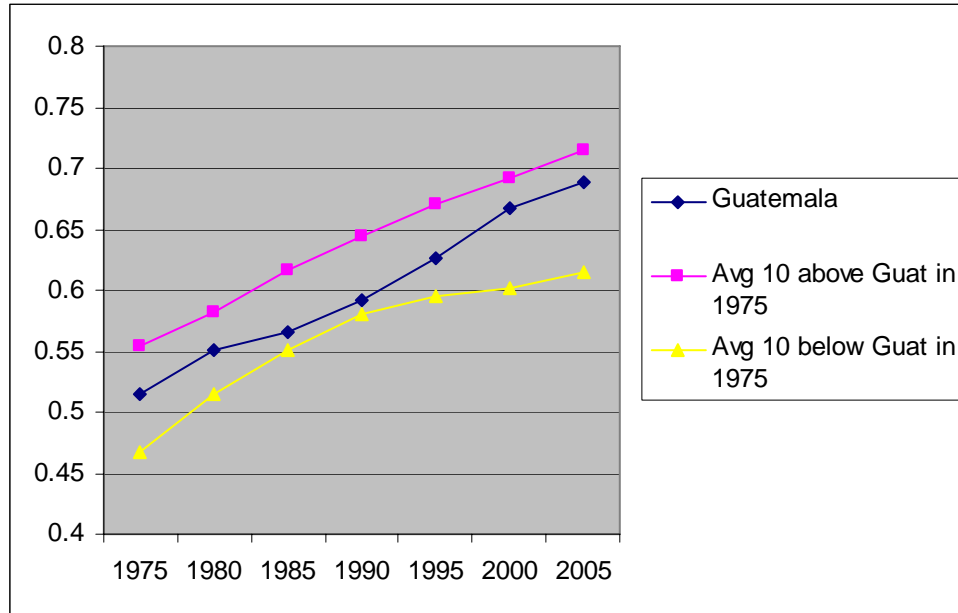
3.2 While Guatemala was near the median performance in poverty reduction, it was well above the median performance in reducing inequality and improving social indicators. The average annual rate of change in water and sanitation and in a variety of education indicators is particularly noteworthy. Some of the changes compare very favorably to changes that have occurred across the world in the last 25 years. The one indicator that has not improved and, where Guatemala has, unfortunately, one of the worst indicators in the world is in chronic malnutrition or stunting. The considerable improvement in health indicators and water and sanitation may portend an imminent improvement in chronic malnutrition. However, it is impossible to say because there have been no more recent data available since 2002. While data are now being collected, one of the urgent actions to improve the information system is to put in place a more timely monitoring system to measure one of Guatemala's most serious social problems.

3.3 As increased coverage of education and health bring more people into the system and as the nature of the problem shifts to one of producing quality services, Guatemalans need to consider whether there are enough resources to do an adequate job. The level of tax revenue that Guatemala had before was able to finance a poor quality system with low coverage. The shift in expenditure and the small increase in tax revenue have made possible the improvements in coverage of social services that are being observed today. But it is unlikely to be sufficient to allow Guatemala to continue the same pace of improvements in the education and health system that have occurred over the last six years and to address the pressing need in combating malnutrition.

## TRENDS IN HUMAN DEVELOPMENT INDEX

3.4 Prior to presenting the results of the benchmarking exercise, indicator by indicator, it is useful to present an overview of the trends in Guatemala's Human Development Index (HDI) over the last 30 years. Figure 3.1 illustrates how the value of the HDI for Guatemala has evolved over the last 30 years, compared to the average value of the index of those countries that were in the 10 positions just above and just below Guatemala in 1975.<sup>35</sup>

**Figure 3.1 Trends in Human Development Index**



Source: Author's calculations based on UNDP comparative HDI data  
<http://hdr.undp.org/en/statistics/>

3.5 The figure reveals that between 1975 and 1990, Guatemala was improving, but at a rate that was so slow relative to other countries that it was falling back to the average level of the countries that had lower values in 1975. Starting in the mid-1990's Guatemala's rate of improvement started to turn around and the country's HDI is now close to the level of the average value of the countries that were just above Guatemala's position in 1975. This change is undoubtedly due to the greater effort that is being made in the social sectors as a consequence of the peace accords (although the targets set in the peace accords were not reached). This improvement is sometimes missed or underappreciated when a comparison is made of Guatemala's position at a single point in time. For example, it is the case that Guatemala has been in the next-to-last position in Latin America for the HDI in 1975, 1980, 1985, 1990, 1995, 2000 and 2005. This is because the initial starting position for Guatemala was so poor. As will be seen in the

<sup>35</sup> Note: Guatemala's 2005 value of 0.689 is roughly the level of Colombian, Paraguay, Mexico and Jamaica in 1975. Guatemala's 1975 value of 0.514 is roughly the level of Timor-Leste, Djibouti, Kenya, Zimbabwe and Togo today. The ten countries just above Guatemala in 1975 were El Salvador, Turkey, Nicaragua, Iran, Zimbabwe, China, Syria, Honduras and Tunisia. The countries just below Guatemala in 1975 were Algeria, Botswana, Lesotho, Congo, Indonesia, Kenya, Ghana, Morocco, Egypt and Togo.



benchmarking exercise, the rate of change in many of the social indicators that Guatemala has been able to achieve over the last six years compares quite favorably with the changes that have been achieved in other countries around the world.

### **BENCHMARKING APPROACH**

3.6 We turn now to the more recent past, between 2000 and 2006, and describe the benchmarking exercise that was carried out for a series of indicators related to poverty, inequality and social conditions. For each indicator, we follow a common approach. First, we compare the level of the indicator in Guatemala in 2006 to the most recent data available for other countries in the World Bank's data bases. The poverty data and inequality data are taken from the World Bank's PovcalNet.<sup>36</sup> The social indicators are taken from the World Bank's World Development Indicator data base. The data for all countries are plotted in the form of the cumulative distribution function and Guatemala's position in the distribution is noted

3.7 Second, we compare the average annual change of the indicator in Guatemala between 2000 and 2006 to the distribution of average annual changes for all countries in the WB data bases between 1985 and 2006. The number of observations on the changes varies depending on the indicator in question. In this comparison, there are no controls made for differences in characteristics across countries. It is a strict comparison of Guatemala's value for the change with the unconditional distribution of changes that have occurred in all other countries over the more than 25 year time period. For many countries, there is more than one observation.

3.8 Finally, we present comparisons of the average annual change in an indicator, controlling for differences in the characteristics of the country. This controlling for country differences is done by using quintile regressions to estimate the relation between the indicator and a set of characteristics of the country at different points of the distribution. In contrast to an Ordinary Least Squares (OLS) regression that estimates the relation at the mean of the distribution, quintile regression can estimate the relation at the median, the 25<sup>th</sup> percentile or, indeed, at any given percentile. Just as the estimated coefficients from an OLS regression might be combined with values of the country characteristics to yield a predicted mean value of the indicator, the estimated coefficients from each one of the quintile regressions are combined with the given country characteristics to yield predicted percentiles. These predicted percentiles are plotted and the actual change in the indicator is compared to the distribution of predicted percentiles. If the actual change is towards the upper end of the distribution of predicted percentiles, performance would be considered good. If it is towards the lower end of the distribution of the predicted percentiles, performance would be considered poor. Note that the predicted percentiles are specific to the country. Thus, what would be considered good or poor performance would be expected to vary across countries.

3.9 In addition to looking backwards at past performance, it is possible to use the predicted percentiles to look forward and guide what Guatemala might pick for a target.

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<sup>36</sup> PovcalNet is an interactive computational tool used to estimate the extent of absolute poverty.

If Guatemala wanted to be aggressive in pursuing a target, it might set out to try to achieve the value equal to the 80<sup>th</sup> percentile of its distribution of predicted percentiles. It could also choose to set a target relative to its past performance. It might choose as a target the value that corresponds to the percentile that is 20 points above what it has achieved in the past.

3.10 The predicted percentiles can be used to determine whether previous targets that have been set—for example, an MDG—look like they will be achievable or not. If achieving the goal would require Guatemala to perform at a level considerably above the level it has performed in the past, it might not be reasonable to assume that the goal would be reached.

### **BENCHMARKING PERFORMANCE IN REDUCING POVERTY**

3.11 To benchmark the changes in poverty that have occurred in Guatemala between 2000 and 2006, it is necessary to control for differences in purchasing power parity across countries. The World Bank's PovcalNet provides a simple way to do that. One can specify different values of \$1, \$2, \$3, \$4 and \$5 a day PPP and the software program will provide a variety of poverty indicators corresponding to that PPP dollar value. The calculations are based on grouped data from a large set of household surveys that have been conducted around the world over the last 25 years.

3.12 Table 3.1 is the main table illustrating Guatemala's performance in reducing poverty between 2000 and 2006. The columns related to the level of the indicator illustrate that Guatemala is roughly in the middle of the distribution. Note that the level of poverty at \$3 PPP is 46.17 while it is 58.29 percent at \$4 PPP. Thus, the level of poverty in Guatemala based on the national poverty line (51 percent) would correspond to a PPP value between \$3 and \$4 a day. Extreme poverty based on the national line is approximately 15 percent, corresponding to between \$1 PPP and \$2 PPP.

3.13 Turning now to the change in poverty, one notes that poverty in Guatemala measured at \$1 and \$2 PPP actually increased, while at \$3 and \$4 a day it decreased only slightly. The pattern of poorer performance at lower \$ PPP lines echoes what was observed with the behavior of extreme and moderate poverty using the national poverty line. However, the changes in poverty are smaller than with the national poverty lines, reflecting changes in the cost of living in Guatemala relative to the rest of the world.

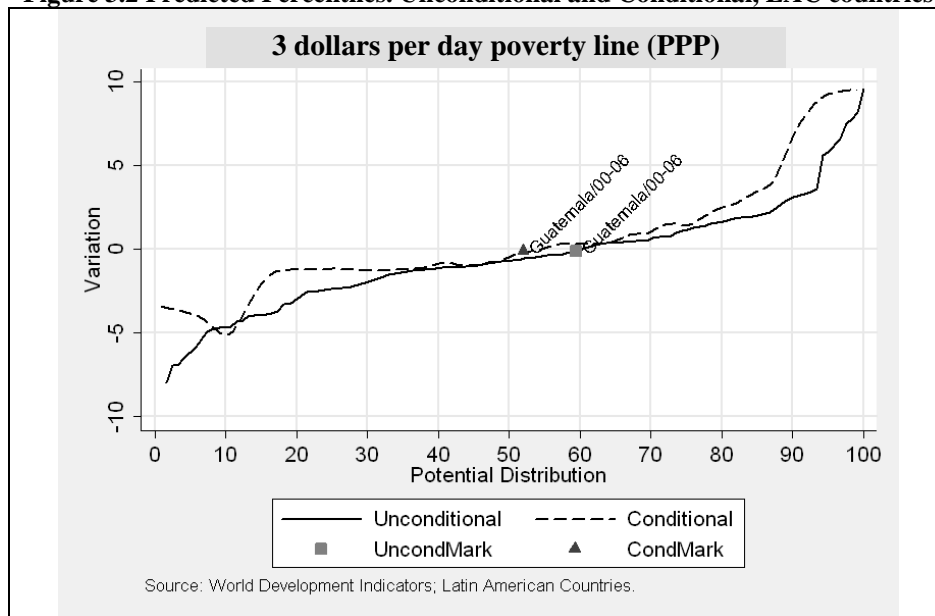
**Table 3.1 Guatemala's Performance in Poverty Reduction**

Indicator	Level of Indicator		Average Change in Indicator		
	Value in 2006	Percentile In Empirical Distribution	Value of Avg Annual Change (2000-2006)	Unconditional Distribution (Comparisons with LAC countries)	Conditional Percentile (Comparisons with LAC countries)
Poverty \$1 PPP	11.78	47	0.19	32 (33)	43 (41)
Poverty \$2 PPP	30.61	55	0.04	42 (39)	52 (48)
Poverty \$3 PPP	46.17	57	-0.12	45 (40)	56 (49)
Poverty \$4 PPP	58.29	60	-0.23	48 (43)	55 (60)

Source: WB Povcalnet for poverty PPP data.

3.14 In comparative terms, the performance is below the median performance of all countries and somewhat poorer when the comparator group is other Latin American countries. The last column in the table (labeled conditional percentile) indicates that when one controls for the characteristics of Guatemala, the performance relative to other countries in the world and in Latin America improves. Figure 3.2 plots the predicted percentiles for the unconditional percentiles and conditional percentiles for LAC countries, with the change measured using \$3 a day PPP.<sup>37</sup> Note that while controlling for country characteristics improves Guatemala's relative position somewhat, in no case does the performance moves much above or below median performance.

**Figure 3.2 Predicted Percentiles. Unconditional and Conditional, LAC countries**



<sup>37</sup> Note that the reported percentiles in the tables are the inverse of the percentiles in the figures. This is done because one is accustomed to considering a higher percentile to represent better performance. The tables correspond to this interpretation. In Figure 3.2, good performance is a negative value, representing a decline in poverty. Similarly, in figure 3.3, good performance is associated with a lower numerical value of the Gini index.

3.15 The outcome for poverty reduction is perhaps not that surprising when one considers that during the period 2000 to 2006, Guatemala’s growth in per capita GDP went into decline and only started to recover in the last two years (Table 3.2 below). Measuring per capita GDP in 2005 international \$ PPP, the level barely increased – going from \$4916 in 2000 to \$5015 in 2006.

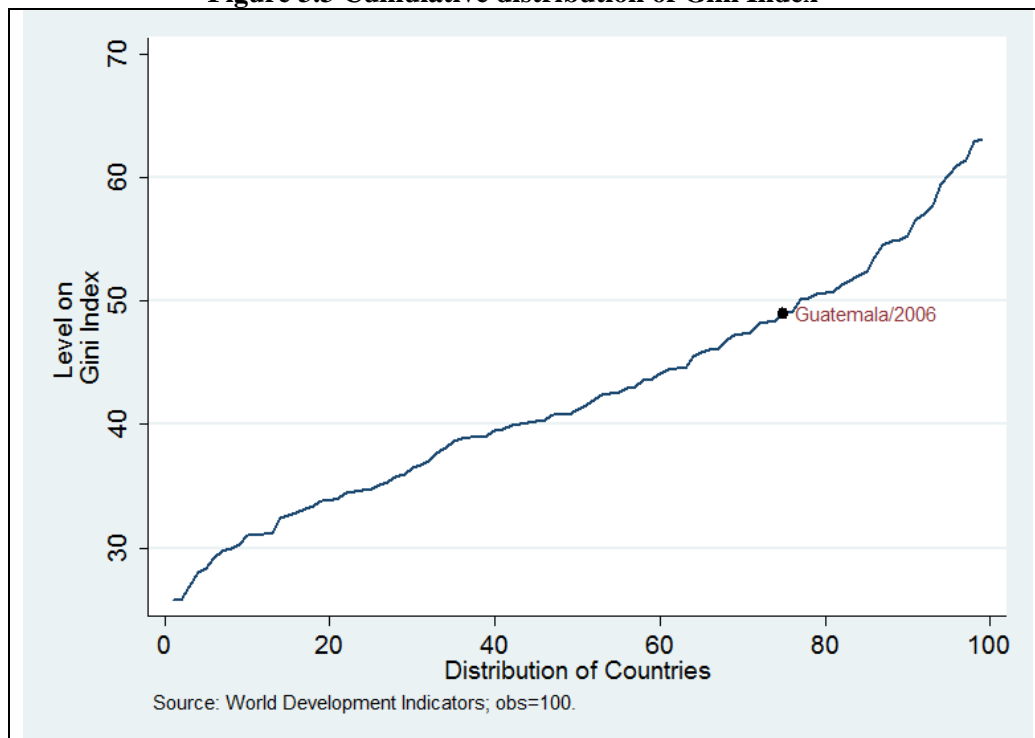
**Table 3.2 Yearly Changes in Per Capita GDP**

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
2.05	2.66	1.51	1.23	-0.06	-0.17	-0.31	0.19	0.75	2.12

### BENCHMARKING PERFORMANCE IN REDUCING INEQUALITY

3.16 Guatemala is a country with a high level of inequality, as indicated by Guatemala being in the 23<sup>rd</sup> percentile when compared to the rest of the world (see figure 3.3).<sup>38</sup>

**Figure 3.3 Cumulative distribution of Gini Index**



3.17 Recent work by the World Bank has focused on the role that equality of opportunities plays in generating inequality in income and consumption. Current inequality of incomes depends on past inequalities of opportunities. Short of affecting dramatically the progressivity of the tax system or the transfer system, it is not possible to directly affect current inequality of incomes or consumption. It is possible to affect directly current inequalities of opportunities through decisions on public investments.

<sup>38</sup> As a higher Gini reflects more inequality, the percentile is measured from 100. Twenty-three percent of the countries have values worse than Guatemala and 77 percent have values that are better.

3.18 The World Bank has created an opportunities index that combines two concepts. One concept is that of prevalence—for a given public service, what percentage of children have access to the service. The second concept is that of dissimilarity in access to that service. Access could be thought to be similar if there are no predetermined circumstances that could explain which children have access and which do not. The access would not depend on sex, ethnicity or family characteristics, which a child does not choose. The extent to which access deviates from this ideal can be measured and compared across countries and across time.

3.19 The World Bank has compared Latin American countries based on this opportunities index and based on its component indices of prevalence and dissimilarity for education, electricity and water and sanitation. Guatemala comes out in the next to last position, surpassing only Nicaragua. However, in preliminary analysis using more recent data to compute the index of opportunities, it appears that Guatemala has improved over time. This is consistent with the general observation running throughout the report – that there has been improvement between 2000 and 2006, but that the level of the poverty or social indicator is still low.

3.20 Returning to the familiar Gini index, an analysis of the household survey data from 2000 to 2006 reveals that there was a substantial improvement in inequality, with an average reduction of 1 point per year (Table 3.3).

**Table 3.3 Guatemala’s Performance in Inequality Reduction**

Indicator	Level of Indicator		Average Change in Indicator		
	Value in 2006	Uncond. Percentile	Value of AvgAnnual Change (2000-2006)	Uncond. Percentile	Cond. Percentile
Gini	48.97	23	-1.0	70	75

3.21 This is better than 70 percent of all average rates of change over the last 25 years. This is perhaps largely due to the important role that remittances had in accounting for the change in consumption and, while remittances are higher among higher income groups, poorer families have also benefitted from remittances.

#### **BENCHMARKING PERFORMANCE IN IMPROVING EDUCATIONAL LEVELS**

3.22 Table 3.4 shows that the level of educational indicators in Guatemala is very poor, but the rate of change is very good. For example, based on the level of the primary completion rate, Guatemala is seen to be in the 27<sup>th</sup> percentile in 2006. However, the average annual change of 3.14 points is seen to be in the 88<sup>th</sup> percentile of all reported changes in the last 25 years. Taking into account Guatemala’s observed characteristics, the performance is even more impressive—coming in at the 94<sup>th</sup> percentile. This combination of having a poor level but a good average annual change is apparent pretty much across the board in education. The level of persistence to 5<sup>th</sup> grade is low, both for boys and girls, the repetition rate is high and the primary completion rate is low – both for boys and girls. The literacy data in the WDI data base are from 2002 and they are low

as well. The levels are close to the median only for progression to secondary are. This type of pattern generates the high degree of inequality of opportunity to education. Compare to other countries, few children complete primary. But if they complete primary, there is a good chance that they will go on to secondary.

3.23 The good performance of the average change in the educational indicators is clearly apparent in the relevant columns in Table 3.4. The persistence to 5<sup>th</sup> grade has improved substantially. Repetition rates have dropped and primary completion rates have risen sharply. It is noteworthy that even with the dramatic increases in primary completion rates, the progression to secondary has only fallen slightly.

**Table 3.4 Guatemala's Performance in Improving Educational Levels**

Indicator	Level of Indicator		Average Change in Indicator		
	Value in 2006 (unless noted)	Uncond. Percentile	Avg. Change From 2000 to 2006 (unless noted)	Uncond. Percentile	Cond. Percentile
Persistence to 5 <sup>th</sup> grade – total	68.9*	18	2.62***	83	60
Persistence to 5 <sup>th</sup> grade – female	67.6*	15	2.74***	85	60
Persistence to 5 <sup>th</sup> grade-male	70.2*	27	2.54***	82	62
Repetition rate –total	12.09	20	-0.40	92	73
Repetition rate – female	11.14	19	-0.43	92	81
Repetition rate – male	12.96	22	-0.36	88	71
Primary Completion Rate – total	76.5	27	3.14	88	94
Primary Completion Rate – female	72.6	24	3.37	88	92
Primary Completion Rate – male	80.4	29	2.92	88	94
Progression sec –total	91.4*	50	-0.22***	45	50
Progression sec – fem	90.2*	55	-0.44***	44	49
Progression sec – male	92.4*	46	-0.08***	47	60
Literacy – total	69.1**	27	Not avail.		
Literacy – female	63.3**	30	Not avail.		

Source: WB, World Development Indicators

\* Data from 2005; \*\* Data from 2002; \*\*\* Change from 2000 to 2005

3.24 While this is all good news, the government will have to take note of the future resource implications that the increase in coverage entails. A higher percentage of children will be finishing primary, with little change in the reduction going on to secondary. Unless these changes are occurring against a backdrop of declining age cohorts, the pressure on secondary schools will increase significantly in the near future. If there is no adequate funding at for secondary schools, quality will suffer.

3.25 In general, the government should take note that as they begin to solve the coverage problem, attention will turn more to questions of quality of the education. Achieving and maintaining quality education is more expensive than expanding coverage. The low level of tax collection will quickly become a limiting factor for the improvement of human capital in Guatemala.

## BENCHMARKING PERFORMANCE IN IMPROVING HEALTH AND NUTRITION

3.26 The evidence related to performance in health contrasts sharply to that in nutrition, at least as regards to stunting. Whereas the main health indicators can be characterized as poor, but getting better, stunting has been an extreme problem in Guatemala and the latest available data suggest that the problem is not being solved.

3.27 Table 3.5 indicates that the level of infant mortality, under 5 mortality, maternal mortality and life expectancy in Guatemala is in the bottom 30-40 percent of all countries. However, the health situation is improving. The average change in the indicator is improving at a rate that is better than 65 to 70 percent of the other countries. The strongest performance is apparent in infant mortality where, controlling for Guatemala's characteristics, the average 2 percentage point improvement each year between 2000 and 2006 lies at the 95<sup>th</sup> percentile of the conditional distribution.

3.28 Of all the social indicators reported in this Poverty Assessment, the worst relative position lies with Guatemala's level of stunting.<sup>39</sup> In 2002, Guatemala was at the 7<sup>th</sup> percentile of the level of malnutrition. This means that of all the recorded levels, 93 percent of the cases had levels of malnutrition better than Guatemala's. Comparing the 2002 figures to the previous data raised the disturbing point that, despite the extremely poor results that prevailed in 2000, the results in 2002 were actually worse. The percentage of children who were stunted increased. In terms of the rate of change, 85 percent of the recorded episodes were better than what Guatemala recorded in the period between 2000 and 2002.

3.29 Since 2002, nutrition has made its way squarely onto the political agenda, something that cannot be said of years past. This is clearly an important step and one that was necessary if there is to be an improvement in the malnutrition indicators. The two main efforts have been: i) the preparation of a proposal for food security and nutrition in 2004, coming out of the work of the *Mesa Nacional Alimentaria* and culminating in the *Ley del Sistema Nacional de Seguridad Alimentaria y Nutricional (SINASAN)* in 2005; and ii) the preparation of two programs – *El Programa para la Reducción de la Desnutrición Crónica*, coordinated by the *Secretaría de Seguridad Alimentaria y Nutricional (SESAN)* and the program *Creciendo Bien*, managed out of the *Oficina de la Primera Dama*. It is apparent that the interest in attacking the nutrition problem has extended into the administration of President Álvaro Colom.

3.30 As the experiences of other countries have shown, it can often be difficult to sort out all of the institutional complexities in trying to solve a problem that is essentially multi-sectoral. Often, a strong champion is needed to help develop a system that matches up what might be needed in different regions which face different initial conditions.

3.31 Even before all institutional arrangements have been sorted out, it is important to press on with carrying out the interventions that lead to improved nutritional outcomes. It is possible that, with the improvements in health (apparent in Table 3.5), the

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<sup>39</sup> The previous World Bank Poverty Assessment also highlighted the extremely high levels of malnutrition and the need to take corrective action.

improvements in water and sanitation (apparent in Table 3.6) and with the actions taken to raise nutrition higher in the political agenda, the percentage of children who are stunted might have fallen. Unfortunately, at this time, there is nothing that can be said one way or the other, because no new data on nutrition have been made available since 2002. This points to one of the most urgent needs in Guatemala: to take a very operational approach to the design of information to guide policies to reduce chronic malnutrition. What is happening to the trend in malnutrition? Are the programs having their intended effect? Is the scale of operations in a given region adequate to bring about an important reduction in chronic malnutrition? What would be appropriate targets to set in different parts of Guatemala, for example in the Western highlands where the problems are most severe? Answering these questions requires information. More timely and more frequent monitoring of the situation in Guatemala is needed.

3.32 New nutrition data will be useful to assess progress. It is not necessary, however, to have the data in hand to define what would constitute good performance for Guatemala. Good performance in chronic malnutrition for Guatemala would be on the order of an average reduction of 1.5 points per year. This would be a better performance than 75 percent of all the changes observed over the last 20 years, but still about half of the rate called for in the *Programa para la Reducción de la Desnutrición Crónica*. As a point of reference, in the south of Mexico, the government was able to bring about an average annual reduction of 1.5 points per year between 1999 and 2006. Malnutrition rates are considerably higher in Guatemala, so it should be possible to bring about a faster rate of reduction—but only with strong leadership and a systematic effort that involves using information intensively to reach targeted populations, to choose the programs that are most likely to have the largest impact in a given region, and to monitor and ensure that they are achieving the intended impact.

3.33 Looking forward, the rise in food prices is generating considerable concern for its potential effect on poverty and on nutritional levels. Analyzing the potential impacts will be one of the follow-up activities to the Poverty Assessment that will be carried out by the World Bank. The potential impact on nutrition depends to a large extent on how families manage the intra-household allocation of food. The absolute amount of complementary food required by children under 2 (the most vulnerable group) is not large. Families, even families under stress, may reallocate and suffer in ways that do not cause very dramatic increases in malnutrition. But, this is not always the case. Reviewing the set of all changes in nutrition over the last 25 years, one observes that in one fourth of the cases the level of malnutrition increased. Thus, there is certainly a risk. Government policies can mitigate that risk. If there was scope before to modify programs to bring about better nutritional outcomes, the risk posed by higher food prices (which may lie outside the control of policy makers in the short run) brings home the need to take decisive action over the actions that are under their control and that would serve to improve nutritional outcomes.



**Table 3.5 Benchmarking performance in health and nutrition**

Indicator	Level of Indicator		Average Change in Indicator		
	Value (2006 \)	Uncond. Percentile (level)	Avg. Change since 2000	Uncond. Percentile	Cond. Percentile
Infant mortality	30.6	40	-1.40	65	95
Under 5 mortality	41	38	-2.00	70	70
Maternal mortality	290*	35	NA		
Lifetime risk of maternal mortality	1.40*	30	NA		
Life expectancy	69.91	43	0.34	55	25
Low Birth Weight	12**	32	-0.33***	75	NA
Malnutrition – height for age	54.3**	7	0.4***	15	NA
Malnutrition – weight for age	17.7**	45	-0.86***	72	NA

\* Data from 2005; \*\* Data from 2002, \*\*\* Change from 2000 to 2002

### BENCHMARKING PERFORMANCE IN SOCIAL INFRASTRUCTURE

3.34 Table 3.6 indicates that Guatemala's performance in improving access to water and sanitation is now reasonably good and the performance over the period from 2000 to 2006 has been exceptionally good. Indeed, Guatemala has achieved a rate of improvement in access to sanitation very close to the best that has been recorded over the last 25 years. The performance in water and sanitation provides some hope that the stunting figures will show some improvement when they become available. If these improvements are combined with improvements in growth promotion, with adequate counseling, then there should be improvements in stunting.

3.35 The improvement in water and sanitation should also help explain some of the improvements in under-five and infant mortality that have been observed over the period.

**Table 3.6 Benchmarking Performance in Increasing Access to Social Infrastructure**

Indicator	Level of Indicator		Average Change in Indicator		
	Value in 2005	Uncond. Percentile	Avg Change from 2000 to 2005	Uncond. Percentile	Cond. Percentile
Improved water	95	70	1.0	86	76
Improved sanitation	86	68	2.0	97	92

### BENCHMARKING KEY CONTEXTUAL VARIABLES

3.36 Although Table 3.7 does not present a poverty indicator or a social indicator, it provides information on some contextual factors that will need to be taken into account as the country makes important policy decisions in the future.

3.37 First, note that Guatemala has one of the highest dependency ratios in the world. In contrast to European countries, the high dependency ratio in Guatemala is caused by there being a lot of young people, not old people. As one can observe, this dependency ratio is declining. It is likely to decline faster as fertility falls further, with increasing urbanization and continued declines in infant mortality. The immediate effect of the

decline in the dependency ratio should be to reduce the poverty levels as there will be more workers per household. As fertility falls, the dependency ratio will bottom out and then begin to rise, with the increase in the future driven by increases in the percentage of elderly people in the future.

3.38 It is important that Guatemala not go from being a poor young country to being a poor old country. Once the transition to being an old country occurs, it will be difficult for Guatemala to make the investments necessary to build human capital and economic infrastructure, as much of the wealth generated will have to go to support the higher number of dependents.

**Table 3.7 Benchmarking levels and changes in key contextual variables**

Indicator	Level of Indicator		Average Change in Indicator		
	Value in 2006 (unless noted)	Uncond. Percentile	Avg Change 2000 to 2006 (unless noted)	Uncond. Percentile	Cond. Percentile
Age dependency	0.89	90	-0.01	49	43
Rural population (% of total)	52.8	60	-0.42	40	47
Rural population density	466	62	4.8	82	71
Gov't expenditure (as % of GDP)	6.36	8	-0.11	36	18
Tax Revenue (as % of GDP)	10.16	17	0.02	51	57

3.39 At Guatemala's current rate, it will take decades before the age dependency ratio stops declining. Thus, there will be opportunities to reap the benefits of the decline. Roughly 60 percent of the countries have age-dependency ratios below 0.6. The minimum will vary depending on exactly how the demographic transition played out in the particular country. In European countries which went through a long transition, the minimum seems to be reached around the mid 0.40s. For those developing countries that went through a faster demographic transition, the minimum seems to be reached in the mid 0.30s. Currently, only 10 percent of the sample is experiencing increases in age-dependency ratios, indicating that in the vast majority of the countries, there is still a young population. Twenty-five percent of the sample has rates of decrease from -1.5 to -2 percent per year. While it has taken 20 years for Guatemala to achieve a reduction of 6 points prior to 2000, the rate of reduction has accelerated to the point where a similar 6 point decrease was achieved over only six years. If Guatemala were to reduce the age-dependency ratio at an average of 1.5 points per year, over the next 20 years the age-dependency ratio would fall to 0.59. Provided there are appropriate investments in human capital and economic structure and continued economic growth, this should make it easier to achieve poverty reductions in the future than it has in the past.

3.40 However, the high age dependency ratio (caused by a lot of young people) indicates that there will be many large cohorts of children who remain to be educated. It is welcome news that Guatemala is now starting to witness an improvement in social indicators, after many years of minimal progress. This is essential if Guatemala is to make it through the demographic transition in good shape.

3.41 A second important observation is that while the change in rural population is roughly at the pace close to the median, the increase in rural population density is occurring at a faster rate than in most other countries. Here, rural population density is defined as the population per acre of arable land. An increase in rural population density can be positive if it creates a critical mass for both off-farm and farm employment. But it can also signal increasing pressure on the land, with the possibility of land being used excessively and productivity falling. The increase in extreme poverty in the Northeast may be due to declining agricultural productivity, possibly brought on by a combination of the effects of climate change and increased pressure on the land. We do not know this for sure, but certainly the relative fast rate of increase in rural population density bears watching.

3.42 Finally, there is the information on government expenditure and tax revenue, both as a percent of GDP. Between 2000 and 2006, government expenditure fell and tax revenue only rose slightly. Although it is well known that government expenditure and tax revenue are low in Guatemala, what is less well known is how low it is compared to the values of other countries.



**PART II SOCIAL PROGRAMS AND THE POTENTIAL  
IMPACT OF CONDITIONAL CASH TRANSFERS ON  
POVERTY**



## CHAPTER 4. SOCIAL PROGRAMS

4.1 This chapter covers the Social Programs in Guatemala: Education, Health and Social Protection and is organized into five main sections. The first section describes the trend in Guatemala's public expenditure in social programs and compares it to other Latin American countries. The second section looks into coverage and incidence of social programs and private consumption by quintile and poverty groups. The last three sections are Education, Health and Social Protection programs, respectively.

4.2 Several important messages and recommendation emerge from the chapter:

- i. Recently, public expenditure levels as a proportion of GDP have increased but remain low. Within the government budget, public expenditures in social programs received a significant share, even bigger than the Latin American and Caribbean average. A fiscal reform is needed in order to increase the government's ability to provide goods and services, especially to the poor and vulnerable.
- ii. Overall public education is poverty neutral. Public primary education accounts for 73 percent of the public education student body and is pro-poor, especially the Community-managed Program for Educational Development (*Programa Nacional de Autogestión para el Desarrollo Educativo, PRONADE*) for primary schools and preschools. Programs similar to PRONADE in secondary education would have a tremendous impact in improving human capita for the poor.
- iii. Overall public health is also poverty neutral but services provided by the Health Centers, Health Posts and Community Centers are progressive. Increased investments by the Guatemalan government targeting those facilities would tend to be pro-poor and benefit the segment of the population with the largest needs.
- iv. The School Supplies program is a good example of social protection transfer programs that reach an important segment of the population (12.9 percent) and are pro-poor (64.5 percent of its benefits are received by the poor); the government should learn from that experience to design or modify other Social Programs aimed at the poor.
- v. Half of public expenditures in social programs are allocated to education. The 2000 to 2006 significant improvements in primary enrollment rates shared by all income groups is not surprising. Secondary education has very low enrollment rates and is highly skewed against the poor. Around half of all primary and secondary students attend private education centers with higher participation by non poor households.
- vi. Poor health and lack of interest are the most common causes for dropping out of primary school for all groups (above 60 percent). The main reason not to enroll in secondary school is economic (above 60 percent for all income and economic groups), followed by lack of interest (above 25 percent for all groups). Efforts to reduce drop out rates and repetition in primary should emphasize access to health and quality of education, including activities like sports and arts. Less than one tenth of public expenditure goes to secondary education. Improvements in secondary education indicators require higher investment levels by the government. The government should strongly consider lowering the mandatory age for first grade in primary enrollment from seven to six years of age, which would put it in line with most Latin American countries.

- vii. The health and social protection situation in Guatemala is more complicated: some indicators have improved and some remain basically unchanged. Lack of resources and lack of access to health facilities (supply side limitations) remain the main barriers, especially for the poor and rural population. Low initial indicators, limited investment and a reduction of personal expenditure in health make any improvements even more difficult. There are indications that the extremely high malnutrition rates have not change. The lack of updated nutrition information is only a symptom of how a fundamental problem is not being addressed.
- viii. The level of investment in health and social protection is low not only by international standards but also relative to other social programs like education with only modest improvement up to 2007. The vast majority of Guatemalans (85 percent) remain uninsured. This situation is even worse for the extreme poor with less than 3 percent of insured persons. Social Protection remains for the mayor part regressive with only a few programs reaching the poor. Increasing health insurance coverage to the poor should be priority number one in Guatemala and this requires a serious commitment and resources.
- ix. Well-designed programs targeting the poor like CCTs will improve the scarce resources dedicated to social [rotection. Better monitoring and evaluation systems are fundamental for the success of any social protection program.
- x. Improving human capital in the form of health and education is justified not only as a basic service the government should provide to its citizens, but also as a way to improve everybody’s wellbeing: “lower poverty levels results in high growth and high growth in turn results in lower poverty.”<sup>40</sup>
- xi. Social protection programs have to be evaluated individually. Integrated evaluations are good to know where we are but are useless to identify where the problems are and which programs are reaching the poor and which are not.

### **PUBLIC EXPENDITURE**

4.3 The December 1996 Peace Accords sought to improve participation and equality for all Guatemalans. The Peace Accords have a strong social component in health, education, and social protection. As a result, public spending increased from around 10 percent of GDP in 1996 to almost 15 percent in 2006 (Table 4.1).

4.4 Public Expenditures composition also changed during the same period. For example, Central Government transfers (current and capital) increased from 2.7 percent of GDP in 1996 to 6.3 percent of GDP in 2006 reflecting more transfers to municipalities, social funds, and other decentralized institutions.<sup>41</sup>

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<sup>40</sup> Perry 2006

<sup>41</sup> Ministry of Finance of Guatemala Web page: [www.minfin.gob.gt](http://www.minfin.gob.gt)



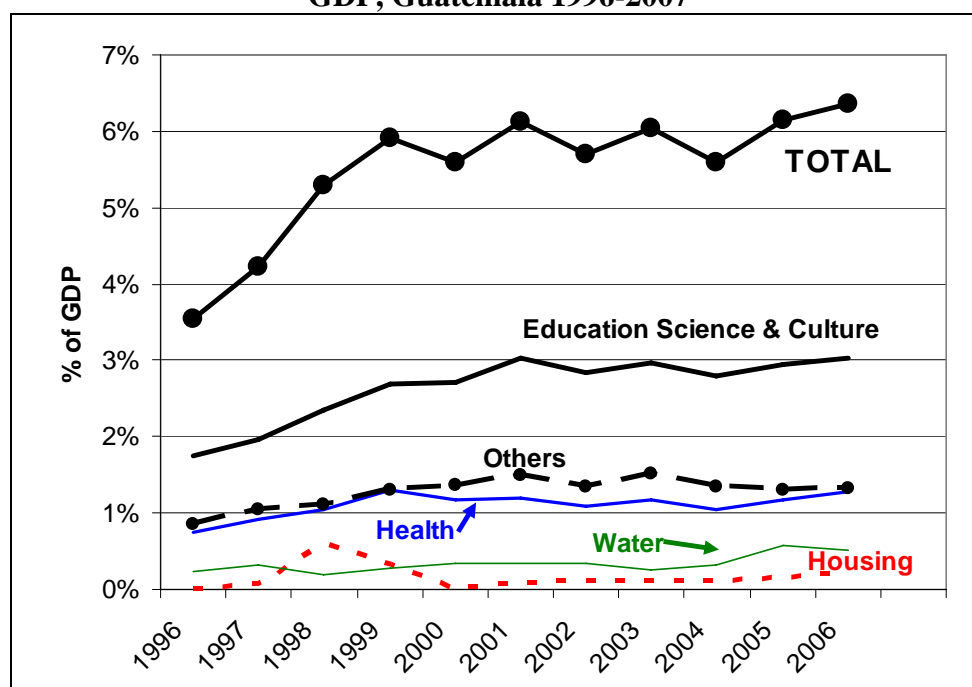
**Table 4.1 Guatemala Total Central Government Expenditure as GDP %, 1996-2006**

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<b>Expenditure as GDP %</b>	10.4	11.8	13.9	15.4	14.3	14.5	13.9	15.1	13.4	13.7	14.7

Source: Ministry of Finance of Guatemala Web Page: [www.minfin.gob.gt](http://www.minfin.gob.gt)

4.5 Public expenditures on social programs also experienced a dramatic increase at the end of the 1990s. Expenditures increased from 3.5 percent of GDP in 1996 to almost 6 percent of GDP in 1999. However, thereafter, expenditures have stagnated as a percent of GDP without any significant change up to 2006 (Figure 4.1). In that year, education represented almost half of all expenditures (3 percent of GDP) and health and social protection received one fifth of the resources (1.3 percent of GDP)<sup>42</sup>.

**Figure 4.1 Public Expenditure on Social Programs as Percentage of GDP, Guatemala 1996-2007**



Classification defined by the Peace Accords.

Others include Internal Security, Judicial System, Constitutional Court and Public Ministry.

Source: Ministry of Finance of Guatemala Web Page: [www.minfin.gob.gt](http://www.minfin.gob.gt)

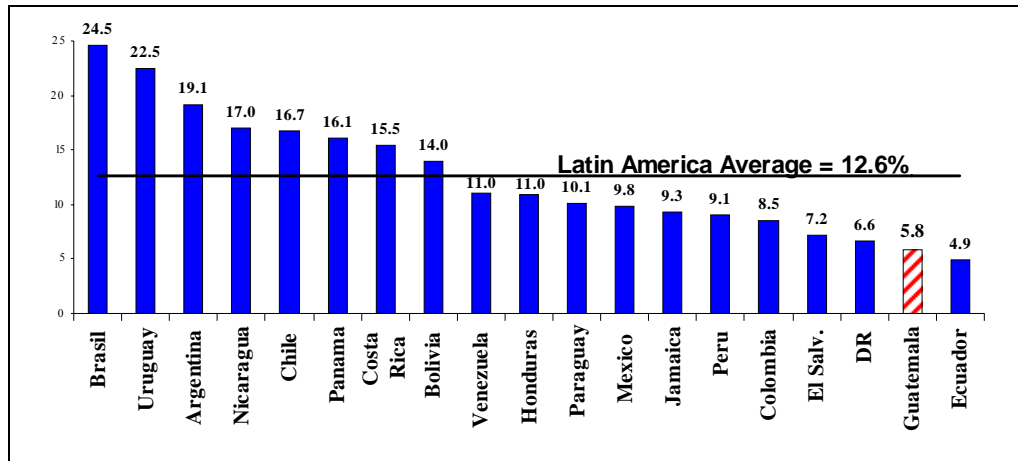
4.6 Despite public social expenditures increases at the end of the 1990s, Guatemala has one of the lowest levels of social public expenditures in Latin America. As a percentage of GDP, Guatemala's 5.8 percent<sup>43</sup> of social public expenditures ranks second to last in Latin America only above Ecuador and less than half the Latin American average of 12.6 percent (Figure 4.2). For example, Panama's and Costa Rica's p

<sup>42</sup> On a different Ministry of Finance classification, defined by function and destination, and including Labor and Social Protection as well as urban and rural development, total SPPE reaches 7.8 percent of GDP by 2007

<sup>43</sup> Values used for international comparisons are not exactly the same as the official country figures used later.

expenditures on social programs as a percentage of GDP are more than Guatemala's TOTAL Central Government expenditures.

**Figure 4.2 Public Expenditure in Social Programs as Percentage of GDP in Latin America, 2000 to 2005**



Note: social public expenditure includes health, education, housing, social security, and social protection expenditures.

Source: International Monetary Fund and Country specific sources

**4.7 The share of total public expenditures used for social programs in Guatemala is well above the Latin American and Caribbean average.** According to comparable estimates by the Economic Commission for Latin America and the Caribbean's (ECLAC) Guatemala's public expenditures on social programs between 2004 and 2005, were 53.8 percent of total public expenditures,<sup>44</sup> the eighth highest value out of 21 countries.<sup>45</sup>

## COVERAGE AND INCIDENCE OF SOCIAL PROGRAMS AND PRIVATE CONSUMPTION

### Coverage of Social Programs

**4.8 Public education reaches more than one fifth of the population and one quarter of the lowest consumption groups.** In fact, out of 100 Guatemalans, more than 22 are enrolled in some type of public education institution. That number is even higher for the extreme poor (23.2 percent) and reaches almost 25 percent for all poor persons (Table 3.2). The highest consumption quintile has a much lower participation in public education (13.6 percent).<sup>46</sup>

<sup>44</sup> Which is very close to the value obtained using a different Ministry of Finance classification, defined by function and destination, and including Labor and Social Protection as well as urban and rural development (instead of using the classification defined by the Peace Accords).

<sup>45</sup> Economic Commission for Latin America and the Caribbean (ECLAC/CEPAL) 2007.

<sup>46</sup> Since poor households have more school-aged kids than non-poor households, the higher coverage rate is not an absolute measure of participation. Later in the chapter participation and enrollment rates by poverty groups are analyzed.

4.9 **Most of the students in the public system are concentrated in primary education,<sup>47</sup> especially among the poor.** On average for primary education, 73 percent of students are enrolled (16.2 out of 22.2) and almost 90 percent of extreme poor students (20.3 out of 23.2) (Table 4.2). Participation rates for the poor in preschool are higher than in secondary.

**Table 4.2 Public Education Coverage by Level and Provider Type in Guatemala, 2006**

Level	Provider	Total	Quintile (poorest to richest)					Poverty		
			1	2	3	4	5	Ext.	All	Non P.
		<b>Coverage (%)<sup>a</sup></b>								
<b>Preschool</b>	<b>All<sup>b</sup></b>	<b>2.1</b>	<b>2.0</b>	<b>2.4</b>	<b>2.3</b>	<b>2.5</b>	<b>1.5</b>	<b>1.9</b>	<b>2.2</b>	<b>2.0</b>
	Ministry of Education	1.7	1.4	1.7	2.1	2.1	1.3	1.3	1.7	1.8
	PRONADE	0.3	0.5	0.6	0.1	0.1	0.1	0.5	0.5	0.1
	NEUS & O. Cent.Govt.	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0
	Local <sup>c</sup>	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.1
<b>Primary</b>	<b>All<sup>b</sup></b>	<b>16.2</b>	<b>20.7</b>	<b>21.0</b>	<b>19.2</b>	<b>14.3</b>	<b>5.7</b>	<b>20.3</b>	<b>20.5</b>	<b>11.7</b>
	Ministry of Education	13.7	15.7	17.4	17.2	13.1	5.0	14.9	16.7	10.6
	PRONADE	2.0	4.5	2.9	1.4	0.8	0.5	4.9	3.2	0.8
	NEUS & O. Cent.Govt.	0.2	0.4	0.2	0.2	0.2	0.0	0.3	0.3	0.1
	Local <sup>c</sup>	0.3	0.2	0.5	0.4	0.3	0.2	0.2	0.4	0.3
<b>Secondary</b>	<b>All<sup>b</sup></b>	<b>3.0</b>	<b>1.3</b>	<b>2.3</b>	<b>3.6</b>	<b>5.0</b>	<b>2.8</b>	<b>1.0</b>	<b>2.1</b>	<b>3.9</b>
	Ministry of Education	1.6	0.4	1.2	1.8	2.9	1.8	0.3	1.0	2.3
	PRONADE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	NEUS & O. Cent.Govt.	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.2
	Local <sup>c</sup>	1.2	0.7	0.9	1.6	1.9	0.8	0.6	1.0	1.4
<b>Tertiary</b>	<b>All<sup>b</sup></b>	<b>0.9</b>	<b>0.0</b>	<b>0.1</b>	<b>0.2</b>	<b>0.8</b>	<b>3.5</b>	<b>0.0</b>	<b>0.0</b>	<b>1.8</b>
	Ministry of Education	0.1	0.0	0.0	0.1	0.1	0.5	0.0	0.0	0.3
	NEUS & O. Cent.Govt.	0.8	0.0	0.1	0.1	0.7	3.0	0.0	0.0	1.6
	Local <sup>c</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>All Grades</b>		<b>22.2</b>	<b>24.0</b>	<b>25.7</b>	<b>25.2</b>	<b>22.6</b>	<b>13.6</b>	<b>23.2</b>	<b>24.9</b>	<b>19.5</b>

<sup>a</sup> Number of persons receiving the benefit / # of persons on the group

<sup>b</sup> The sum of all providers

<sup>c</sup> Local includes Municipal, Cooperatives and Community Based Institutions

Source: World Bank staff calculations based on the 2006 ENCOVI

4.10 **The poor and the extreme poor use public health facilities as often as the non-poor but there are important differences between the types of facilities they use.** On average, all poverty groups use public health facilities 1.6 times a year (Table 4.3) but poor households concentrate in local facilities (Health Center, Health Post and Community Center) (1.2 times a year) and very little in hospitals (0.4 times a year). On the other hand, non-poor persons use hospitals more often (1 time a year) than local facilities (0.6 times a year).

4.11 For expensive procedures, normally provided at hospitals, the non-poor have better access to hospitals and use them more. For cheaper medical needs, widely available at local health facilities, the non-poor uses the private sector. **Insurance**

<sup>47</sup> Primary education includes first through sixth grade.

enrollment in Guatemala is mainly public (85 percent), has very low coverage (15 percent) and is almost non-existent access to the poor (5.7 percent coverage) (Table 3.3).

**Table 4.3 Public Health Coverage and Average Yearly Visits in Guatemala, 2006**

Type of Health Issue / Facility		Total	Quintile (poorest to richest)					Poverty		
			1	2	3	4	5	Ext.	All	Non
		<b>Coverage (%)<sup>a</sup></b>								
<b>All Visits<sup>b</sup></b>		<b>11.3</b>	<b>11.5</b>	<b>11.2</b>	<b>12.3</b>	<b>13.2</b>	<b>8.3</b>	<b>12.0</b>	<b>11.5</b>	<b>11.1</b>
Children under 6 with Diarrhea or Respiratory Problems (last month)	Hospital	0.5	0.2	0.3	0.7	0.7	0.4	0.3	0.4	0.6
	Other <sup>c</sup>	2.3	4.1	3.1	2.4	1.5	0.5	4.4	3.4	1.2
Any health problems or accidents (all ages) (last month)	Hospital	2.7	1.0	1.5	2.6	4.3	4.1	1.0	1.5	4.0
	Other <sup>c</sup>	3.3	4.0	4.0	4.0	3.5	1.3	4.3	4.0	2.6
Pregnancy Control (women 12-49 years old) (last year)	Hospital	0.5	0.2	0.2	0.4	0.9	0.7	0.1	0.2	0.8
	Other <sup>c</sup>	0.6	0.8	0.6	0.8	0.4	0.3	0.8	0.7	0.4
Child Delivery (women 12-49 years old) (last year)	Hospital	1.3	1.0	1.2	1.4	1.9	0.9	1.0	1.2	1.4
	Other <sup>c</sup>	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1
<b>Insurance Enrollment</b>	IGSS	12.9	2.8	5.7	10.6	18.6	26.6	2.8	5.5	20.6
	Private	2.2	0.1	0.2	0.8	1.8	8.2	0.1	0.2	4.3
		<b>Average # of visits per year per 100 persons</b>								
<b>All Visits<sup>b</sup></b>		<b>160</b>	<b>158</b>	<b>150</b>	<b>177</b>	<b>192</b>	<b>123</b>	<b>166</b>	<b>158</b>	<b>162</b>
Children under 6 with Diarrhea or Respiratory Problems	Hospital	5.7	2.8	3.8	8.4	8.2	5.4	3.3	4.2	7.3
	Other <sup>c</sup>	27.8	49.8	37.3	28.3	17.7	5.8	52.8	40.5	14.5
Any health problems or accidents (all ages)	Hospital	57.7	24.6	30.3	59.0	91.7	83.0	23.1	33.0	83.5
	Other <sup>c</sup>	63.0	75.9	74.3	75.1	66.0	23.8	82.2	75.8	49.7
Pregnancy Control (women 12-49 years old)	Hospital	2.4	1.0	1.0	1.8	5.0	3.4	0.5	0.9	4.0
	Other <sup>c</sup>	2.2	2.9	2.1	3.4	1.8	1.1	2.9	2.6	1.9
Child Delivery (women 12-49 years old)	Hospital	1.3	1.0	1.2	1.4	1.9	0.9	1.0	1.2	1.4
	Other <sup>c</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>All Visits<sup>b</sup></b>		<b>160</b>	<b>158</b>	<b>150</b>	<b>177</b>	<b>192</b>	<b>123</b>	<b>166</b>	<b>158</b>	<b>162</b>
All Hospital visits <sup>d</sup>		67	29	36	71	107	93	28	39	96
All Other visits (Secondary level) <sup>c,d</sup>		93	129	114	107	85	31	138	119	66

<sup>a</sup> Number of persons receiving the benefit / # of persons on the group

<sup>b</sup> The sum of all individual visits

<sup>c</sup> Other includes local health facilities (Health Center, Health Post and Community Center)

<sup>d</sup> Uses the 2006 Ministry of Health budget allocation to Hospitals (47.9%) and assumes equal benefits per visit

Source: World Bank staff calculations based on the 2006 ENCOVI

**4.12 Coverage of all in-kind government transfers is higher for the poor than for the non-poor.** The poor include a little more than half of Guatemalans and has higher coverage rates than the non-poor for in-kind transfers of food, clothing, medicines, construction materials and other programs. In total, 8.7 percent of the poor receive some type of in-kind transfer from the government, compared to only 3.3 percent of the non-poor (Table 4.4). Hurricane Stan relief also has a higher incidence among the poor.

**4.13 Coverage of cash transfers in the form of scholarships and school transport are more common for the non-poor.** In fact, only about half the poor receive cash transfers (0.3 percent) compared to the non-poor (0.6 percent) (Table 4.4). In Table 4.4, a clear pattern of increased cash transfers for higher quintiles is present.

**Table 4.4 Coverage of Public Social Protection Programs in Guatemala, 2006**

		Total	Quintile (poorest to richest)					Poverty		
			1	2	3	4	5	Ext.	All	Non P.
		Coverage (%) <sup>a</sup>								
<b>All Transfers<sup>b</sup></b>		<b>7.5</b>	<b>12.5</b>	<b>9.8</b>	<b>7.5</b>	<b>4.6</b>	<b>3.0</b>	<b>13.2</b>	<b>10.4</b>	<b>4.4</b>
In-Kind Transfers	<b>At least one Transfer<sup>c</sup></b>	<b>6.1</b>	<b>10.3</b>	<b>8.4</b>	<b>6.1</b>	<b>3.5</b>	<b>2.1</b>	<b>11.0</b>	<b>8.7</b>	<b>3.3</b>
	Food	4.3	7.4	5.8	4.2	2.9	1.1	8.0	6.1	2.3
	Clothing	0.7	1.4	0.9	0.9	0.4	0.1	1.6	1.2	0.3
	Medicines	0.7	1.0	0.9	0.6	0.5	0.3	0.9	0.9	0.4
	Construction Materials	0.7	0.9	1.2	0.8	0.3	0.5	1.1	1.0	0.5
	Other Programs	0.6	1.5	0.6	0.6	0.1	0.4	1.3	0.9	0.3
Cash: Scholarships & Transport <sup>d</sup>		0.4	0.2	0.3	0.4	0.6	0.7	0.2	0.3	0.6
Hurricane STAN relief		2.2	3.3	2.7	2.3	2.1	0.6	3.7	2.9	1.5

<sup>a</sup> Number of persons receiving the benefit / # of persons on the group

<sup>b</sup> The sum of all individual transfers excluding STAN

<sup>c</sup> Receiving one or more transfers

<sup>d</sup> Assumes the beneficiaries for the entire year are the same as those in the last three months.

Source: World Bank staff calculations based on the 2006 ENCOVI

## Incidence of Social Programs

4.14 Since different programs have different values, coverage in itself does not reveal who is getting the benefits. By assigning a value to each social program the incidence can be estimated. Similar values were assumed for each level of education and each type of health problem. For the overall incidence estimate, budget shares among education levels (preschool, primary, secondary or tertiary) and between hospitals and other health facilities were used as a proxy for the value of the service received. For social protection, the own household in-kind estimated value or reported cash transfers value was used.

4.15 An easy way to interpret the incidence of information is by comparing the incidence value reported with the population share of each group. For each quintile the population share is 20 percent; for extreme poverty it is 15 percent; and for the poor and the non-poor it is close to 50 percent. If the incidence reported is bigger than the population share, benefits are concentrated in that group. In the case of the poor, an incidence above 51 percent implies the program is pro-poor or progressive and an incidence below 51 percent implies a regressive program.<sup>48</sup>

4.16 Overall education is poverty neutral with, albeit important differences among education levels. Absolute incidence of all public education is almost the same as the population share for all quintiles, for the extreme poor and the poor (see last row in Table 4.5). Different education levels favor different groups: preschool is almost poverty neutral, primary education is progressive with higher incidence in the lowest quintile households, secondary education is regressive with higher incidence in the highest two

<sup>48</sup> Definitions of progressive and regressive programs vary among different studies. Here, the relationship to the group population share is used as the break point between progressive, neutral (incidence equal to population share) or regressive.

quintiles and tertiary education is highly regressive with the upper quintile receiving 76.1 percent of the benefits.

4.17 Concentration of public expenditures in primary education (almost half) has benefited the country as a whole (better enrollment rates as presented in the education section) and especially the poor (as illustrated by the incidence analysis). **Further improvements in Guatemala's public primary education (enrollment, attainment or quality), would continue benefiting the poor.**

**Table 4.5 Education: Absolute Incidence in Guatemala, 2006**

Level	Provider	Total	Quintile (poorest to richest)					Poverty		
			1	2	3	4	5	Ext.	All	Non
<b>Absolute Incidence (%)<sup>a</sup></b>										
Preschool	<b>All<sup>b</sup></b>	<b>100</b>	<b>18.6</b>	<b>22.4</b>	<b>21.5</b>	<b>23.1</b>	<b>14.4</b>	<b>13.6</b>	<b>53.5</b>	<b>46.5</b>
	Ministry of Education	100	16.2	19.9	24.0	24.7	15.2	11.4	49.8	50.2
	PRONADE	100	35.8	40.2	10.7	8.2	5.1	29.0	83.5	16.5
	NEUS & O. Cent.Govt.	100	16.5	39.5	22.9	14.2	6.9	16.5	71.4	28.6
	Local <sup>c</sup>	100	11.7	6.0	3.1	46.0	33.1	6.7	20.2	79.8
Primary	<b>All<sup>b</sup></b>	<b>100</b>	<b>25.6</b>	<b>26.0</b>	<b>23.7</b>	<b>17.7</b>	<b>7.1</b>	<b>19.1</b>	<b>64.6</b>	<b>35.4</b>
	Ministry of Education	100	22.9	25.5	25.1	19.1	7.4	16.6	62.2	37.8
	PRONADE	100	44.5	28.5	14.2	7.6	5.1	37.1	81.3	18.7
	NEUS & O. Cent.Govt.	100	41.9	20.5	17.3	18.3	1.9	20.4	70.1	29.9
	Local <sup>c</sup>	100	11.5	33.1	25.0	19.2	11.2	8.6	58.7	41.3
Secondary	<b>All<sup>b</sup></b>	<b>100</b>	<b>8.6</b>	<b>15.2</b>	<b>24.0</b>	<b>33.5</b>	<b>18.7</b>	<b>5.3</b>	<b>35.9</b>	<b>64.1</b>
	Ministry of Education	100	5.3	14.9	21.7	35.6	22.5	3.1	30.1	69.9
	PRONADE	-	-	-	-	-	-	-	-	-
	NEUS & O. Cent.Govt.	100	22.3	16.2	24.7	15.4	21.4	11.9	48.9	51.1
	Local <sup>c</sup>	100	11.3	15.5	27.0	33.0	13.2	7.2	42.0	58.0
Tertiary	<b>All<sup>b</sup></b>	<b>100</b>	<b>0.0</b>	<b>1.8</b>	<b>4.1</b>	<b>18.0</b>	<b>76.1</b>	<b>0.0</b>	<b>2.5</b>	<b>97.5</b>
	Ministry of Education	100	0.0	4.6	7.5	19.5	68.5	0.0	6.6	93.4
	Other Central Govt.	100	0.0	1.3	3.6	17.3	77.8	0.0	1.8	98.2
	Local <sup>c</sup>	100	0.0	0.0	0.0	52.7	47.3	0.0	0.0	100.0
<b>All Grades<sup>d</sup></b>		<b>100</b>	<b>19.1</b>	<b>20.7</b>	<b>20.5</b>	<b>20.1</b>	<b>19.6</b>	<b>14.0</b>	<b>50.8</b>	<b>49.2</b>

<sup>a</sup> (Total aggregate transfer amount received by all individuals in the group) / (Total aggregate transfer amount received by all individuals in the entire population). It assumes the same value for each educational level

<sup>b</sup> The sum of all providers

<sup>c</sup> Local includes Municipal, Cooperatives and Community Based Institutions

<sup>d</sup> Uses the 2006 Ministry of Education budget allocation: Preschool (7%), Primary (48%), Secondary (9%), and Tertiary (11%)

Source: World Bank staff calculations based on the 2006 ENCOVI

4.18 **PRONADE schools, preschool or primary, are well targeted to the poor.** With more than 81 percent of PRONADE school benefits reaching the poor, PRONADE schools do a better job reaching the poor than institutions managed by the Ministry of Education. With more than 70 percent of the benefits reaching the poor, NEUS and other central government preschool and primary institutions are also pro-poor. NEUS and other Central Government secondary institutions are poverty neutral but with very low coverage levels (see Table 4.2), there is almost no impact on overall secondary incidence.

4.19 **Similar to education, total public health is poverty neutral with benefits evenly distributed among each quintile** (with slighter incidences in the lower and upper quintiles) and proportional to the poverty groups. With 14.5 percent incidence on the extreme poor and 48.3 percent on all poor persons, public health benefits do not discriminate by poverty level (see “All Visits” in Table 4.6).

4.20 **There are significant incidence differences between hospitals and other health facilities used.** There are important differences by facility type: hospital incidence is regressive (only 29.9 percent for the poor) and all other facilities are progressive or pro-poor (65.2 percent of benefits captured by the poor). This different incidence by facility can be observed not only for the overall use, but also for every type of problem reported (i.e. children, adults and pregnancy related visits).

**Table 4.6 Health: Absolute Incidence in Guatemala, 2006**

Type of Health Issue / Facility		Total	Quintile (poorest to richest)					Poverty		
			1	2	3	4	5	Ext.	All	Non P.
<b>By type of Problem and Facility (%)<sup>a</sup></b>										
Children under 6 with Diarrhea or Respiratory Problems (last month)	Hospital	100	9.9	13.2	29.3	28.8	18.8	8.8	37.7	62.3
	Other <sup>c</sup>	100	35.8	26.8	20.4	12.7	4.2	28.9	74.4	25.6
Any health problems or accidents (all ages) (last month)	Hospital	100	8.5	10.5	20.4	31.8	28.7	6.1	29.2	70.8
	Other <sup>c</sup>	100	24.1	23.6	23.8	20.9	7.6	19.9	61.4	38.6
Pregnancy Control (women 12-49 years old) (last year)	Hospital	100	7.8	8.5	14.9	41.1	27.7	2.8	19.2	80.8
	Other <sup>c</sup>	100	25.7	18.4	30.2	16.0	9.7	20.0	58.7	41.3
Child Delivery (women 12-49 years old) (last year)	Hospital	100	15.7	19.5	21.1	29.2	14.5	11.9	47.6	52.4
	Other <sup>c</sup>	100	17.9	36.5	26.0	12.7	7.0	9.5	74.9	25.1
<b>By Type of Facility (%)<sup>a</sup></b>										
<b>All Visits<sup>d</sup></b>		<b>100</b>	<b>18.6</b>	<b>17.9</b>	<b>22.0</b>	<b>24.8</b>	<b>16.7</b>	<b>14.8</b>	<b>48.3</b>	<b>51.7</b>
All Hospital visits <sup>b</sup>		100	8.7	10.8	21.0	31.8	27.6	6.3	29.9	70.1
All Other visits (Secondary level) <sup>b c</sup>		100	27.6	24.4	23.0	18.4	6.6	22.6	65.2	34.8
<b>Insurance IGSS</b>		<b>100</b>	<b>4.4</b>	<b>8.9</b>	<b>16.5</b>	<b>28.9</b>	<b>41.3</b>	<b>3.2</b>	<b>21.7</b>	<b>78.3</b>

<sup>a</sup> (Total aggregate transfer amount received by all individuals in the group) / (Total aggregate transfer amount received by all individuals in the entire population). Assumes each visit has the same value within each facility (hospital or other)

<sup>b</sup> The sum of all individual visits.

<sup>c</sup> Other include Local health facilities: Health Center, Health Post and Community Center

<sup>d</sup> Uses the 2006 Ministry of Health budget allocation to Hospitals (47.9%) and assumes equal benefits per visit

Source: World Bank staff calculations based on the 2006 ENCOVI

4.21 **Overall social protection programs are barely pro-poor with more than half of the benefits going to the second and third quintiles.** In-kind transfers are pro-poor, but cash transfers (scholarships and school transport) are regressive. Indeed, 55.0 percent of social protection programs are received by the poor, scarcely above their population share of 51.0 percent (Table 4.7). Neither in-kind nor cash transfers are pro-extreme poor. A program specific incidence analysis for selected programs is presented later in the chapter.

4.22 It is important to mention that the absolute incidence analysis is based on the own household's perceived value of the benefits received and some biases are expected. For example, the replacement value of school transport provided by the government can be the equivalent of public transport cost for a poor household; while for a non-poor

household the replacement value might correspond to that of private transport. The overall incidence analysis is not substitute for a program specific analysis nor for the information collected from monitoring and evaluation exercises.

**Table 4.7 Social protection Programs: Incidence in Guatemala, 2006**

	Total	Quintile (poorest to richest)					Poverty		
		1	2	3	4	5	Ext.	All	Non P.
<b>Absolute incidence (%)<sup>a</sup></b>									
<b>All Transfers</b>	<b>100.0</b>	<b>12.9</b>	<b>30.9</b>	<b>21.3</b>	<b>11.9</b>	<b>22.9</b>	<b>10.9</b>	<b>55.0</b>	<b>45.0</b>
In-Kind	100.0	14.6	34.4	23.5	9.1	18.4	12.4	61.6	38.4
Cash: Scholarships & Transport	100.0	11.4	14.8	17.7	25.2	30.9	7.1	34.8	65.2

<sup>a</sup> (Total aggregate transfer amount received by all individuals in the group)/(Total aggregate transfer amount received by all individuals in the entire population)

<sup>b</sup> The sum of In-Kind and Cash transfers

Source: World Bank staff calculations based on the 2006 ENCOVI

### Private Consumption Shares

4.23 While food and education represent a smaller share of people's budget in 2006, education, household services<sup>49</sup> and durables have become more important for the households. With only small absolute changes from the 2000 allocation priorities, health and education experienced important shifts in relative terms: the average share of consumption in education increased over one quarter from 2000 to 2006 (from 3.6 percent to 4.9 percent), and education decreased one fifth (from 2.4 percent to 1.7 percent) (Table 4.8). Other important changes were observed in the share allocated to food (increased 2.4 percentage points) and the share used for durables (over one quarter increase).

**Table 4.8 Consumption Shares by Poverty Groups, Guatemala 2000 and 2006**

	2000				2006			
	Poverty			Total	Poverty			Total
	Extreme	All Poor	Non Poor		Extreme	All Poor	Non Poor	
Food	57.1%	55.5%	42.2%	49.7%	57.0%	53.7%	40.5%	47.2%
Housing	10.4%	10.4%	13.5%	11.7%	9.3%	10.0%	13.4%	11.6%
Households services	13.0%	11.3%	9.1%	10.3%	12.9%	12.2%	10.6%	11.4%
Education	1.4%	2.4%	5.1%	3.6%	1.9%	3.2%	6.6%	4.9%
Health	1.3%	1.7%	3.2%	2.4%	1.1%	1.2%	2.2%	1.7%
Durables <sup>a</sup>	0.6%	1.1%	3.6%	2.2%	0.7%	1.3%	5.0%	3.1%
Communications <sup>b</sup>	1.8%	2.8%	6.3%	4.3%	1.9%	2.8%	6.0%	4.3%
General Expenses	14.1%	14.6%	15.6%	15.1%	14.9%	15.2%	14.4%	14.8%
Services	0.2%	0.3%	1.4%	0.8%	0.3%	0.3%	1.3%	0.8%
Total	100%	100%	100%	100%	100%	100%	100%	100%
Average Quetzals	2,230.24	3,941.30	16,425.29	9,410.07	2,495.32	4,063.48	15,565.48	9,697.60

<sup>a</sup> Annual use value estimate <sup>b</sup> Transport and communications outside home <sup>c</sup> Yearly per capita June 2006 Guatemala City Quetzals. Source: World Bank Staff calculations based on ENCOVI 2000 and 2006

<sup>49</sup> Water, telephones, garbage collection, internet, cable, electricity and other energy sources.

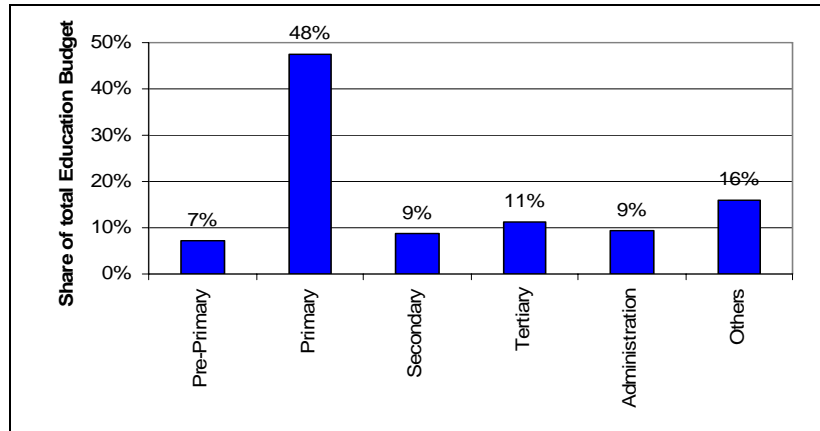


4.24 While increases in household education expenditures can be explained by higher primary and secondary school enrollment rates,<sup>50</sup> it is surprising that during the same period of higher levels of consumption, personal consumption in health decreased not only as a share of the budget (one fifth), but also in constant per capita quetzals (one quarter)<sup>51</sup>.

## EDUCATION

4.25 **Almost half of public education expenditures are in primary education.** By 2004 Guatemala invested 48 percent of the education budget on primary education and around 10 percent on each of the other levels: pre-primary, secondary, and tertiary education. Administration and other expenditures used one quarter of the resources (Figure 4.3).

Figure 4.3 Share of Education Budget by Level, Guatemala 2004



Others include capital and recurrent expenditures that can not be allocated across levels, like adult literacy programs and adult education.

Source: World Bank, Guatemala Public Expenditure Review, June 24, 2005

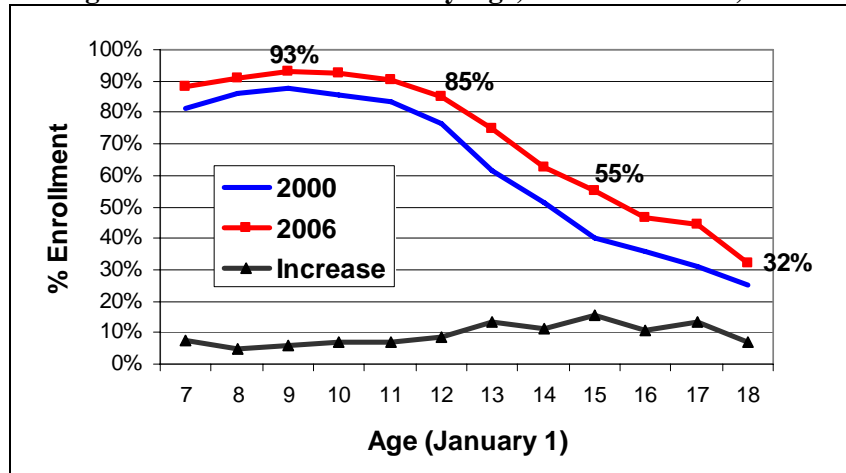
## 4.26 More resources

**should be allocated to secondary education, but not by reducing primary education funding.** The seemingly high share of education resources allocated to primary education is offset by the low levels of total public expenditures. Increases in secondary education budget should be achieved by increasing overall education expenditures. And for that matter, total education expenditures should not be achieved by reducing the budget in other social protection areas. In the end, low government total expenditure in Guatemala is, and will continue to be, the limiting factor for the expansion of some basic services unless government income sources increase.

<sup>50</sup> The consumption aggregate neither does nor includes the value of health and education services provided by the government.

<sup>51</sup> In constant, June 2006 Guatemala City Quetzals yearly per capita personal consumption went from Q. 222 in 2000 to Q. 166 in 2006.

**Figure 4.4 Enrollment Rates by Age, Guatemala 2000, 2006**



Source: World Bank staff estimates based on ENCOVI 2000 and 2006

**4.27 After important improvements, by 2006 most primary school age children are in school and secondary age kids have significantly increased school enrollment but remain at low levels.** After average increases of 7 percentage points, by 2006 only one out of ten primary age children (7 to 12 years old<sup>52</sup>) is not in school (Figure 4.4). School enrollment by secondary age kids (13 to 18 years old) has an impressive 12 percentage point average but given the previous low enrollment level, only half the kids attend school.

**4.28 Net enrollment rates have improved for school years but the absolute values remain low.** Guatemala is improving net enrollment rate at a fast pace in primary education (an average of almost two percentage points per year between 2000 and 2006) as well as in secondary education (1.1 percentage points per year in average) but the achieved levels remain very low (59.3 percent for primary and 22.5 for secondary).

<sup>52</sup> Reported ages correspond to January first for each year.

#### Box 4.1 Measuring Net Enrollment Rates

Net enrollment rates can vary significantly depending on the definition used. The strict definition of net enrollment rate is: the proportion of students attending the appropriate education grade according to age.<sup>a</sup> For example:

$$\text{1st. grade Net enrollment rate} = \left( \frac{\# \text{ of students 7 years old and attending first grade}}{\# \text{ of children 7 year old at the beginning of the year}} \right) * 100$$

To estimate primary net enrollment rate, the weighted average of grades one to six is computed<sup>b</sup>.

A more lax definition using the education level (primary or secondary) as the unit of measurement is sometimes used: For Example:

$$\text{Primary Net enrollment rate} = \left( \frac{\# \text{ of students 7 to 12 years old and attending primary}}{\# \text{ of children 7 to 12 at the beginning of the year}} \right) * 100$$

The estimated net enrollment rate using the grade as the measurement unit does capture repetition rates and late enrollment more accurately. Net enrollment rate computed using primary or secondary as the unit of measure does not capture repetition rates until the student turns 12 (for primary) and does not identify late enrollment once children join the school.

The government of Guatemala has used the more lax definition to report net enrollment rates. Also, rates reported by international institutions suggest the use of the education level and not the grade as the unit of measurement. The previous Guatemala World Bank Poverty Assessment also used the more lax definition; and for comparison purposes, most of the analysis presented in this report uses it as well, with two exceptions: when individual grade by grade enrollment rates are presented (Figure 2.10) and in one instance in Table 2.10. Both cases clearly identify “grade” as the unit of measurement.

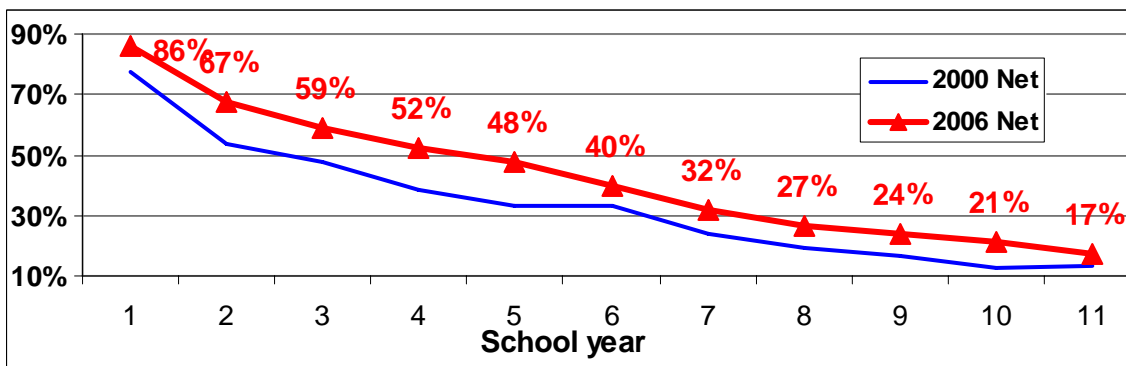
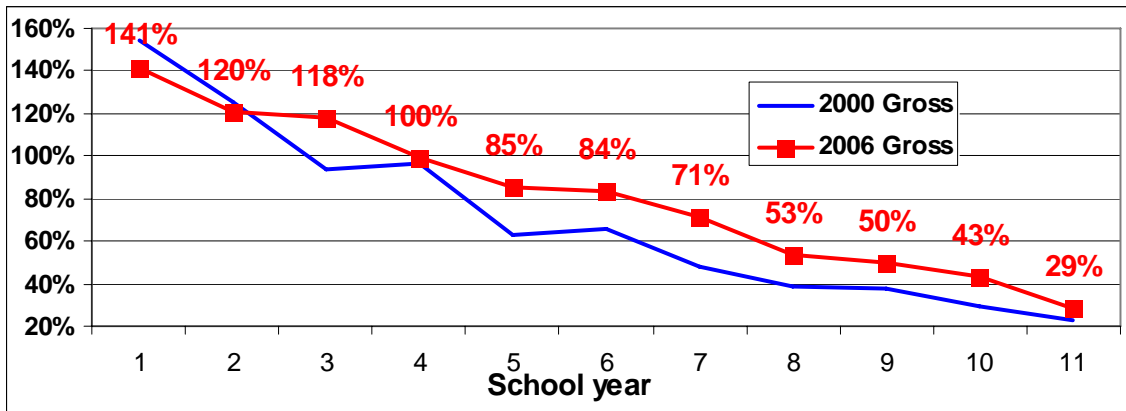
In most countries the preferred age for first grade is six years. In Guatemala the official age is seven years, but in many cases parents decide to enroll their kids at the age of six. This characteristic also has an impact on net enrollment rates regardless of the unit of measurement selected. Since no information regarding age of enrollment is provided, it is not possible to identify early entry students repeating a grade.

The combined impact of these two characteristics is an overestimation of net enrollment rates and a lower precision of the point estimates and their evolution over time.

<sup>a</sup> Age at the beginning of the school year or close to it as defined by the Ministry of Education.

<sup>b</sup> Weighted by the number of kids at each corresponding age group.

Figure 4.5 School Enrollment Rates, Guatemala 2000, 2006



Net Primary (average of each grade rate): 2000 = 48.1%; 2006= 59.3%

Net Secondary (average of each grade rate): 2000 = 16.0%; 2006= 22.5%.

Source: World Bank staff estimates based on ENCOVI 2000 and 2006

4.29 Almost 15 percent of children do not enter first grade at the appropriate age and attrition rates substantially reduce net enrollment rates to 40 percent by sixth grade and 21 percent by eleventh grade (Figure 4.5). Important reductions occur between sixth and seventh grades (20 percent of the students in sixth grade do not attend seventh grade) **and, more worrisome, 21.5 percent of first grade students do not attend second grade**. Seventh grade is the beginning of secondary education and normally requires important changes such as new education facilities, which are not always accessible, and higher academic requirements. These changes are normally associated with important enrollment reductions. Between first and second grades there are no important changes and the reasons not to move on into the next grade are not clear.<sup>53</sup>

4.30 **Net enrollment rates for primary have almost no relationship to the household economic status.** With the exception of households in the lower decile, net enrollment rates are above 80 percent (Figure 4.6).<sup>54</sup> Economic conditions do not seem

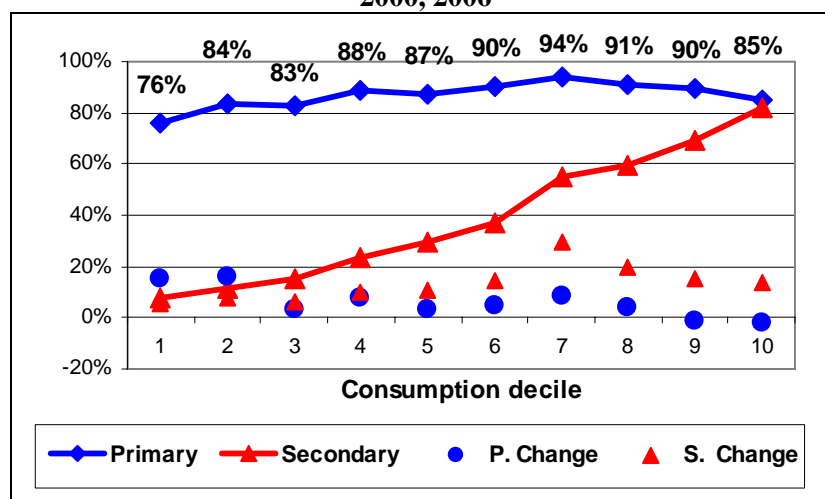
<sup>53</sup>Since during the first half of 2006 only 2.3 percent of enrolled student had dropped out, it is reasonable to assume that most of the attrition occurred between one grade and the other.

<sup>54</sup> Net enrolment rates computed with the more lax definition, using the education level as the unit of measurement.

to have a strong effect on children's enrollment or advancement during the first six years of education. For example, children in the second decile have almost the same net enrollment rate (84 percent) than those in the upper decile (85 percent).

**4.31 Secondary net enrollment rates are strongly correlated to levels of consumption and differences have increased over time.** Despite modest improvements during the last six years (2000-2006) net enrollment rates for the poorest 20 percent of the population remain extremely low (around 10 percent). Any expansion of the secondary education public system should target the poor and specially the extreme poor. Secondary net enrollment improvement for the poorest three deciles was the lowest for the 2000-2006 period.

**Figure 4.6 Net School Enrollment Rate by Decile, Guatemala 2000, 2006**



Source: World Bank staff estimates based on ENCOVI 2000 and 2006

**4.32 Primary and secondary net and gross enrollment rates improved for all considered groups regardless of poverty level, urban/rural residency, gender, or ethnic identity (indigenous or non-indigenous).** Two-digit improvements were observed for the primary net enrollment rates reported by the extreme poor (15.6 percentage points) and by the indigenous as a group and the Queqchi in particular (21.8 percentage points) (Table 4.9). Secondary net enrollment rate improved mostly for the non poor (15.6 percentage points), the Mam (14.3 percentage points) and the Queqchi (13.8 percentage points).

**4.33 Secondary school net enrollment rate disparities remain between poverty groups, urban and rural, and ethnic groups.** Females remain slightly behind males in secondary rates (35.3 percent compared to 39.8 percent) with no changes in the gap from 2000 to 2006 (Table 3.9). Any focused effort to improve secondary education should target the poor, rural areas and indigenous people. These three variables are closely related and should be considered part of any project aiming at improving the conditions of those with the greatest needs.

**Table 4.9 2006 Primary and Secondary Enrollment Rates for Different Groups and Changes<sup>a</sup> from 2000**

Groups	Net Enrollment Rate				Gross Enrollment Rate			
	Primary		Secondary		Primary		Secondary	
	2006	Change	2006	Change	2006	Change	2006	Change
National by level	86.4%	6.5%	37.5%	11.5%	108.7%	7.5%	47.7%	13.6%
<b>National by grade<sup>b</sup></b>	<b>59.3%</b>	<b>11.1%</b>	<b>22.5%</b>	<b>6.5%</b>				
Extreme Poor	78.7%	15.6%	7.7%	4.8%	99.4%	18.7%	9.5%	6.2%
Poor (All)	83.6%	8.1%	18.1%	6.6%	107.4%	12.3%	22.5%	7.8%
Non Poor	90.6%	3.1%	59.7%	15.6%	110.6%	-1.2%	76.4%	18.4%
Urban	87.0%	2.6%	53.9%	6.7%	106.4%	0.8%	68.8%	7.1%
Rural	86.0%	8.5%	22.9%	9.9%	110.4%	11.5%	29.0%	11.9%
Male	87.7%	4.9%	39.8%	12.0%	111.2%	3.8%	50.4%	14.1%
Female	85.1%	8.2%	35.3%	11.0%	106.1%	11.4%	45.0%	13.3%
Non Indigenous	87.6%	3.6%	44.7%	11.5%	109.4%	4.0%	56.4%	13.2%
Indigenous (All)	84.8%	10.4%	26.1%	10.9%	107.8%	12.3%	33.9%	13.8%
Kiche	82.6%	9.4%	25.2%	6.7%	103.5%	12.6%	33.0%	10.7%
Queqchi	83.8%	21.8%	20.8%	13.8%	113.0%	23.8%	29.0%	17.5%
Kaqchikel	85.9%	6.6%	34.0%	10.1%	106.5%	8.6%	43.0%	12.2%
Mam	85.3%	6.2%	25.1%	14.3%	107.7%	7.1%	33.4%	19.3%

<sup>a</sup> Changes are reported in percentage points

<sup>b</sup> Averages of individual net enrollment estimates for each individual grade. For the rest of the table, the net enrollment rates are computed over the entire primary or secondary level (see Box 2.1). Gross enrollment rates are the same regardless of the unit of analysis.

Source: World Bank staff estimates based on ENCOVI 2000 and 2006

#### 4.34 Primary education is mostly public and managed by the central government.

Over 92 percent of the poor and indigenous students are enrolled in public primary schools. Children enrolled in private primary institutions account for only 13.2 percent of students with almost no participation from the extreme poor (2.6 percent), the poor (3.9 percent) or the indigenous populations (6.0 percent) (Table 4.10).

4.35 Secondary education is mostly private. Over one third of the poor and indigenous students are enrolled in private secondary institutions. Public institutions outside the central government are an important component for the poor and indigenous. Nationally, 54.0 percent of students are enrolled in private secondary institutions, with exactly the same percentage for both genders. Poor households have diversified their choice of schools almost equally among central government (34.2 percent), other public institutions<sup>55</sup> (30.2 percent) and private schools (35.5 percent). Private schools are chosen more often among the indigenous (42.9 percent) and non central government public institutions are the most popular choice among the extreme poor (43.6 percent).

<sup>55</sup> Mainly local cooperatives.

Any government support to Cooperatives managing secondary schools would benefit the extreme poor<sup>56</sup>.

**Table 44.10 Public and Private Primary and Secondary School Enrollment in Guatemala, 2006**

		Total	Gender		Indigenous		Poverty		
			Male	Female	No	Yes	Extreme	All Poor	Non Poor
Primary	Central Government	84.8%	85.2%	84.4%	79.1%	92.6%	96.2%	94.1%	71.8%
	Local Government/ Coop.	2.0%	2.2%	1.8%	2.4%	1.5%	1.2%	2.0%	1.9%
	Private and NGO's	13.2%	12.6%	13.8%	18.5%	6.0%	2.6%	3.9%	26.3%
Secondary	Central Government	28.0%	27.7%	28.3%	26.8%	31.2%	35.1%	34.2%	25.9%
	Local Government/ Coop.	18.0%	18.3%	17.7%	15.0%	25.9%	43.6%	30.2%	13.9%
	Private and NGO's	54.0%	54.0%	54.0%	58.3%	42.9%	21.3%	35.5%	60.2%

Source: World Bank staff estimates based on ENCOVI 2000 and 2006

**4.36 Health reasons and lack of interest are the main reasons primary students drop out of primary education.** That is true for all the groups analyzed regardless of gender, indigenous and poverty status. Lack of interest is the most frequent reason mentioned by students (31.4 percent); health reasons are a close second (27.5 percent) (Table 4.11). **By the time kids attend secondary education, economic reasons become the predominant motivation not to enroll in school.** Lack of interest remains an important factor for over 25 percent of respondents.

**4.37** Any government program aimed at improving primary education enrollment rates in Guatemala should coordinate with the public health system. Special activity programs like sports and art have been found to improve students' engagement and ownership (primary and secondary); economic incentives like CCT, should reduce secondary dropout rates. Within economic reasons for dropping out, males more often mentioned paid jobs and females, house work.

<sup>56</sup> Interpretation of results related to extreme poor secondary education should take into consideration the extremely low participation rates by this group.

**Table 4.11 Reasons for Dropping Out and not Enrolling in School, Guatemala 2006**

	Total	Male	Female	Non Indigenous	Indige nous	Extreme Poor	Poor	Non Poor
<b>Reasons for Dropping out During the School Year in Primary</b>								
Health	27.5%	23.7%	32.6%	18.8%	39.5%	23.0%	26.0%	35.4%
Economic <sup>a</sup>	9.6%	8.2%	11.6%	14.4%	3.1%	8.9%	9.7%	9.5%
Not interested	31.4%	33.8%	28.3%	27.3%	37.2%	39.2%	31.9%	28.8%
Supply Side <sup>b</sup>	5.7%	6.8%	4.2%	7.6%	3.2%	1.0%	4.8%	10.5%
Others	25.7%	27.5%	23.3%	32.0%	17.0%	27.9%	27.5%	15.9%
<b>Reasons Not to Enroll in Secondary</b>								
Health	1.4%	1.5%	1.3%	1.8%	1.1%	1.7%	1.5%	1.3%
Economic <sup>c</sup>	63.4%	65.6%	61.5%	63.5%	63.2%	67.9%	64.4%	60.6%
Not interested	27.5%	24.2%	30.2%	25.3%	29.9%	26.2%	28.2%	25.7%
Supply Side <sup>d</sup>	3.6%	5.1%	2.4%	5.2%	1.9%	0.8%	2.0%	6.5%
Others	7.7%	8.6%	7.0%	9.4%	5.8%	4.1%	5.9%	12.3%

<sup>a</sup> Includes lack of money and household work.

<sup>b</sup> No teacher.

<sup>c</sup> Includes lack of money, household work, transportation to and from work and distance.

<sup>d</sup> Includes lack of school grade, lack of space, no school and special requirements.

In 2006, only 2.3% of kids enrolled in first grade at the beginning of the year dropped out of school by the time of the survey (May, June and July).

Source: World Bank staff estimates based on ENCOVI 2000 and 2006.

4.38 Literacy rates are more stable over time. Traditional education only improves literacy among the young, with almost no effect on adults already outside the educational system. Special programs such as adult literacy, while worthwhile, only have limited success. Nevertheless, literacy rate is a good indication of past performance and remains one of the most used indicators.

4.39 **Almost universal access to primary education has increased literacy rates in Guatemala during the last years (see enrollment rates in Figure 4.6) and the gender, economic and indigenous gaps are shrinking.** For example, males have literacy rates almost 10 percentage points higher than females, but the difference was almost 14 percentage points in 2000. The indigenous literacy gap has been reduced 7.2 percentage points and the difference between the first and fifth quintiles has decreased by an impressive 9.1 percentage points (Table 4.12).

**Table 4.12 Literacy by Gender, Ethnicity and Quintile, Guatemala 2006**

	Total	Gender		Indigenous		Quintile				
		Male	Female	No	Yes	1	2	3	4	5
2006	76.5%	81.5%	72.0%	83.2%	65.4%	54.9%	67.3%	76.4%	85.9%	93.7%
<i>Change</i> <sup>a</sup>	7.1%	5.2%	9.1%	3.8%	11.0%	11.4%	8.1%	8.2%	7.3%	2.3%

<sup>a</sup> Change from 2000 in percentage points

Source: World Bank staff estimates based on ENCOVI 2000 and 2006



## HEALTH

4.40 Within the health sector in Guatemala, there are five important actors: (i) the Ministry of Public Health and Social Assistance (MPHSA), the most important entity in charge of providing health services to the entire population accounting for about 40 percent of services provided; (ii) the Social Security Institute of Guatemala (IGSS) provides services in half of the departments and concentrating most of its expenditures (80 percent) in Guatemala City, both MPHSA and IGSS have numerous management and financial problems. SSIG budget is higher than MPHSA and covers only 9 percent of the population (compared to MPHSA 40 percent); (iii) the private sector, with more than 180 hospitals and 2,000 ambulatory health centers located mainly in the large urban areas; (iv) more than 200 NGOs many working under MPHSA for the Extension of Coverage Program (PEC), one of the most successful programs reaching more than three and a half million Guatemalans in the rural areas, the poor and peri-urban communities; and (v) traditional health care providers (midwives) that work unregulated with no supervision or coordination (World Bank PER 2005).

4.41 **Children zero to six years old do not show health improvements.** Indeed, vaccination rates have shown in some cases very little progress (TB), and, for the most part, have worsened (see DPT, poliomyelitis and measles in Table 4.13). **One positive aspect is the low vaccination rate inequality between gender, area, indigenous and poverty groups.** On the other hand, diarrhea, one of the deadliest illnesses in children, has shown some small deterioration over time with important inequities especially between urban and rural households (24 and 34 percent each).

**Table 4.13 Vaccination Diarrhea and Respiratory Problems for Children 0-6, Guatemala 2000 and 2006**

		2006										2000 Total	Points Change
		Gender		Area		Indigenous		Poverty			Total		
		Male	Female	Urban	Rural	Yes	No	Extreme	All Poor	Non Poor			
Vaccinations	TB	95%	95%	95%	94%	95%	95%	94%	94%	96%	95%	91%	3.8
	DPT	83%	83%	82%	83%	83%	82%	82%	82%	83%	83%	91%	(7.9)
	Poliomyelitis	89%	89%	89%	89%	88%	89%	87%	88%	90%	89%	90%	(1.3)
	Measles	76%	76%	78%	74%	74%	77%	72%	73%	79%	76%	79%	(3.8)
Illnesses	Diarrhea	31%	28%	24%	34%	34%	27%	32%	32%	25%	30%	31%	(1.7)
	Respiratory	52%	53%	49%	54%	53%	51%	52%	53%	51%	52%	48%	4.2
	Either one	60%	60%	57%	62%	60%	60%	59%	60%	59%	60%	57%	2.7

<sup>a</sup> Cold, cough, bronchitis, whooping cough (tosferina) or any respiratory infection.

Source: World Bank Staff calculations based on ENCOVI 2000 and 2006

4.42 **Less than half of all childhood illnesses in Guatemala are treated outside the house.** Out-of-the-house treatment is provide by public institutions especially in rural areas and for indigenous people (two out of three times), the poor (almost three out of four times) and for the extreme poor (eight out of ten times). On average public health institutions receive almost 60 percent of outside treatments. Only urban households and

non poor households use private health facilities more than public ones. Increases in government health expenditures will be especially beneficial to the poor (pro-poor)<sup>57</sup>.

**Table 4.14 Place of Attention for Children 0 to 6 by Public/Private and Level of Attention, Guatemala 2000 and 2006**

	2006										2000 Total	Points Change
	Gender		Area		Indigenous		Poverty			Total		
	Male	Female	Urban	Rural	Yes	No	Extreme	All Poor	Non Poor			
Public	30%	28%	26%	31%	29%	29%	34%	32%	25%	29%	29%	0.19
Private	22%	20%	30%	15%	16%	24%	8%	13%	34%	21%	18%	2.26
At home <sup>a</sup>	49%	52%	45%	54%	55%	47%	58%	55%	42%	50%	53%	(2.45)
Total	100	100	100	100	100	100	100	100	100	100	100	0

<sup>a</sup> In 2006, 96.2 percent of the cases the treatment was provided by a family member; 1.0% by health practitioner; 0.9% by doctor; 0.7% by community helper; 0.4% by nurse; and 0.8% by a pharmacy attendant, herbologist, traditional doctor or other.

Source: World Bank Staff calculations based on ENCOVI 2000 and 2006.

4.43 During the last month an average of 28 percent of the general population reported some type of illness with females, indigenous and the non poor reporting slightly higher rates (30 to 31 percent). **Contrary to common wisdom, the poor and the extreme poor reported fewer illness than the non poor** and rural and urban households reported exactly the same illness incidence during the previous month (28 percent) (Table 4.15).

4.44 As expected, lack of money is the major barrier to health care access for the extreme poor. Excluding small or mild medical problems, lack of resources is the most common reason not to seek medical attention for all groups. Supply side barriers to access were especially important for the extreme poor (15 percent), the indigenous (14 percent), rural households (134) and the poor in general (13 percent). **Increasing access by reaching the rural areas will improve the conditions of the poor.**

<sup>57</sup> That is, without changing the areas or pattern of investment.

**Table 4.15 Health Problems Incidence and Barriers to Medical Attention<sup>a</sup>, Guatemala 2000 and 2006**

	2006										2000	Points Change
	Gender		Area		Indigenous		Poverty			Total		
	Male	Female	Urban	Rural	Yes	No	Extreme	All Poor	Non Poor			
Illness incidence	25%	31%	28%	28%	26%	29%	25%	26%	31%	28%	25%	3.5
Mild problem	49%	47%	58%	39%	41%	52%	35%	39%	57%	48%	51%	(3.7)
Lack of money	32%	34%	28%	37%	35%	32%	41%	39%	26%	33%	32%	1.2
Not enough time	5%	4%	6%	4%	4%	5%	4%	4%	6%	5%	4%	1.3
Supply side <sup>b</sup>	8%	9%	3%	14%	13%	6%	15%	13%	4%	9%	9%	(0.0)
Cultural and others <sup>c</sup>	6%	6%	6%	6%	6%	5%	5%	5%	6%	6%	4%	1.2
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	

<sup>a</sup> Doctor, dentist, psychologist, nurse, herbologist, natural healer or pharmacy attendant.

<sup>b</sup> Too far away, no transport, no doctors/nurses; waiting time too long.

<sup>c</sup> Do not believe in those people, does not speak the language and other reasons.

Source: World Bank Staff calculations based on ENCOVI 2000 and 2006

**4.45 Private health facilities are used more often than public for the entire country.** Only rural households and the poor (overall and extreme) use public health facilities more often than private ones. Hospitals are used in 22.0 percent of the cases with higher use for the same groups mentioned for private facilities: urban, non indigenous and non poor. People are using hospitals more often than before (Table 4.16).

**Table 4.16 Place of Attention for All Ages by Public/Private and Level of Attention, Guatemala 2000 and 2006**

	2006										2000 Total	Points Change
	Gender		Area		Indigenous		Poverty			Total		
	Male	Female	Urban	Rural	Yes	No	Extreme	All Poor	Non Poor			
<b>Public</b>	42%	41%	35%	51%	47%	40%	67%	56%	34%	42%	41%	0.79
<b>Private</b>	56%	57%	64%	47%	50%	59%	28%	42%	65%	57%	53%	3.37
<b>At home<sup>a</sup></b>	1%	2%	1%	2%	2%	1%	5%	2%	1%	1%	6%	(4.16)
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>0</b>
<b>Hospital</b>	23%	21%	24%	18%	17%	23%	14%	17%	24%	22%	19%	2.99
<b>Clinics<sup>b</sup></b>	62%	65%	62%	66%	63%	64%	64%	63%	64%	64%	62%	1.47
<b>Local<sup>c</sup></b>	16%	14%	14%	16%	20%	13%	21%	20%	12%	15%	19%	(4.45)

<sup>a</sup> These are treatments received at the provider's house or the sick person's home.

<sup>b</sup> Includes health center, health post, community center and private clinic.

<sup>c</sup> Pharmacy, at home and others.

Source: World Bank Staff calculations based on ENCOVI 2000 and 2006

**4.46 Access to the health insurance, private or public is very limited in general and almost non existent among the extreme poor.** By 2006 only 2.9 percent of the extreme poor had insurance and 5.7 percent of all the poor had insurance (in both cases almost 100 percent public). For the non –poor the situation is better but not great: 22.6 percent have insurance (18.4 percent is public and 4.2 percent is private).<sup>58</sup> Also, by 2006 only 13.0 percent of the population, mostly non poor persons were affiliated to the

<sup>58</sup> World Bank staff calculations based on ENCOVI 2006

IGSS, 2.2 percent have private insurance, leaving 84.9 percent of Guatemalans without any insurance.

### SOCIAL PROTECTION

4.47 Social protection expenditures in Guatemala have fluctuated between 3 and 4 percent of GDP since the late 90s. By 2003 Social Security, Social Assistance and Social Funds amounted to Q. 6,613.6 millions or 3.8 percent of GDP (Table 4.17). The 2003 level of public expenditures in social protections was below the Latin America and Central America average. Social Security represented two third of the budget, Social Assistance 16 percent, and the Social Funds used almost one fifth of the budget.

4.48 But the figures presented in Table 4.17 include IGSS expenditures, much of which is not strictly speaking public spending<sup>59</sup>. Also, by 2006 only 3.4 percent of IGSS members were extreme poor (and 22.6 percent were poor). **The remaining budget, without the IGSS expenditures amounts to only 2.3 percent of GDP, clearly not enough neither by international standards nor for Guatemala's needs.**

4.49 Within the Social Assistance Public Expenditures, four programs use three quarters of the budget: school feeding, subsidy to fertilizers, electricity subsidies and housing subsidies. The incidences of fertilizer, electricity and housing subsidies are difficult to estimate and are not expected to be pro-poor. The other 17 programs share the remaining 25 percent of expenditures. Guatemala's social protection system is comprised by a large number of small, uncoordinated programs lacking good monitoring and evaluation mechanisms.

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<sup>59</sup> Most of the IGSS is financed by direct contributions and property income resembling more a private pension and insurance plan for a reduced percentage of the population

**Table 4.17 Social Protection Expenditures, Guatemala 2003**

	Million of 2001 Q.	%
<b>TOTAL</b>	<b>6,613.6</b>	<b>100%</b>
<b>SOCIAL SECURITY</b>	<b>4,245.7</b>	<b>64.2%</b>
Sickness, maternity (IGSS)	1,901.7	28.8%
Old age disability and survival (IGSS)	650.5	9.8%
Public sector workers (clases pasivas del estado)	1,693.6	25.6%
<b>SOCIAL ASSISTANCE</b>	<b>1,066.6</b>	<b>16.1%</b>
<b>Education</b>	<b>456.0</b>	<b>6.9%</b>
School feeding	325.3	4.9%
Subsidies to school	57.6	0.9%
Girls and Peace scholarships	38.3	0.6%
All others <sup>a</sup>	34.8	0.5%
<b>Early child care and youth</b>	<b>47.0</b>	<b>0.7%</b>
Child care centers (0 to 7 years old)	37.3	0.6%
All others <sup>b</sup>	9.67	0.1%
<b>Rural Assistance</b>	<b>206.4</b>	<b>3.1%</b>
Subsidy to Fertilizer	149.9	2.3%
Rural subsidies (FONTIERRAS)	56.5	0.9%
<b>Electricity subsidies</b>	<b>180.2</b>	<b>2.7%</b>
<b>Housing Subsidies (FOGUAVI)</b>	<b>144.6</b>	<b>2.2%</b>
<b>All others <sup>c</sup></b>	<b>32.5</b>	<b>0.5%</b>
<b>SOCIAL FUNDS</b>	<b>1,301.3</b>	<b>19.7%</b>
<b>FIS</b>	<b>302.8</b>	<b>4.6%</b>
<b>FONAPAZ</b>	<b>308.8</b>	<b>4.7%</b>
<b>FSDC</b>	<b>689.8</b>	<b>10.4%</b>

<sup>a</sup> Transport subsidy and school materials

<sup>b</sup> Child care centers (8 to 12 years), children with disabilities, child care centers (street children) and, youth in conflict

<sup>c</sup> Rural women, national program for the old age, disaster prevention, micro credit, subsidies to social assistance units, assistance to displaced and demobilized population, and disability

Source: The World Bank, Guatemala Public Expenditure Review, June 24, 2005.

### Coverage and Incidence of Selected Social Programs

4.50 According to the 2005 PER, the allocation of social resources tends to be regressive due to inadequate or lack of targeting mechanisms to select who receives the benefits and who does not, with more than half the benefits being received by the richest 20 percent of the population and only 8 percent going to the poorest 20 percent of Guatemalans.

4.51 The ENCOVI 2006 asked households if they received any benefits from nine specific social programs and the value of the transfer received. With that information the coverage and incidence of the programs was estimated and is presented in Table 4.19.

4.52 **Total amount of transfers are one third of Guatemala's population and reach directly 17.3 percent of individuals.**<sup>60</sup> Coverage for the lowest three quintiles and for the extreme poor and all poor persons is 20 percent or one fifth of the population. Individual program coverage is higher for the School Supplies (12.9 percent), Glass of Atoll (8.4 percent) and School Food (5.3 percent) programs. Other Social Protection Programs with at least one percent coverage are Glass of Milk (3.6 percent) and Health programs (1.5 percent).

**Table 4.19 Social Protection Programs: Coverage and Incidence in Guatemala, 2006**

	Total	Quintile (poorest to richest)					Poverty		
		1	2	3	4	5	Ext.	All	Non P.
<b>Coverage (%)<sup>a</sup></b>									
<b>All Programs<sup>c</sup></b>	<b>32.7</b>	<b>40.1</b>	<b>40.9</b>	<b>38.4</b>	<b>31.2</b>	<b>12.8</b>	<b>39.4</b>	<b>40.3</b>	<b>24.8</b>
<b>At least one Program<sup>d</sup></b>	<b>17.3</b>	<b>20.7</b>	<b>21.4</b>	<b>20.8</b>	<b>16.4</b>	<b>7.2</b>	<b>20.2</b>	<b>21.2</b>	<b>13.2</b>
Powder Milk Program	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.2	0.2
Glass of Milk Program	3.6	4.8	4.4	3.9	3.6	1.4	4.9	4.5	2.7
Glass of Atoll Program	8.4	11.0	11.4	9.9	7.2	2.7	10.8	11.0	5.7
School Food Program	5.3	4.9	5.9	7.0	6.0	2.6	4.8	5.6	4.9
School Transport Subsidy	0.1	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.2
Scholarships	0.4	0.3	0.4	0.3	0.5	0.4	0.4	0.3	0.4
School Supplies Program	12.9	17.0	17.3	15.1	11.2	3.9	16.6	16.9	8.7
Health Programs	1.5	1.4	1.1	1.8	1.9	1.2	1.3	1.3	1.6
Attention to Young Females	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Programs	0.3	0.4	0.3	0.2	0.3	0.3	0.4	0.4	0.3
<b>Absolute Incidence (%)<sup>b</sup></b>									
<b>All Programs</b>	<b>100.0</b>	<b>18.2</b>	<b>21.7</b>	<b>22.4</b>	<b>24.2</b>	<b>13.5</b>	<b>13.2</b>	<b>52.1</b>	<b>47.9</b>
Powder Milk Program	100.0	4.5	11.5	15.0	50.9	18.2	3.4	29.2	70.8
Glass of Milk Program	100.0	22.9	22.4	23.7	22.0	9.0	17.6	58.1	41.9
Glass of Atoll Program	100.0	22.8	26.1	23.6	20.3	7.2	16.4	62.1	37.9
School Food Program	100.0	13.8	20.1	26.6	28.0	11.5	10.2	47.5	52.5
School Transport Subsidy	100.0	4.6	0.0	1.4	33.3	60.7	0.3	5.9	94.1
Scholarships	100.0	6.5	11.0	7.3	31.9	43.3	5.8	21.5	78.5
School Supplies Program	100.0	23.9	27.4	23.6	19.4	5.7	17.0	64.5	35.5
Health Program	100.0	7.8	7.5	18.5	32.5	33.7	4.7	25.2	74.8
Attention to Young Females	100.0	56.7	32.8	6.0	2.8	1.7	14.1	95.5	4.5
Other Programs	100.0	15.1	17.4	15.4	19.3	32.9	12.4	40.3	59.7

<sup>a</sup> Number of persons receiving the benefit/# of persons on the group

<sup>b</sup> (Total aggregate transfer amount received by all individuals in the group) / (Total aggregate transfer amount received by all individuals in the entire population)

<sup>c</sup> The sum of all individual transfers (one person can count more than once).

<sup>d</sup> Receiving one or more transfers

Source: World Bank staff calculations based on the 2006 ENCOVI

4.53 Absolute incidence varies substantially among the social programs being analyzed. Some programs are pro-poor: Attention to Young Females, School Supplies, Glass of Atoll, and Glass of Milk programs, but some are highly regressive: School

<sup>60</sup> Since one person can receive more than one benefit, the total amount of transfers is higher than the incidence of transfers. The coverage is measure for individuals; other analyses use the household as the unit of measurement increasing coverage substantially.

Transport Subsidy, Scholarships, Health Programs and Powder Milk Program. It is important to mention that while the school feeding programs have a direct impact on the wellbeing of the people, international experience has shown very little or no improvement in malnutrition due to such programs.

**4.54 The School Supplies program is a good example of a transfer that reaches an important segment of the population (12.9 percent) and is pro-poor** (64.5 percent of benefits are received by the poor); the government of Guatemala should learn from that experience to design or modify other Social Programs aimed at the poor.

## CONCLUSIONS

4.55 Even after increases in public social expenditures in the last several years, Guatemala's Per Capita expenditure levels remain low compared to Latin America. Education and Health expenditures are poverty neutral, with important differences within each sector. For example, primary education is pro-poor while secondary and tertiary education is regressive<sup>61</sup>. Public expenditure in local and community based clinics is also progressive while hospital expenditures are regressive.

4.56 Improvements in Education between 2000 and 2006 are impressive: an average of 11.4 percentage points improvement in the primary net enrollment rate and seven percentage points in the secondary net enrollment rate. Health indicators do not show such a clear picture with nutrition being an important problem in Guatemala and one of the worst in Latin America.

4.57 The assessment of social programs should be an individual exercise. Each program has its strengths and weaknesses and a monitoring and evaluation system is necessary to correctly assess the performance of each program. Specific programs reaching the poor were identified but they represented only a small percentage of total expenditures. A national Conditional Cash Transfer program being considered by the government is expected to reach the poor and to represent an important share to social expenditures in Guatemala. It is essential for such a program to have the appropriate monitoring and evaluation system in place to ensure that it improves over time and to show the impact on the poor.

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<sup>61</sup> Pro-poor or progressive is used when the budget proportion reaching the poor is higher than the poor's population share. Neutral implies expenditure share similar to population share and regressive is when the expenditure proportion reaching the poor is smaller than the poor's population share.





## CHAPTER 5. CONDITIONAL CASH TRANSFERS

5.1 In an effort to address the lack of progress in reducing extreme poverty and to accelerate progress in improving social indicators, the new administration of President Alvaro Colom has formed the *Consejo de Cohesión Social* (Council for Social Cohesion), whose role is to coordinate government action in the social sectors. The Consejo has started the first phase of a Conditional Cash Transfer (CCT) program, *Mi Familia Progresá*, whose design largely follows similar Latin American programs. It will be implemented first in five of the poorest municipalities and then expanded to another 34 municipalities by the end of this year.<sup>62</sup>

5.2 In this chapter we first review the main shortcoming of the social protection system in Guatemala and the characteristics of CCTs that would appear to make them well-suited to the problems faced by Guatemala today. We then present different sets of results on the impact on poverty obtained by simulating such a program. Using data from the ENCOVI 2006 we examine several aspects of the design of CCTs with particular attention to the targeting mechanisms and the optimal amount of transfer. This analysis has been used to advise the government during the preparation of the first phase of the program, and its expansion to new municipalities.

5.3 The Chapter concludes that a CCT has the potential to significantly address the problem of extreme poverty at a relatively low cost, and that the targeting mechanism chosen is relevant especially as the program increases its coverage of areas with lower concentrations of the extreme poor. Several important messages and recommendations emerge from the chapter:

- a. A national CCT program with a monthly transfer of Q. 277 to all families with kids younger than 12 years old could reduce extreme poverty by 40 percent and would cost 2.3 percent of GDP per year – excluding administrative costs.
- b. The adoption of the proxy means test (PMT) as a targeting mechanism could bring costs down to 0.53 percent of GDP and still achieve a 24 percent reduction in extreme poverty.
- c. The adoption of a PMT can ensure a more efficient use of resources. By using a combination of geographic and household targeting the government can maximize the impact of the program for a given budget.
- c. In areas with very high concentration of extreme poverty, geographic targeting is a sensible choice, but as the program expands to areas with lower concentration targeting mechanisms reduce leakages so that the impact on poverty can be higher.
- d. The optimal choice of transfer amount and targeting mechanism, in terms of maximizing poverty reduction, will vary depending on the budget available.
- e. A CCT program could play an important role in an integrated poverty reduction strategy in Guatemala.

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<sup>62</sup> The five municipalities are: Cantón Panabaj (Atitlán), Santa Cruz La Laguna (Sololá), San Bartolomé Jocotenango (Quiché), El Sibinal (San Marcos), Santa Lucía La Reforma, (Totonicapán)

## CCT PROGRAMS: ARE THEY APPROPRIATE FOR GUATEMALA?

5.4 CCT programs have the potential to help governments deal with two sets of issues: (i) Reduce current consumption poverty via the cash transfer to the poor, and (ii) Break the inter-generational transmission of poverty through accumulation of human capital, through health and education co-responsibilities.<sup>63</sup> They are a type of social program that came about as a response to the perceived failure of traditional supply-side interventions. Most CCT programs link the cash transfer to an education and a health/nutrition condition. With the education condition the beneficiary households receiving the transfer commit to maintaining their children's school enrollment and regular school attendance. With the health/nutrition condition, the beneficiary families have to make regular visits to health centers and to participate to health and nutrition workshops.

5.5 In many countries, CCTs have become the flagship program in poverty alleviation strategies, and have replaced less efficient and regressive price subsidies, or consolidated numerous smaller programs. Given their impressive performance and political appeal, several governments in the region are adopting these programs as a tool for combating poverty and preventing its transmission between generations. They may also go beyond providing demand-side monetary interventions by strengthening the supply of health and education services.

5.6 **Rigorous evaluations provide evidence that CCT programs transfer a higher share of resources to the poorest quintiles, and that income transfers may improve children's health and developmental outcomes, as well as increase school enrollment.** CCT programs have been found to have positive effects on child nutritional status in Nicaragua and, among younger children in rural areas, in Colombia. In a study of Mexico's Oportunidades, it was found that larger transfers resulted in better nutritional status, motor skills, and cognitive development. In the case of a cash transfer program in rural Ecuador it was found that it indeed had positive effects on physical, cognitive, and socio-emotional development for children, especially for poorer children (Paxson and Schady 2007). CCTs have also been shown to have significant effects on school enrollment. In the case of PROGRESA, the program effect on enrollment was about 3.5 percentage points, while in the case of rural Ecuador was of 10 percentage points (Schady and Araujo 2006).

5.7 During the last six years the percentage of people living in extreme poverty in Guatemala has not declined and human development indicators still lag behind other countries' in the region. In terms of health status, the country has lower indicators than would be expected based in its per capita GDP and the improvements seen in recent years have been largely limited to the non-indigenous, non-poor population. The country is still characterized by high fertility rates, high infant and maternal morbidity and mortality, high and extreme prevalence of chronic malnutrition, and widespread incidence of

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<sup>63</sup> Co-responsibilities are the set of conditions or requirements the person or household have to meet in order to keep receiving the benefits. The typical co-responsibility for education is school attendance and for health is health facilities visits, normally related with pre-natal care and children under five nutrition and vaccination needs.

infectious diseases (see Table 5.1). Malnutrition and insufficient schooling are the most pressing issues facing disproportionately the poor, and affecting their ability to take advantage of and contribute to future economic growth. Adequate nutrition is a necessary, though not sufficient, condition for human development and it is an important factor affecting the intergenerational transmission of poverty (World Bank 2005).

**Table 5.1 Health indicators, Guatemala 2002**

	<b>Fertility rate</b>	<b>Infant mortality since 1992</b>	<b>Chronic Malnutrition (children &lt; 5 yrs old)</b>
<b>Urban</b>	3.4	35	36.5
<b>Rural</b>	5.2	48	55.5
<b>Indigenous</b>	6.1	49	69.5
<b>Non indigenous</b>	3.7	40	35.7

Source: ENSMI (2002)

**5.8 Social assistance programs suffer from lack of funding and poor targeting.**

The 2005 Public Expenditure Review found that public expenditure on social assistance programs (excluding social funds) is low compared with the regional average, and the spending is allocated in a large number of mainly uncoordinated interventions. Social assistance programs have been ineffective in tackling the vulnerabilities of the poor because of poor targeting, lack of coordination mechanisms, and the absence of a coherent strategy for these interventions. First, some of the major social assistance interventions are either very regressive, or poorly targeted. This is due either to the lack of poverty related factors in selecting beneficiaries, or to the complexity of the procedures, which discourage the poorest from taking advantage of the available benefits. Second, there is little coordination among programs with similar objectives and targeted population. This creates overlaps and leaves some parts of the population unattended. Third, lack of a common strategy and institutional coordination has prevented a prioritization of programs and has led to high fragmentation in public expenditure. However, as we have seen in previous chapters, the levels and the average annual changes in social indicators suggest that Guatemala is beginning to address some of its most pressing social issues.

5.9 Given the lack of improvement in extreme poverty and the need to continue making progress in social indicators, the CCT program that the government is starting to implement could play a pivotal role in strengthening the overall poverty reduction strategy. Other countries, like Jamaica with the *PATH* program, have used a CCT program as a key element in their efforts to improve the system of social assistance for the poor and vulnerable. CCT programs have consolidated other income transfer programs into one, improved targeting measures, and improved the cost-effectiveness of delivering benefits (Rawlings and Rubio 2004). A well targeted CCT program would allow the government to provide short-term relief to extreme poor households through the cash transfer, and address the deficiencies in human capital accumulation that limit Guatemala's growth potential, through a set of well designed co-responsibilities.

## RELEVANT ISSUES FOR A CCT PROGRAM IN GUATEMALA

5.10 **The success of CCT programs is in large part due to the relatively good targeting compared to other social assistance programs.** These programs are meant to benefit the extreme poor and, as with any other social programs, face a big challenge in how to reach them. Targeting entails an accurate and cost-effective system to identify the poor. With most CCT programs, governments have devoted significant efforts and resources in designing strong targeting mechanisms to maximize coverage and minimize leakage. There is no single best targeting mechanism, as it depends on the specific objectives and implementation areas of the program.

5.11 **Most prominent CCT programs combine geographic and household targeting or use exclusively household targeting.** Geographic targeting implies offering the program to all residents in an area with a high concentration of extreme poverty. Household targeting is a method in which the eligibility of each applicant is directly assessed. There are available several individual assessment mechanisms. They involve observing household-specific characteristics that correlate with income or consumption and using these characteristics to determine eligibility.

5.12 Among the different household targeting mechanisms, the PMT is being used in a growing number of countries. This is a systems that generates a score for each applicant household based on observable characteristics that are highly correlated with total consumption expenditure, yet are easy to measure, observe, verify, and relatively hard to manipulate. These variables are typically drawn from a detailed household survey. Given the choice of the variables, weights calculated by statistical analysis can be assigned to the selected

**Table 5.2 Monthly Family Transfer Amounts in US\$PPP**

Program	Average Transfer		Transfer as % average total consumption
	Education	Health/ Nutrition	
Oportunidades (Mexico)	61.5	21.4	25
Bolsa Familia (Brazil)	64.3 (total)		
Familias en Accion (Colombia)	53.2	31.3	30
Chile Solidario (Chile)	21.1 (total)		
PATH (Jamaica)	27.4	27.4	20
Red de Proteccion Social (Nicaragua)	31.9	53.6	20
PRAF (Honduras)	22.5	31.3	10

Source: World Bank (2007).

indicators and the eligibility for program benefits depends on the total score calculated. PMT instruments are becoming popular in the Latin America, where the informal labor market is large, and information systems are weak and do not permit extensive verification of incomes and wealth (Castaneda and Lindert, 2005). Typical variables included in the PMT are indicators of location and quality of dwelling, ownership of durable goods, and demographic characteristics of the household members.

5.13 Once the target population is identified, the choice of the transfer amount is particularly crucial to avoid inefficiencies. The cash benefit has to be sufficient to compensate the opportunity cost of the change in behavior, but not too high to create distortions in labor market decisions for the adults. Participation in the program is costly for the beneficiaries. The mother, or the person responsible for receiving the benefit, has

to collect the transfer, to take the kids to health visits or to go to regular checkups. Moreover, keeping a child, who would otherwise be working, in school means giving up his or her income. Hence the transfer amount has to be high enough to compensate for these costs. Table 5.2 shows how the level of transfer varies among programs in Latin America, in both absolute and relative terms, going from 10 percent of the average consumption of the target population in Honduras to 30 percent in Colombia.

**5.14 The benefit level and structure will also depend on the specificity of the country-context and the main issues that the intervention is addressing.** For example, if the CCT is mainly focusing on short-term poverty relief then the benefits could decrease with household income, or could have a fixed and variable component, the latter depending on household composition. In Chile, where the program is seen as transitory, benefits decline after six months and there is two-year time limit. In Mexico, where the emphasis was mainly on chronic poverty, the time limits were higher: nine years in rural areas and seven in urban areas, with the declining scale in the last three years of participation.

5.15 The transfer may be lump sum or made on a per child basis, with different amounts depending on the age and/or sex of the child. The transfer per child has the advantage of ensuring that the family has an incentive to send all the kids to school, and does not give incentives to the parents to choose among who should be attending and who should not. Moreover, given that poorer families often are those with more kids, a fixed transfer per household would mean a lower per capita transfer to these household. On the other hand, it could have unintended side effects on fertility. For this reason, some countries adopt a mixed scheme, in which the payment is per child but there is an upper limit to the total amount that a household can get.

**5.16 CCT programs require a good, country-specific design;** integration with supply-side interventions as well as active labor market policies; and coordinated and transparent institutional arrangements. The design of CCT programs and the strong targeting mechanisms that are usually developed with them, make them an important poverty reduction tool, which also addresses issues of health, nutrition and education of young children. However, they cannot be seen as stand-alone programs, but rather should be inter-linked with other social protection reform, like pensions, labor market and taxation. Some countries are developing exit strategies (like bonuses for graduation, or the establishment of time limits) and are linking beneficiaries with other services. Moreover, since CCT programs act on the demand-side of social policy, to be effective, they require complementary interventions on the supply-side.

**5.17 In Guatemala, the co-responsibilities should aim at giving incentives for kids to enroll in school at the right age and not to drop out or repeat a class.** We have seen in Chapter 4 that almost 15 percent of children do not enter first grade at the appropriate age, 21.5 percent of first grade students do not attend second grade, and that by sixth grade enrollment rate is just 40 percent. Indeed, while many countries show a plummeting in enrollment between primary and secondary school, in Guatemala the hemorrhaging of kids is observed at each grade of primary school, as well.

**5.18 Given the grave problem with malnutrition in Guatemala, the CCT should also target pregnant women and children below five years of age.** Improving the nutritional and health status of infants, young children and pregnant women constitutes the starting point to overcoming one of the major obstacles in the chain of human capital accumulation and to breaking the intergenerational transmission of poverty. Poor families are particularly vulnerable to chronic malnutrition and lack of maternal and infant care. Hence, the government could use the co-responsibilities as a means to ensure regular attendance to check-ups and growth monitoring session.

**5.19 Considerations about supply capacity to respond to increased demand in services are often made.** Co-responsibilities make sense if individuals have reasonable access to schools or health clinics. For this reason, while data on poverty are collected to determine eligible communities most countries also take into consideration whether and how the supply will be able to absorb the increased demand of services. In some countries CCT programs complement the cash transfer with interventions on the supply of these services. For example, in Nicaragua teachers receive a bonus and NGOs are contracted to provide health services. In Mexico resources are set aside to cover the costs of additional health services demanded due to the program and ensure an adequate supply of equipment, medicines and material (Rawlings and Rubio 2004).

**5.20 In the past five years, the government of Guatemala has invested in improving provisions of basic health and nutrition services.** In particular, the Government has prioritized strengthening the Program for Extension of Coverage (PEC), which guarantees the universal provision of an improved basic package of health services in 111 of the poorest municipalities. With support from the Inter-American Development Bank and the World Bank, the Government has strengthened the Tertiary Hospital levels, as well as the maternal and infant care health centers at the secondary level.

**5.21 Supply-side shortage in primary and secondary education does not seem to be a critical problem at this moment in Guatemala.** As we have seen in Chapter 4, in 2006 most primary age children were in school. Gross enrollment rates are above 100 percent until 4th grade (Figure 4.5) and secondary age kids have significantly increased school enrollment. For primary age students, health (27.5 percent) and lack of interest (31.4 percent) are the main reasons for dropping out. That is true for all the groups analyzed regardless of gender, indigenous and poverty status. For secondary school, economic reasons and lack of interest are the predominant motivations not to enroll. This suggests that schools and teachers are there.

**5.22** Despite the existence of capacity on the supply side, the government should not underestimate issues of quality of services. In particular, as the demand for services increases, this could become a serious problem and attenuate the benefits of the programs. However, in many countries CCTs have provided a strong incentive to improvement in the provision of services.

## EXPECTED IMPACT OF A CCT PROGRAM: AN EX-ANTE EVALUATION

5.23 In this section we present the results from the ex-ante evaluation of the impact on poverty of alternative designs of the CCT program, using data from the ENCOVI 2006. This analysis is part of an on-going effort to provide the government with estimates of the costs and the potential impact of the program before implementation and during the scaling up of the “Mi Familia Progresá” program. In our simulation, we develop a PMT, as a mechanism to predict a household’s welfare level, based on a set of some household characteristics. The benefits are then given to those who fall below a certain level of welfare, based on their predicted level of consumption expenditure. We then assess the performance of the targeting mechanism looking at leakage and coverage rates. The impact on poverty is given by the change in poverty after the implementation of this transfer.<sup>64</sup> We analyze only the effect of the program on current poverty (the short-term effect of the program), without assessing the effect of the behavioral change on future poverty. Our analysis does not want to compute the actual change in poverty we expect to see, which will be affected by many factors other than the program, but to isolate the potential effect of the program on poverty.

5.24 Given the government’s difficulties in lifting people out of extreme poverty, we chose as the target population the extreme poor (those with a yearly consumption lower than Q. 3,205) with kids younger than 12 years old. The targeting mechanism we simulate is a PMT. We chose consumption expenditure as our measure of welfare as it is presumed to be more accurate than income.

5.25 We used a two-step strategy to select the variables that are correlated with welfare and are used to calculate the household’s score. First, we identified some observable characteristics that are highly correlated with total consumption expenditure yet are easy to measure, observe, and verify—and relatively hard to manipulate by the household. Then we used a stepwise function to eliminate from the regression those that are not statistically significant and do not increase the model’s overall predictive power. Second, we estimated an Ordinary Least Squares (OLS) regression,<sup>65</sup> with consumption as our dependent variable and the selected variables as independent variables.<sup>66</sup> We have four groups of independent variables: housing conditions, presence of durables, demographic characteristics, and location.<sup>67</sup> Table 5.3 shows the results for the two regressions. The R-squared for urban areas is 0.7052 and for rural areas is 0.5932 suggesting a high explanatory power (a good ability to predict welfare).

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<sup>64</sup> To calculate the level of consumption after the transfer we use an income elasticity of 0.6174, which we estimated in the LSMS 2006.

<sup>65</sup> Notice that we are interested in identifying the poor; hence we do not have to worry about endogeneity problems in the OLS regression.

<sup>66</sup> In particular we estimate the equation:  $\ln(c_i) = \beta x_i + e_i$  where  $c_i$  is per capita consumption for household  $i$ ,  $x_i$  is the array of observable characteristics for the household and  $e_i$  is the error term, normally distributed, with mean 0 and standard deviation  $\sigma^2$ .

<sup>67</sup> We estimate two separate equations for urban and rural subsets of the population as the housing characteristics of the two groups may differ, and hence the correlation with poverty in the two areas may be less strong in one than in the other

Table 5.3 Estimation of the Total Household Consumption - Proxy Means Test

		Urban <sup>a</sup>			Rural <sup>a</sup>		
Housing	Wall of concrete, cement	0.1148	***	[0.0400]	0.2361	***	[0.0238]
	Wall of wood, mud	0.0752	*	[0.0415]	0.1586	***	[0.0201]
	Water from public well or pipe				0.0677	***	[0.0180]
	Shared toilet with sewer system /septic tank	0.2072	***	[0.0530]	0.1013	**	[0.0439]
	Private toilet with sewer system /septic tank	0.2206	***	[0.0501]	0.1205	***	[0.0244]
	Shared toilet with latrine or pit	0.1294	**	[0.0569]			
	Private toilet with latrine or pit	0.1349	***	[0.0477]			
	Garbage collection service	0.1219	***	[0.0207]	0.0567	*	[0.0290]
	Household with one room only	0.3572	***	[0.0299]	0.2301	***	[0.0189]
Durables	Refrigerator	0.2271	***	[0.0235]	0.2586	***	[0.0216]
	Washing machine	0.2619	***	[0.0317]	0.4453	***	[0.0759]
	Television	0.1512	***	[0.0253]	0.1856	***	[0.0185]
	Vehicle	0.2655	***	[0.0326]	0.1743	***	[0.0436]
Demographic	# of households members per room	-0.1698	***	[0.0096]	-0.1164	***	[0.0042]
	Dependency rate	-0.0896	***	[0.0132]	-0.0799	***	[0.0075]
	Head with superior complete	0.6502	***	[0.0547]	0.9648	***	[0.1538]
	Head of household Indigenous	-0.1172	***	[0.0186]	-0.1676	***	[0.0155]
	Age of the head	0.0022	***	[0.0008]			
	Woman head	0.0736	***	[0.0225]	0.0645	***	[0.0191]
	Head with primary complete	0.1223	***	[0.0258]	0.071	***	[0.0210]
	Head with secondary incomplete	0.2297	***	[0.0277]	0.1474	***	[0.0301]
	Head with secondary complete	0.3453	***	[0.0337]	0.267	***	[0.0585]
Head with superior incomplete	0.3992	***	[0.0524]	0.3984	***	[0.1403]	
Constant	8.7806	***	[0.0724]	8.7258	***	[0.0289]	
Number of Observations	5397			7533			
R-squared	0.7052			0.5932			

\* Significant at 10%; \*\* significant at 5%; and \*\*\* significant at 1%.

<sup>a</sup> Robust standard errors in brackets.

Source: World Bank staff estimates based on ENCOVI 2006

5.26 Using the parameters thus estimated, for each household we can compute a score that is the predicted probability of being extreme poor. The score is computed in the following way:

$$Score_i = \Pr(c_i < z) \quad (1)$$

where  $z$  represents the value of the extreme poverty line. Given the estimates of  $\beta$  and  $\sigma^2$  with OLS and given the vector  $x_i$ , we can estimate equation (1) through the following calculations:

$$Score_i = \Pr(\ln(c_i) < \ln(z)) \\ = \Phi(\hat{e}_i < \ln(z) - \hat{\beta}x_i / \hat{\sigma})$$

where  $\Phi$  is the standard normal cumulative distribution function. The score is a number between 0 and 100. In order to determine the beneficiaries of the program the government needs only decide the cutoff level. This is the level of the score such that all households with a score above it will be receiving the transfer, all those below it will be



excluded. If the cutoff is set at 0, then every household with young kids will participate in the program. If the cutoff is set to 30 then all the households with a score lower than 30 will be excluded, households with a score higher than 30 and with young kids will be included in the program.

5.27 For each household in the survey, we have the actual poverty level and can calculate the score. This allows us to estimate in our representative sample the targeting performance of the PMT developed. A common method to assess the performance is to compare *under-coverage*—in this case, the proportion of extreme poor households that are excluded from the program—and *leakage*—the percentage of the total resources transferred going to the non extreme poor. Under-coverage is a measure of the effectiveness as it represents the proportion of intended beneficiaries that are left out of the program. Leakage is a measure of efficiency: leakage increases program costs as benefits are given to people who were not meant to receive them. Leakage and under-coverage depend on how selective the targeting mechanism is.<sup>68</sup>

### RESULTS OF THE SIMULATION OF A NATIONAL PROGRAM

5.28 **With a universal program the government could reduce extreme poverty drastically, but at a very high price.** A universal program is one in which every family with children below the age of 13 receive the transfer. It provides a benchmark to compare the effect of adopting household and geographic targeting. A universal program with a transfer of Q.277<sup>69</sup> could reduce the number of extreme poor by 40 percent, the poverty gap by 47 percent and the severity index by 54 percent and would cost 2.5 percent of GDP<sup>70</sup> per year (net of administrative costs). Such a program would have low *under-coverage* – just 3 percent, which is the percentage of extreme poor households with young children. However, the *leakage* would amount to 89 percent (Figure 5.1). This is a high price to pay to ensure that all the extreme poor eligible households are reached by the program. While a universal program would be the only way to guarantee the highest coverage of the extreme poor population, and hence the highest impact, it would be prohibitively expensive, it would have high leakage and would likely be fiscally and politically unsustainable. Policy makers face a trade off: reduction in leakage to non targeted households implies also an increase in under-coverage of the targeted population. The reverse is true: in order to increase coverage, policy makers will also increase the leakage to non targeted households. This is intrinsic to the fact that no targeting mechanism is perfect, and there are always errors of inclusion and exclusion. It is impossible to reduce leakage and under-coverage to zero.

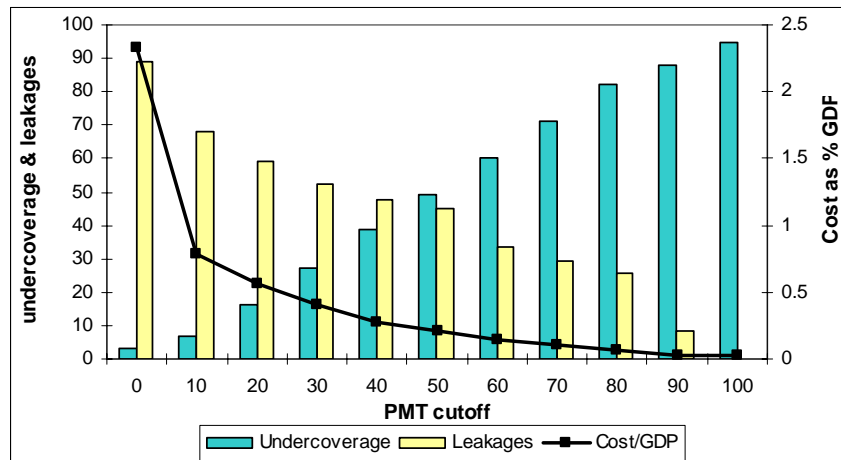
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<sup>68</sup> The Government has started collecting the information relevant to the implementation of this proxy-means test. A questionnaire with the same questions of the ENCOVI 2006 has been prepared and is going to be fielded in the areas in which the program is going to be implemented.

<sup>69</sup> This represents 18% of average monthly consumption of the extreme poor, which is Q. 1,541. It was chosen as in other countries the transfer varies between 10 and 30% of average monthly consumption. We later show the expected impact of several other transfer amounts.

<sup>70</sup> The 2006 GDP equivalent to Q.268,297.8293 million (Central Bank of Guatemala)

**Figure 5.1 Under-coverage, leakages and costs at different cutoff with a monthly transfer of Q. 277 per household in a national program**

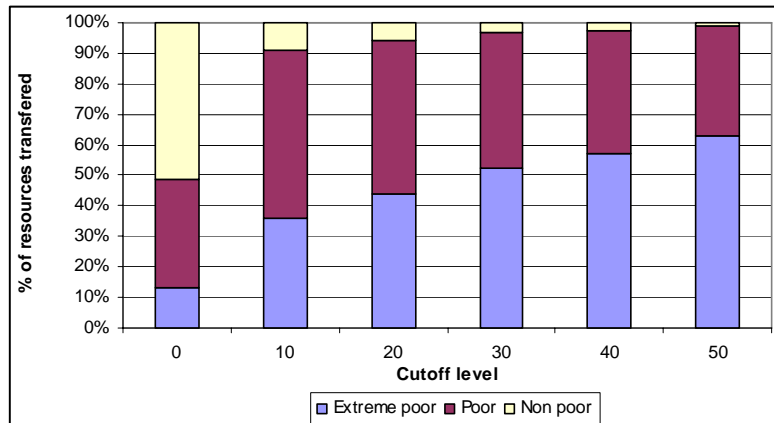


Note 1: *Under-coverage* is the proportion of extreme poor population that is excluded from the program. *Leakage* is the share of program benefits going to the non extreme poor. Costs exclude administrative costs  
 Source: World Bank staff estimates based on ENCOVI 2006.

**5.29 By increasing the selectivity of the targeting mechanism the government could still achieve substantial reduction in poverty with a more efficient program and at a lower cost.** Suppose that the government were to choose 10 as the eligibility cut-off point. In this case, all households with an estimated probability of living in extreme poverty greater than or equal to 10 percent would be eligible. This increase in selectivity substantially reduces *leakage*, as well as the percentage of program benefits going to the non poor (Figure 5.2). About 15 percent of the beneficiaries are non poor in this scenario and 90 percent of the extreme poor would be beneficiaries of the program. The cost of the program would be more than three times lower, going from 2.3 to 0.79 percent percent of GDP. Thus, for a relatively small price, i.e., the exclusion of 7 percent of the target population from getting the benefits, the program would cost considerably less, making it fiscally and politically more viable.

**5.30 By choosing a higher eligibility cut-off point the government can reduce the share of resources transferred to the non poor.** While we define as leakage the share of transferred resources going to the any household not extreme poor, the error is less grave if these resources are given to overall poor households rather than to the non poor. Figure 5.2 shows how with a universal program more than half the resources go to the non poor, while with an eligibility cutoff of 10 this share drops to less than 10 percent. Clearly, while it is impossible to avoid any leakage, the use of the PMT developed helps reduce the share of resources being channeled to those who need the resources the least.

**Figure 5.2 Distribution of costs among the population at different targeting cutoffs**



Source: World Bank staff estimates based on ENCOVI 2006

5.31 The optimal choice of transfer amount and targeting mechanism, in terms of maximizing poverty reduction, will vary depending on the budget available. The cut-off point gives us the number of beneficiaries hence, together with the amount of the transfer, will determine the total resources transferred and the impact on the welfare of the population. Figure 5.3, panel a shows the relationship between costs of the programs and the headcount ratio for the extreme poor for 4 different levels of monthly transfer per household (Q. 277, Q. 339, Q. 462, and Q. 539<sup>71</sup>). Clearly behind each point on the curves there is an underlying level of targeting of the PMT. As we move from left to right on each curve, the eligibility cut-off point decreases, the number of beneficiaries and the costs increase and the headcount ratio decreases. That is, for any given level of the transfer a less selective mechanism will result in higher costs and poverty reduction.

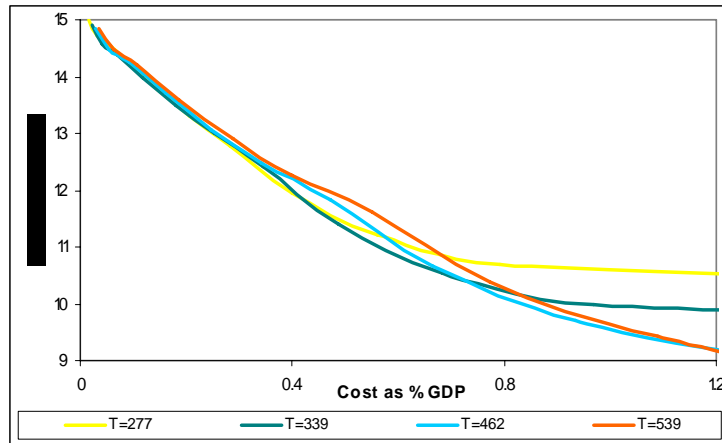
5.32 **If the government were to transfer 0.5 percent of GDP in a national program, it could achieve the highest reduction in poverty (29 percent) by choosing a monthly transfer of Q.339 per household and an eligibility cut-off of 30.** Given the budget level, generally there is a combination of transfer amount and cut-off level that maximize poverty reduction. In Panel (a) of Figure 5.3 we can see how for low levels of budget, the government is better off choosing lower transfer amounts and eligibility cut-offs. For example, with a budget of 0.1 percent of GDP the government could achieve an 11 percent reduction in the headcount ratio by choosing a transfer amount of Q.77 and an eligibility cut-off of 30. With a transfer of Q.77 the maximum reduction in poverty would be 17 percent, which could be achieved with a universal program at a cost of 0.65 percent of GDP. However, the same budget the government could obtain a 35 percent reduction in poverty by choosing a transfer of Q.462 and a cut-off of 30. This is due to the fact that in order to increase the amount of the transfer the government would have to adopt a higher cutoff. This in turn means a stricter targeting rule, lower leakage and a reduction in the number of beneficiaries. Panel (b) shows the envelope or combination of points that maximizes the reduction in the head count of the extreme poor at any budget level.

<sup>71</sup> These values represent between 18 and 35 percent of average monthly consumption of the extreme poor household population

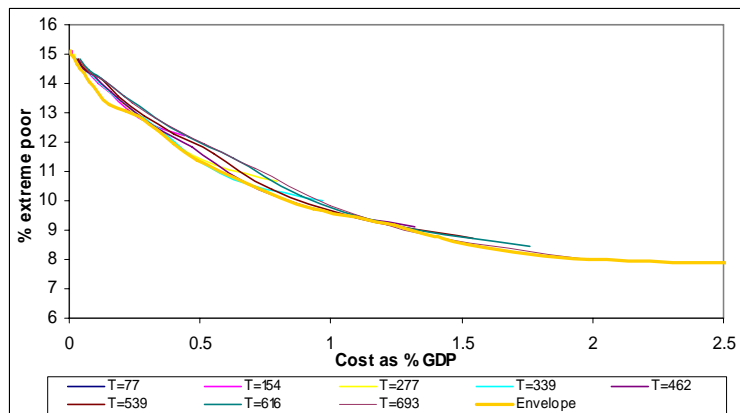
5.33 The trade-off between transfer amount and number of beneficiaries is particularly important when considering scaling up the program. In the initial phases of implementation, when the population covered is relatively small, the government might be tempted to either set large transfers and/or increase coverage. However, this might create political problems as the program is expanded to new areas when budget constraints start becoming binding and at the same time it can be more difficult to reduce transfers or apply stricter requirement for participation in the program.

5.34 The headcount ratio is only one of the possible indicators of poverty. Table 5.4 shows the impact of the program on the poverty gap and the severity index. The impact of the program on these measures is generally higher than the one on the headcount, suggesting that the program can also address issue of the depth and severity of poverty.

**Figure 5.3 Costs and HC at different level of transfers**  
**Panel a: Zoom**



**Panel b: Envelope**



Source: World Bank staff estimates based on ENCOVI 2006

**Table 5.4 Distributional Impact: Poverty Reduction Gains and Total Cost Comparison Between Different Transfer Schemes and Cut-off Values**

Probability of being extreme poor	Measures	2006 Values	T=154	T=277	T=339
0	Poor population	15.222	11.782	10.183	9.441
	Poverty Gap Index	3.374	2.478	2.079	1.931
	Severity Index	1.099	0.768	0.631	0.579
	Total Cost		3471.913	6244.935	7642.718
	Cost/GDP		1.294	2.328	2.849
10	Poor population	15.222	12.203	10.683	9.986
	Poverty Gap Index	3.374	2.52	2.138	1.997
	Severity Index	1.099	0.778	0.646	0.595
	Total Cost		1181.157	2124.548	2600.078
	Cost/GDP		0.44	0.792	0.969
30	Poor population	15.222	13.13	11.966	11.385
	Poverty Gap Index	3.374	2.713	2.41	2.297
	Severity Index	1.099	0.842	0.735	0.694
	Total Cost		593.456	1067.449	1306.373
	Cost/GDP		0.221	0.398	0.487
50	Poor population	15.222	13.995	13.308	12.997
	Poverty Gap Index	3.374	2.954	2.755	2.678
	Severity Index	1.099	0.927	0.853	0.824
	Total Cost		306.814	551.867	675.39
	Cost/GDP		0.114	0.206	0.252

Note: The costs do not include administrative costs, but are just the total amount of resources transferred.

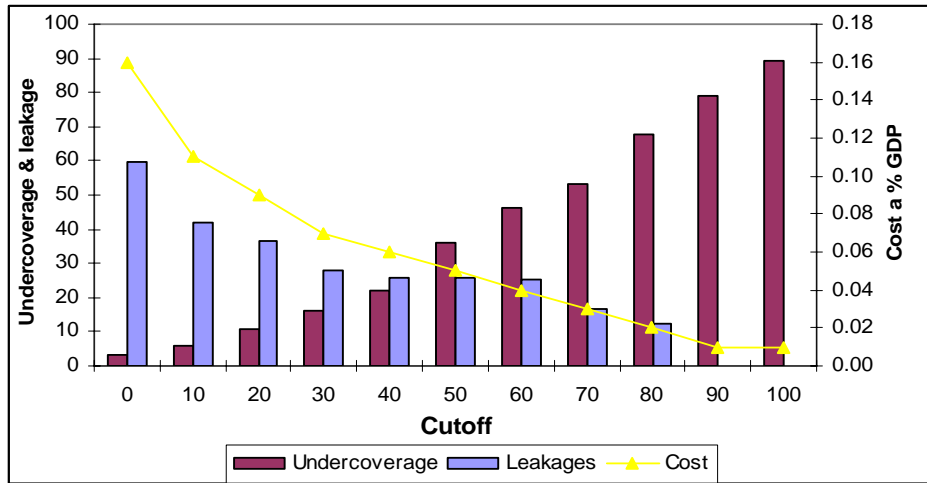
Source: Own estimation based on ENCOVI 2006 data.

### **RESULTS OF THE SIMULATION OF PROGRAM IN THE POOREST DEPARTMENT**

5.35 To assess the relative performance of geographic and household level targeting in areas of high concentration of poverty we simulated the effect of the program in the poorest department of Alta Verapaz, which has 43.51 percent of the population in extreme poverty, compared to 15.22 percent at the national level.

5.36 **Geographic targeting in an area with a high concentration of poverty would result in lower leakage than a national program.** If the government were to give every household with young kids in the department of Alta Verapaz a monthly transfer of Q.277 it would reach 97 percent of extreme poor households and 60 percent of the resources transferred would go to non extreme poor beneficiaries (see Figure 5.5).

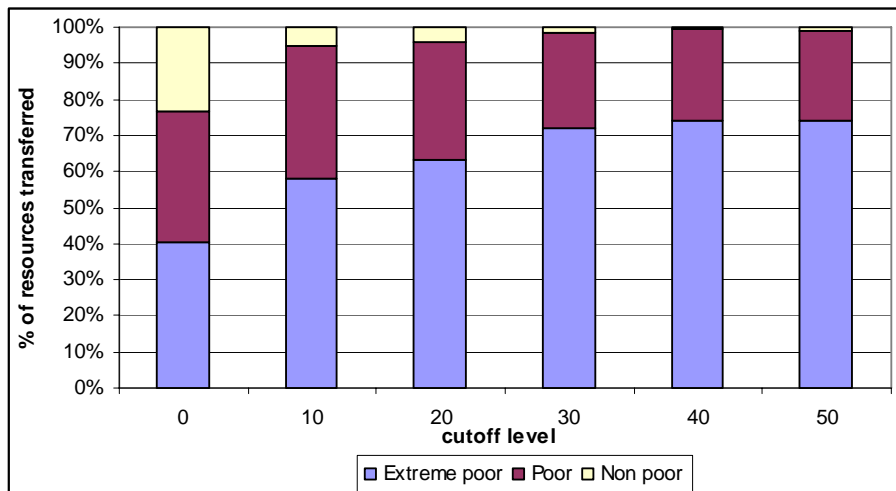
**Figure 5.5 Under-coverage, leakages and costs at different cutoff with a monthly transfer of Q.277 per household in the department of Alta Verapaz**



Note 1: Under-coverage is the proportion of extreme poor population that is NOT included in the program. Leakage is the amount of money spent on those who are classified as non extreme poor (errors of inclusion). To estimate the annual total cost we assume a monthly monetary transfer of Q. 277 per household. Source: Source: World Bank staff estimates based on ENCOVI 2006.

5.37 **The share of leakage going to the non poor would be much smaller than in a national program.** Alta Verapaz also has a very high share of overall poor, 79 percent compared to 51 percent nationally. This implies that even without the use of any household targeting mechanism a much lower share of resources will go to the non poor than in a national program. In this case, the share of resources transferred going to non poor households would indeed be a little over 20 percent (Figure 5.6).

**Figure 5.6 Distribution of resources transferred among income groups at different targeting cutoffs in Alta Verapaz**



Source: Source: World Bank staff estimates based on ENCOVI 2006

5.38 **The PMT increases under-coverage rates but it cuts down leakages so that the impact on poverty can be higher.** Geographic targeting might be expensive and result in a lower reduction in poverty for a given amount of resources available. From

figure 4.5 we can see how a universal program in the department of Alta Verapaz would cost 0.21 percent of GDP (including an estimated amount for administrative costs). This would allow the government to reach 51,000 extreme poor households, and to reduce poverty in the department by 25 percent, and nationally by 5 percent. However, for a similar amount of resources, 0.28 percent of GDP, the government could reach almost twice as many extreme poor households- 101,000- if it were to implement a national program with household targeting and an eligibility cutoff of 50 (see Table 5.4). Such a program would result in a reduction in poverty of 14 percent. This is due to the fact that the implementation of the PMT ensures that a higher percentage of the beneficiaries are extreme poor. Clearly, for a given budget coverage rates are lower in the case of the national program but the actual number of extreme poor households reached by the program would be much higher.

### **RESULTS OF THE SIMULATION OF PROGRAM AT THE MUNICIPAL LEVEL**

5.39 As the government was preparing to implement the program in 44 municipalities (so called, *municipios prioritarios*) with very high levels of poverty, we were asked to give some estimates of the costs, leakage and coverage they would incur with the use of the proxy-means test. Given that the LSMS-type is not representative at the municipal level, we used the information at the departmental level to estimate these quantities. These municipalities present levels of extreme poverty that vary between 10 and 61 percent. For each municipality, we have information on the population,<sup>72</sup> percentage of extreme poor and overall poor population, and percentage of population living in urban areas.

5.40 To estimate the costs, leakage and coverage, we followed the following steps.

- a. For each department, and for each level of cutoff, we calculated: headcount rate for the extreme poor; number of beneficiaries (number of individuals who live in beneficiary households); number of recipients; coverage rate ( percent of extreme poor IN the program); leakage rate ( percent of total cost of program going to NOT extreme poor).
- b. For each cutoff, we estimated the relationship between the headcount and (i) leakage rate; (ii) coverage rate; (iii) total costs; and (iv) percentage of beneficiaries in the population. The regressions are of the type:

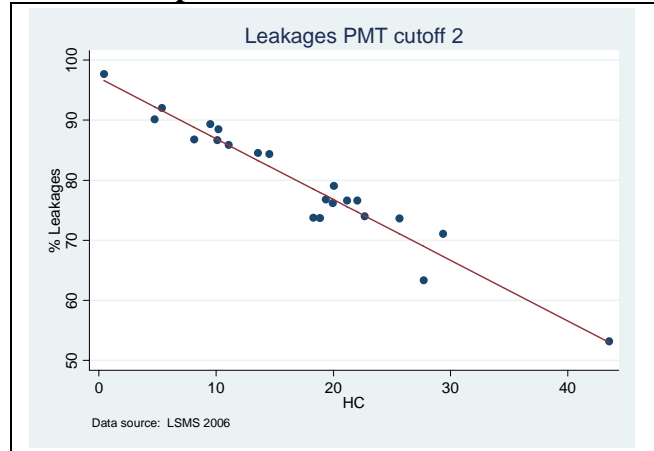
$$\text{Leakage rate} = \alpha + \beta * \text{HC}$$

- c. Where HC is the percentage of poor in the population. Figure 5.7 shows the estimated relationship between leakage rate and headcount with a cutoff of 20.
- d. Given the parameters thus estimated, we use the data on the rate of extreme poverty in each municipality to calculate the variables of interest.

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<sup>72</sup> We estimated this number taking the value of 2002 from the census and imputed the change in population estimated at the national level by INE (National Statistical Institute)

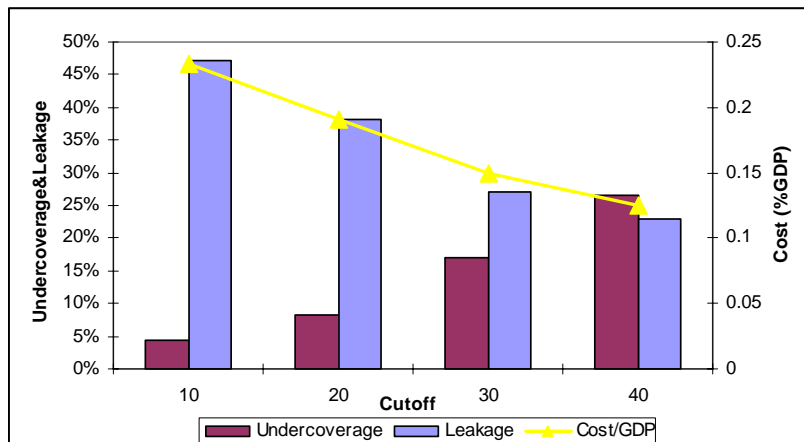
**Figure 5.7 Headcount and leakage rate by department with cutoff of 20**



Source: Source: World Bank staff estimates based on ENCOVI 2006

5.41 The use of geographic targeting in the poorest municipalities and the implementation of the PMT as the program scales up in less poor municipalities would allow the government to maximize its impact while containing costs. In the poorest municipalities, with rates of extreme poverty around 60 percent, the use of geographic targeting would result in leakage rate of 40 percent. Given the costs of administering the PMT, the use of geographic targeting in these municipalities would be a sensible choice. However, as the program expands to areas with lower rates of extreme poverty, the use of the PMT is recommended. As shown in Figure 5.8, with a cutoff of 40 the estimated leakage would be as low as 25 percent and the cost of the transfers would be just above 0.1 percent of GDP. In this scenario at least 75 percent of the extreme poor would benefit from the program.

**Figure 5.8 Under-coverage, leakage and costs at different cutoff with a monthly transfer of Q. 80 per child in 44 municipalities**



Source: Source: World Bank staff estimates based on ENCOVI 2006



## SUMMARY OF FINDINGS

5.42 Our analysis shows that a CCT program in Guatemala targeted to the extreme poor population could significantly reduce extreme poverty. Table 5.5 presents a summary of the simulation exercises presented in this chapter. A national program with a monthly transfer to all households with kids younger than 12 years old would result in a 40 percent reduction of poverty. However, such a program would be highly inefficient, as 87 percent of its resources would leak to non extreme poor households. Moreover, with a total amount of transfer equivalent to 2.33 percent of GDP, this program would be fiscally unsustainable.

**Table 5.5 Summary of simulation results for different scenarios**

Targeting		Beneficiary households (,000)		Coverage Rate	Leakage Rate	Poverty reduction*	Total Cost**	
Geographic	PMT	Total	Extreme poor			Extreme poor	Million Q.	%GDP
<i>National program***</i>								
no	no	1,879	251	97	87	40	6,245	2.33
no	yes <sup>^</sup>	321	166	69	48	24	1,065	0.40
<i>Program in Alta Verapaz***</i>								
yes	no	127	51	97	60	5.2	422	0.16
yes	yes <sup>^</sup>	58	42	84	28	4.4	191	0.07
<i>Program in 44 priority municipalities***</i>								
yes	no	488	467	96	47		500	0.19
yes	yes <sup>^</sup>	314	261	83	27		322	0.12

<sup>^</sup> PMT with a cutoff point of 30; \* Poverty reduction at the national level as measured by the percentage change in head count ratio for the extreme poor; \*\*Costs correspond to total amount of transfers; \*\*\* For the simulation of the national program and the one in Alta Verapaz we are assuming a monthly transfer of Q. 277 per household. In the case estimation of the costs in the 44 priority municipalities the monthly transfer is of Q. 80 per child.

Source: World Bank staff estimates based on ENCOVI 2006

5.43 **The adoption of a proxy-means test (PMT) can ensure a more efficient use of resources.** As we have seen, a proxy-means test can drastically reduce the leakage, by improving the government's ability to identify the target population. This allows the government to contain costs while maximizing its impact on poverty. So for example, in Table 5.5 we can see how by adopting a PMT, poverty would be reduced by 24 percent and the cost of the program would be equivalent to 0.4 percent of GDP.

5.44 **By using a combination of geographic and household targeting the government can maximize the impact of the program for a given budget.** Geographic targeting by itself reduces the leakage of a program. Indeed, we see in table 5.5 that by adopting geographic targeting (that is, with a program for all households with kids in the department of Alta Verapaz) would result in 60 percent leakage, compared to 87 percent in the national program. However, the government would benefit from complementing geographic targeting with a proxy-means test. By doing so the government could obtain a 73 percent reduction in leakage, a 56 percent reduction in costs and poverty reduction would be reduced by 17 percent.

5.45 The targeting mechanism can be expensive to set up, but many of the administrative costs are common to other social protection programs. Indeed, the identification of beneficiaries, the benefits delivery mechanism and the monitoring and evaluation systems can be used for other programs. In particular the targeting mechanism can be used to determine eligibility in a wide range of other interventions.

**5.46 CCTs are a powerful instrument to achieve short-term poverty reduction and improving educational, nutritional and health outcomes that requires a high degree of coordination across sectors.** In particular, there is a need to coordinate line ministries and their service providers to ensure cooperation and effective monitoring of co-responsibilities. Inter-ministerial coordination is also particularly crucial when having both the CCT and supply-side interventions.

5.47 The initial phase of a CCT program is often the hardest part, as the government has to work on the design, on setting up the administrative capacity, and on defining the institutional framework and responsibilities. By adopting geographic targeting and entering in a few of the poorest municipalities, so far, the government has made the right choices,. However, as the program expands to other municipalities the government should start setting up the PMT and decide on the cut-off to be used. This is essential to ensure the feasibility and efficiency of the program. Moreover, since some of these decisions are not technical but political in nature it is important from the onset to design the program in such a way to maximize its political feasibility.

5.48 Our analysis shows the results from a program targeting extreme poverty. However, if the government were to choose the overall poor as the target population the results would be significantly different. Guatemala has a very high level of overall poverty with 51 percent of the population living below the overall poverty line. This implies that the potential pool of beneficiaries is very large, and the costs of such a program would be prohibitive. Hence the government would have to resort to using very selective household targeting mechanism to minimize leakage and to limit the number of eligible individuals.

**PART III INCOME GENERATION, SHOCKS AND  
VULNERABILITIES**



## **CHAPTER 6. INCOME GENERATION, POVERTY REDUCTION AND LESSONS FROM REGIONAL CONTRASTS**

6.1 In the face of a reduction in national poverty of 5 percentage points, and of contrasting regional changes with poverty falling by 14 percentage points in the Southeast and extreme poverty increasing 11 percentage points in the Northeast, this chapter attempts to uncover some of the factors that might be driving these changes by looking into the evolution of households' sources of income and into the bottlenecks that constrain investment climate and productivity. In particular, by looking at the polar opposite changes observed in Northeast and Southeast, we hope to learn what can work at a more general level. In fact, the evidence presented here is part of an ongoing effort that will continue during 2008/2009 with the purposes of extracting valuable lessons from past experiences.

6.2 From the analysis on the evolution of the different sources of income, we find that:

- a. International and local remittances have doubled their importance as sources of household resources, with twice as many households receiving remittances in 2006 compared to 2000, and the average size of the transfer rising by 30 percent in real terms. Remittances have become especially more prevalent among households of lower socio-economic status, in particular among those in the nearness of the poverty line, which suggests remittances have had a relevant role in helping households lift out of poverty. On the other hand, this means that households have become more remittance-dependent, which increases their vulnerability to external conditions.
- b. Diversification of income generation across agricultural and non-agricultural sectors has improved, especially for poorer households. In addition, households who diversify have experienced higher rates of increase in income. Individuals have also increased their ability to diversify their activities across sectors and multiple jobs.
- c. Labor productivity is modestly improving, led by and large by agricultural sector and the positive shock received with the recuperation of prices of main agricultural exports. Workers in commerce and manufacturing sectors have also seen improvements in productivity, unlike workers in services and construction. Given that workers from poorer households are relatively more concentrated in agriculture than workers from richer households, changes in productivity have disproportionately benefited the poorer ones than the richer.

6.3 In our complementary analysis of the bottlenecks to firms' investment decisions, which draws from a recent World Bank study (2008), we find evidence that helps to explain some of the previous results:

- a. Firms consider infrastructure to be among the main obstacles to business. Guatemala has been making progress in this front, but it still suffers from poor infrastructure, with a road network of worse quality than its Central American counterparts. On the upside,

- the improvements in roads seem to have contributed to increased diversification of households' income sources across agricultural and non-agricultural activities
- b. Firms also consider inadequate workforce skills to be another obstacle to investment. The country is making good progress in schooling indicators and as the new and better educated cohorts enter the labor force, firms should be less constrained by unskilled workers and productivity should improve across more sectors. In addition, the CCT program will contribute to raise educational attainment of the poor. These, however, are solutions that will have an impact in the medium term. As a complement, for a more short term solution, different strategies to improve the quality of the labor force should be considered. One such possibility is to draw from lessons emerging from international experience by considering the implementation of worker training programs. These need to be carefully structured and appropriately designed, developing public-private partnerships to take into account knowledge of the private sector and firms about the needs and particular skills required, and public sector ability to fund and cover for the undersupply of training that occurs since firms cannot fully capture the benefits of training investments.

6.4 Finally, when focusing on the differences between the Southeast and Northeast, we observe how some the aforementioned factors interact to produce changes in poverty levels:

- a. In the Southeast, better road infrastructure together with favorable climate and agricultural conditions, have helped achieve the highest poverty reduction in the country, allowing households to have better connection to markets and facilitating individuals to diversify and work in both agricultural and non-agricultural sectors.
- b. In the Northeast, poor infrastructure coupled with adverse climate shocks (irrigation variability and droughts) and low economic and agricultural potential, have conspired to produce a dramatic increase in extreme poverty.

6.5 Overall, the findings of this ongoing study thus far highlight the importance of good infrastructure, the necessity to improve on the quality of the labor force and strengthen safety nets for areas more exposed to negative shocks.

### **EVOLUTION OF HOUSEHOLDS' SOURCES OF RESOURCES**

6.6 How do households finance their consumption? To understand changes in consumption-based poverty, it is essential to investigate changes in household income and income sources. We decompose the analysis of households' resources into the study of the different sources used and the evolution of the returns from each of these sources, to finally present the income profile of an average household.

#### **Households' Sources of Resources**

6.7 **Remittances and non-agricultural labor income have become more prevalent sources of resources.** The sources that households use to finance their consumption have changed substantially during the 2000-2006 period. At the **national level**, the trends show (Table 6.1, columns 1-2) a strong increase in the percentage of households that

receive **remittances** from both local sources and abroad (21 to 31%) and an even stronger increase in the prevalence of **international remittances**.

6.8 The share of households that obtain resources from **agriculture** has remained relatively unchanged, but there have been major changes in **type of employment** that generates this income. These changes include a large decrease in the share of households with members working for a wage, in favor of an increase in the proportion of households with members working self-employed in agricultural activities. The relevance of **non-agricultural activities** as a source of resources has increased substantially (69 to 79 percent), in particular for the share of households with members working for wage. This has come in the form of increases in both formal and informal employment for household members.

**Table 6.1. Percentage of households using each source of resources**

Income Source	QUINTILES OF PER CAPITA EXPENDITURE											
	ALL		QUINTIL 1		QUINTIL 2		QUINTIL 3		QUINTIL 4		QUINTIL 5	
	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
remittances	21	31	12	23	18	31	19	35	24	35	31	32
from abroad	9	17	4	11	7	17	9	18	12	19	14	19
labor income	96	97	98	98	98	98	97	97	97	96	93	94
agriculture	51	54	88	87	73	77	54	56	31	34	12	19
employee	33	24	65	47	50	35	33	22	16	10	4	5
informal	22	14	47	31	34	23	20	12	8	5	2	2
formal	15	11	26	20	21	16	16	11	10	5	2	3
self-employed	33	47	52	76	49	68	34	48	20	30	9	16
informal	29	42	47	69	44	60	30	43	19	25	7	13
formal	4	7	5	10	5	10	4	8	2	5	1	3
non-agriculture	69	79	44	64	58	73	70	81	84	89	89	89
employee	52	64	27	51	39	58	55	65	65	72	74	72
informal	27	35	19	38	26	40	32	40	33	34	26	24
formal	36	44	12	25	19	32	37	45	49	54	63	62
self-employed	39	42	25	28	32	37	37	45	47	49	52	52
informal	35	41	23	28	30	36	35	43	43	47	44	48
formal	6	3	3	1	4	2	3	2	6	3	12	6

Source: ENCOVI 2000-2006.

6.9 Since overall poverty fell between 2000 and 2006, and there is an overall improvement in consumption levels along the distribution of per capita consumption, then going beyond averages and looking into households and workers from households at different points of the distribution is useful to understand the changes underlying the observed poverty reduction. For that purpose, we divide the population in quintiles of per capita consumption, and investigate the evolution of different sources of resources within each quintile. Given that poverty fell from 56 to 51 percent of the population, special

focus is directed to the **third quintile** (poorest 40-60 percent of the population) since these are individuals from households in the proximity of the poverty line.

6.10 In terms of the different sources of resources for different quintiles, we find that (Table 6.1, columns 3-8): all bottom three quintiles have substantially increased the use of **remittances** between 2000 and 2006; so much so that they have reached or are close to reaching the levels exhibited by wealthier portions of the population (quintiles 4 and 5). In particular, for remittances coming **from abroad**, the prevalence has grown proportionately more among poorer households and, except for the poorest 20 percent, now prevalence is similar across all quintiles.

6.11 In terms of income generated from **labor**, the bottom quintiles are changing their structure of sources towards one that resembles more closely the structure exhibited by the richer quintiles. This new structure includes:

- (a) a decline in the proportion of households deriving income from wages from agriculture, in favor of self-employed agricultural work;
- (b) a rise in the share of households that use the non-agricultural sector as a source of resources, both from wages and independently generated net income; and
- (c) increases in both formal and informal employment.

After these changes, the relative importance of the non-agricultural sector for the poorer population is now very close to that for the richer population; in agriculture; however, the gap still persists, with the poorer households using agriculture significantly more than the richer ones.

6.12 There has been a strong increase in the share of households that diversify the generation of resources across agricultural and non-agricultural sectors, that is, the proportion of households that have some members working in agriculture and some members in non-agriculture has grown from 24 to 37 percent, at the national level. Especially noteworthy is the increase in diversification that has taken place in the poorer households (Figure 6.1). In the bottom two quintiles of the consumption distribution, the poorer 40 percent of the population, the prevalence of diversification surpasses the barrier of 50 percent. A likely contributing factor to this phenomenon is the improvement in road density. As household members are more mobile the possibilities of working in both agriculture and non-agriculture rise up. Infrastructure and roads are discussed in more detail later on in this Chapter.

### **Households' Returns from Each Income Source<sup>73</sup>**

6.13 At the national level, per capita income has risen during the 2000-2006 period, although at a modest rate (~10 percent), but this is masking dissimilar evolution of

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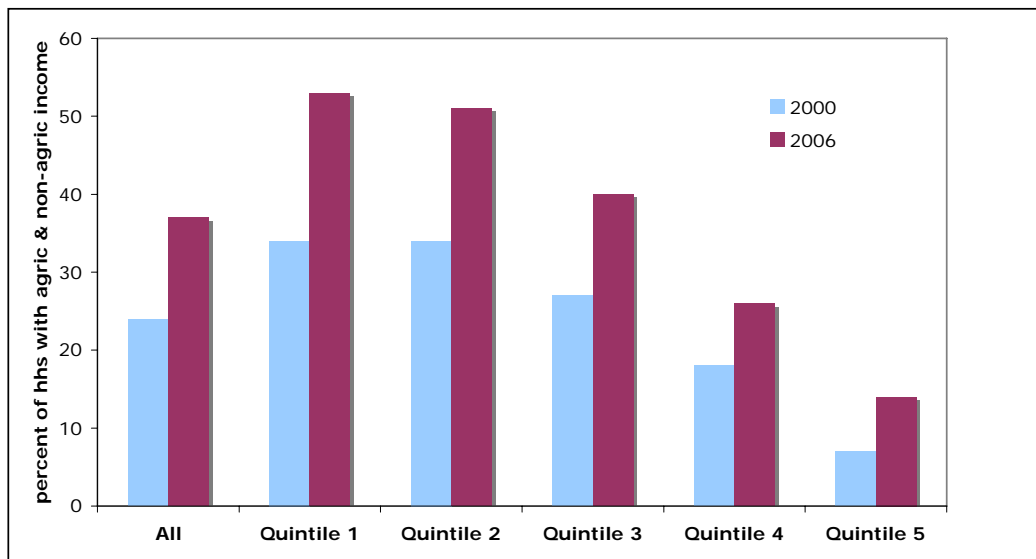
<sup>73</sup> Except when noted, all monetary figures in this chapter are in real Quetzals of 2006.



returns from each source. A sharp contrast stands out when comparing income generated from labor with income stemming from remittances (Table 6.2, columns 1-2):

- Among those households that receive **remittances**, the amount has increased strongly, at a rate of close to 30 percent since 2000.
- In contrast, income provided by household's paid workers has evolved at a significantly lower pace. Still, it is to be highlighted that progress has been made, noting that changes in income from labor vary substantially depending on employment sector and occupation of household members.
- For those households that generate income from the **agricultural sector**, income from wages has increased by about 10 percent, while income from independent work has risen by 20 percent.
- Within the **non-agricultural sector**, household per capita income generated from self-employment has increased by a third; on the contrary, those resources generated from wages have fallen by a fifth.

**Figure 6.1: Household Income Diversification across Agricultural and Non-Agricultural Sectors, by Quintile of Per Capita Consumption**



Source: ENCOVI 2000-2006.

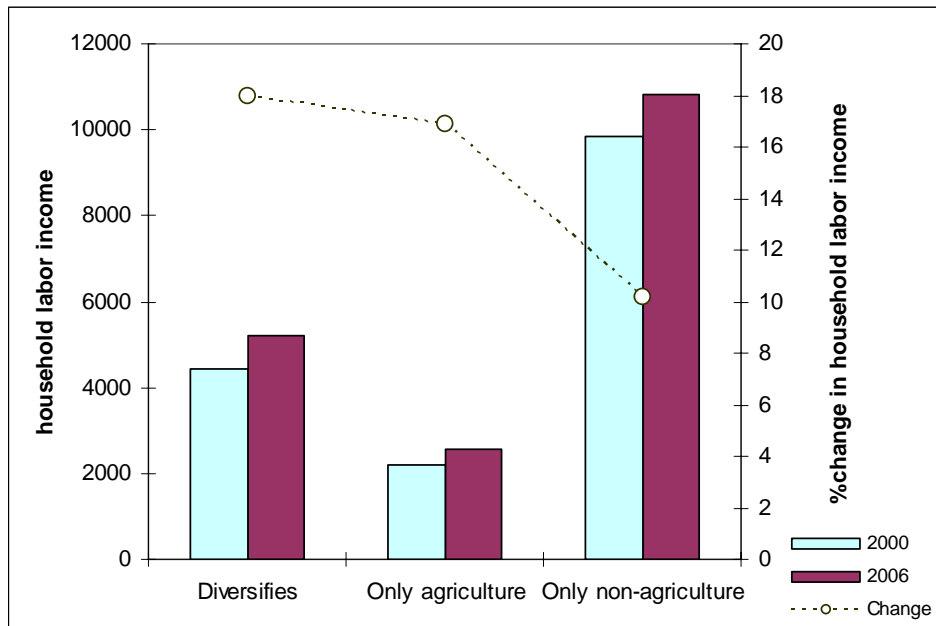
**Table 6.2. Average return from each source of income**

Income Source	QUINTILES OF PER CAPITA EXPENDITURE											
	ALL		QUINTIL 1		QUINTIL 2		QUINTIL 3		QUINTIL 4		QUINTIL 5	
	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
total income	8950	9786	2432	2867	3766	4638	5735	6961	8361	10537	24428	23990
non-labor income	2394	2597	556	636	909	1053	1419	1575	2106	2581	7186	7541
remittances	1474	1970	623	807	714	1163	1197	1493	1462	2230	2422	3837
rem. from abroad	2185	2754	1071	1178	1317	1675	1983	2159	2184	3197	3022	4728
labor income	6849	7527	1913	2274	2931	3672	4487	5569	6562	8440	18825	18141
agriculture												
employee	2104	2319	1434	1427	1875	2049	2419	2901	3701	3398	6326	8086
self-employed	947	1145	450	611	696	788	865	950	1532	1649	4227	4920
non-agriculture												
employee	8048	6474	1764	1552	2803	2892	4616	4595	6605	6899	16907	14143
self-employed	3664	4901	991	1063	1571	1844	1890	2942	2437	4810	8549	10989

Real Quetzals of 2006. Source: ENCOVI 2000-2006.

**6.14 Households that diversify have experienced a faster rate of income growth.** In households that have workers in both agriculture and non-agriculture, income from labor activities has risen by 18 percent, almost twice as much as households that fully specialize in non-agricultural activities. In addition, households that diversify are able to improve their level of income *vis-à-vis* households that are fully specialized in agricultural sector (Figure 6.2).

**Figure 6.2 Evolution of income across households by whether they diversify across agriculture and non-agriculture**



Source: ENCOVI 2000-2006.

6.15 Across quintiles of the consumption distribution, household per capita income of the poorer households (quintiles 1 through 3) has increased at a faster rate than the national average. This holds for non-labor income and, especially so, for labor income (Table 6.2, columns 3-8): i) within non-labor income sources, the average size of **remittances** has strongly increased regardless of socioeconomic status (per capita consumption), although the rate of increase has been faster for richer households; and ii) within labor income, resources arising from **agricultural** wages and from **non-agricultural** self-employment have increased importantly in the third quintile where, as a reminder, the national poverty line is binding.

### Box 6.1 Comparison between consumption and income

Capturing income and consumption with household surveys is known to be a major challenge. The evidence suggests that consumption reports are more reliable than income reports in terms of capturing socio-economic status. That is why it is preferable to study poverty with poverty lines constructed on the basis of consumption, and that is the approach we adopt in this report.

One of the main criticisms received by household survey's income measures is the concern that individuals might have incentives to under-report their income. To illustrate and better understand the extent of the discrepancy between consumption and income per capita, we compare them for the entire population and for different quintiles of the consumption distribution (Table 1).

Table 1. Comparison between consumption and income per capita, 2006

	All	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
consumption (a)	9,555	2,756	4,427	6,474	9,925	24,201
income (b)	9,786	2,867	4,638	6,961	10,537	23,990
ratio (a)/(b)	0.976	0.961	0.954	0.930	0.942	1.009

Source: ENCOVI 2006.

We find that, as expected, in richer households (Quintile 5) under-reporting incentives are higher. In fact, for this group, and only for this group, the ratio between consumption and income becomes higher than 1.

### Income Profile for the Average Household

6.16 For an average household in Guatemala, we find that among changes in the prevalence of the different sources of income, and changes in income derived from each source, the average household's income profile has remained relatively unchanged (Table 6.3, columns 1-2).

6.17 The average household in Guatemala obtains three fourths of its income from labor activities, and the rest from non-labor sources. Within non-labor sources, the relative importance of **remittances** has roughly doubled, and they now provide one every

four quetzals of non-labor income. Out of every 100 quetzals of labor income, 15 come from **agriculture** and 85 come from non-agricultural sources. This remained unchanged from 2000 to 2006.

6.18 For the average household, however, there are substantial changes within each sector: i) within **agriculture**, the relative importance of self-employment income has strongly increased, to the point where it now represents half the agricultural resources for an average household; ii) within **non-agriculture**, the relative importance of resources from self-employment has also increased, but just mildly, and still the majority (two thirds,) of non-agricultural income is derived from wages.

6.19 For an average household in each of the different socioeconomic status groups (quintiles), the income profile (Table 6.3, columns 3-8) shows that there is an overall movement of poorer households towards a structure more similar to richer ones, who have a profile slightly more based on non-labor income than the rest.

6.20 Although the relative importance of **remittances** has increased for the average household all along the consumption distribution, the rise has been twice as much in the poorer households than in the richest quintile, given that they have become more prevalent among the poorer. For all households, remittances represented between 11 to 17 percent in 2000. Six years later, remittances represent 30 to 35 percent in the bottom three quintiles, while only 18 percent for the richest quintile. In other words, poorer households have become more dependent on remittances than richer ones.

6.21 Within labor sources, poorer households' income profile has become more similar to that of richer households, increasing the relative importance of non-agriculture at the expense of agriculture. Within **agriculture**, the profile of income sources of poorer households has shifted towards self-employment, again to resemble more closely that of the richer population. Likewise, within **non-agriculture** self-employment has increased its share for the average household of poorer quintiles.

**Table 6.3. Income profile of the average household**

	QUINTILES OF PER CAPITA EXPENDITURE											
	ALL		Quintile 1		Quintile 2		Quintile 3		Quintile 4		Quintile 5	
	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
total income	100	100	100	100	100	100	100	100	100	100	100	100
<b>non-labor income</b>	<b>26</b>	<b>26</b>	<b>23</b>	<b>22</b>	<b>24</b>	<b>22</b>	<b>24</b>	<b>22</b>	<b>24</b>	<b>23</b>	<b>28</b>	<b>29</b>
<i>remittances</i>	13	25	13	30	14	35	16	33	17	32	11	18
<i>social programs</i>	11	6	37	24	32	17	26	12	14	7	3	1
<i>other</i>	76	69	50	46	53	48	57	55	69	60	86	81
<b>labor income</b>	<b>74</b>	<b>74</b>	<b>77</b>	<b>78</b>	<b>76</b>	<b>78</b>	<b>76</b>	<b>78</b>	<b>76</b>	<b>77</b>	<b>72</b>	<b>71</b>
<i>agriculture</i>	15	15	62	51	44	35	25	20	14	10	4	7
employee	69	50	80	59	73	57	73	58	66	40	43	34
informal	44	38	49	50	47	46	43	37	33	30	46	12
formal	56	62	51	50	53	54	57	63	67	70	54	88
self-employed	31	50	20	41	27	43	27	42	34	60	57	66
informal	84	90	92	90	89	94	84	92	92	91	68	85
formal	16	10	8	10	11	6	16	8	8	9	32	15
<i>non-agriculture</i>	85	85	38	49	56	65	75	80	86	90	96	93
employee	75	67	66	73	69	71	78	69	79	68	74	64
informal	21	21	51	46	53	45	36	32	25	21	12	12
formal	79	79	49	54	47	55	64	68	75	79	88	88
self-employed	25	33	34	27	31	29	22	31	21	32	26	36
informal	77	95	87	99	92	98	93	96	91	97	69	93
formal	23	5	13	1	8	2	7	4	9	3	31	7

Source: ENCOVI 2000-2006.

6.22 Finally, given that remittances face a risk of reduction in the near future (see Chapter 7), in order to understand the impact it may have on poverty it is useful to analyze how relevant are international remittances in terms of consumption per capita. Among the poor that receive international remittances, these transfers finance almost 40 percent of their consumption. In contrast, the consumption of the non-poor depend significantly less on remittances (27 percent). Overall, since a little less than a fifth of the population receive remittances, around 6 percent of the consumption of an average poor person is financed by international remittances.

**Table 6.2 International Remittances for Poverty Groups, Guatemala 2000, 2006**

		Non Poor		All Poor	
		2000	2006	2000	2006
Every body	Percentage receiving remittances	12.8%	19.3%	6.1%	14.4%
	Average remittance received (Q./year) <sup>a</sup>	256	762	64	237
	Average consumption (Q./year) <sup>a</sup>	10,754	15,565	2,580	4,063
	<b>Average remittance/Consumption</b>	<b>2.4%</b>	<b>4.9%</b>	<b>2.5%</b>	<b>5.8%</b>
People in HH with remittances	Percentage receiving remittances	100%	100%	100%	100%
	Average remittance received (Q./year) <sup>a</sup>	1,998	3,957	1,045	1,651
	Average consumption (Q./year) <sup>a</sup>	10,178	14,659	2,856	4,335
	<b>Average remittance/Consumption</b>	<b>19.6%</b>	<b>27.0%</b>	<b>36.6%</b>	<b>38.1%</b>
# of persons (thousands)		4,988	6,362	6,398	6,626
Total remittances (million Q./year)		1,277.9	4,847.0	406.5	1,570.4

<sup>a</sup> Nominal Quetzals.

Source: ENCOVI 2000-2006.

We have now reviewed household resources and their evolution. We have described changes in different sources, including non-labor and labor income. The latter ultimately depends on the performance of individuals in the labor market. Therefore, we next turn the focus to track the evolution and changes, or lack thereof, of labor market outcomes.

### EVOLUTION OF LABOR MARKET AND PRODUCTIVITY

6.23 **The overall structure of the labor market has changed very little.** The basic labor market indicators show small or no changes between 2000 and 2006:

- **Labor force participation** remains relatively constant, two out of every three working age individuals (ages 15-64) are working or looking for a job.
- **Unemployment** rate remains low, at around 2 percent of the individuals in the labor force.
- **Informality** has changed very little, its incidence remains high since it affects 64 percent of the workers.
- Informality across sectors has not changed over time, with agriculture and commerce exhibiting relatively higher levels (around 75 percent), and services the lowest (45 percent).
- The **distribution of employment** across sectors exhibits small changes. Although agriculture is still the main source of employment, its relative importance has (modestly) declined from 35 percent to 29 percent of the working population. This change has not been in favor of any particular sector. Manufacturing, commerce, construction and services have each become a little more important as sources of employment.
- The **structure of occupations** has changed little, working as private employee remains the main form of occupation, followed by independent or own-account workers; together they account for two thirds of total employment.

6.24 **Labor productivity, judged by earnings, shows positive albeit slow signs of progress.** Labor earnings have increased 5 percent between 2000 and 2006, which is less than 1 percent per year on average. Since hours of work have decreased over this period, productivity measured by hourly earnings has increased at an average of 3 percent per year.<sup>74</sup> In other words, changes in hourly earnings can be decomposed into changes in hours of work and changes in earnings. Two thirds of the increase in this measure of productivity are due to hours and one third is due to earnings.

**Table 6.4. Distribution of Employment across Sectors and Occupations, 2000-2006**

	2000	2006		2000	2006
<b>Sector of Employment</b>			<b>Occupation</b>		
agriculture	35.3	29.2	public employee	5.4	5.8
manufacture	14.4	16.7	private employee	31.0	35.3
construction	6.0	7.3	blue collar	12.3	9.1
commerce	22.2	23.0	domestic employee	3.4	3.3
services	21.7	23.6	own-account	28.8	29.1
			employer	4.9	3.7
			unpaid worker	14.3	13.7

All figures in percentage terms. Source: ENCOVI 2000-2006.

<sup>74</sup> It is not entirely clear that hours of work are falling over time because the survey questions that capture hours of work have changed substantially. In 2000, persons were asked about “total hours worked last week”. In 2006, workers are asked about hours of work on a daily basis, i.e. hours of work on Monday, Tuesday, etc. See Box 6.2.

**Box 6.2 Is time allocation changing in Guatemala between 2000-2006?**

The number of hours per week that an individual allocates to work seems to be falling over time. For the average worker weekly hours of work were 49 in 2000, and 44 in 2006. However this apparent 10 percent reduction could be masking differences in the design of the survey questionnaire. In essence, the section that gathers information on hours of work changed substantially from ENCOVI 2000 to ENCOVI 2006. In the baseline round, workers are questioned on “hours of work per week”, while in the follow-up round, workers respond on “hours of work per day of the week”. This structural difference makes it difficult to compare the hours measure across rounds, and ultimately to establish that Guatemalans have reduced their weekly work load.

One way to address this limitation is to exploit the time allocation section of the survey. This section remained essentially intact between rounds, and it collects information on hours and minutes allocated in the last 24 hours to an array of activities, including: working for pay, working without pay, doing house work and chores, studying, attending school, commuting to and from work, doing recreational activities, and sleeping and resting. We can use this information to have a better assessment of whether and by how much are hours spent working changing between 2000-2006. We proceed by computing total time allocated to work and to the above mentioned categories for each year, and testing whether there have been (statistically) significant changes in the use of time during the period. Because our ultimate goal is to use hours of work to construct a measure of labor productivity, our sample of interest is individuals who work for pay.

The results are presented in Table A5.1. We find that: a) while workers have reduced the time allocated to work, the size of reduction amounts to less than 2 percent, b) in a period real income is rising, workers are consuming more leisure (recreation and resting), c) time allocated to studying has increased, reflecting the improvements in educational attainment over the period (this is more clearly and properly seen when considering the subsample of individuals younger than 25—not shown here—amongst which study hours have more than doubled).

**Table A5.1. Changes in use of time of average worker**

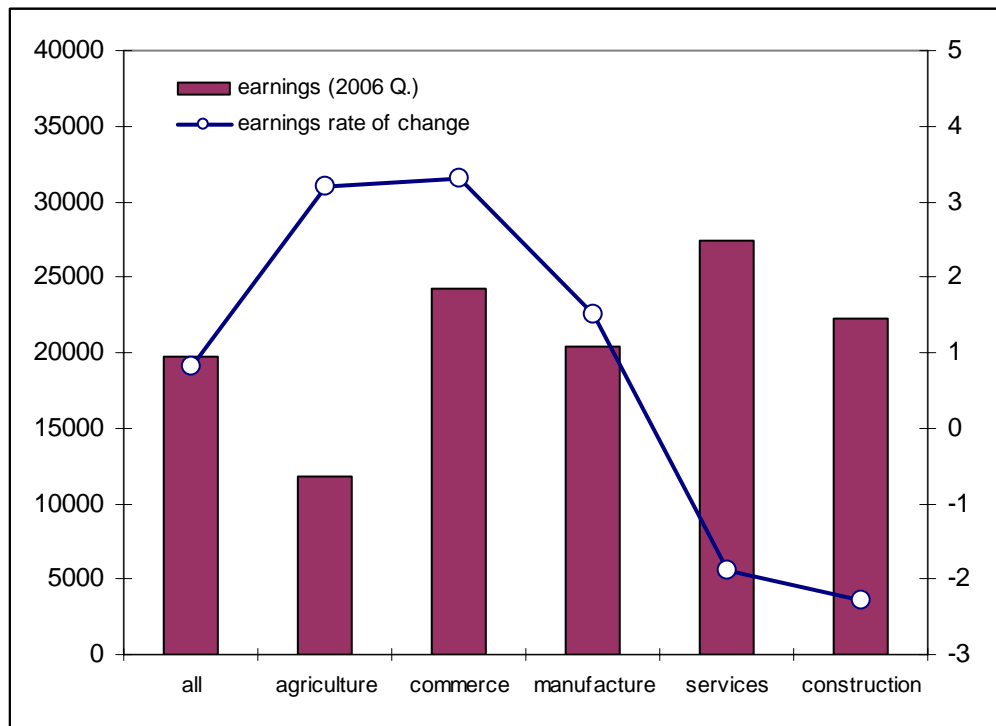
	<b>Average 2000 (hours)</b>	<b>Change in 2000-2006 (minutes)</b>	<b>Change in 2000-2006 (percent)</b>	<b>Change statistically significant*</b>
paid work	8.2	-9.5	-1.9	yes
sleeping/resting	9.5	6.7	1.2	yes
recreation	1.3	30.0	38.2	yes
commuting	0.8	4.0	8.7	yes
unpaid work	0.1	-0.4	-7.6	
house work	2.7	-9.8	-6.1	yes
studying	0.1	1.7	27.6	yes
other	0.4	0.5	2.2	

\*: significance at 5% level. Study sample: workers ages 15-64. Source: ENCOVI 2000-2006.

In conclusion, the labor section of the ENCOVI overstates the reduction in hours of work. Using the comparable time allocation section of the survey, we find that work time has only mildly decreased.



**Figure 6.3. Labor Earnings: Levels and Rate of Change**



Earnings levels correspond to 2006. Rate of change corresponds to average annual change between 2000 and 2006.  
Source: ENCOVI 2000-2006.

**6.25 Agriculture has been the leading sector in terms of productivity improvements.** Earnings have evolved differently across different sectors of the economy.

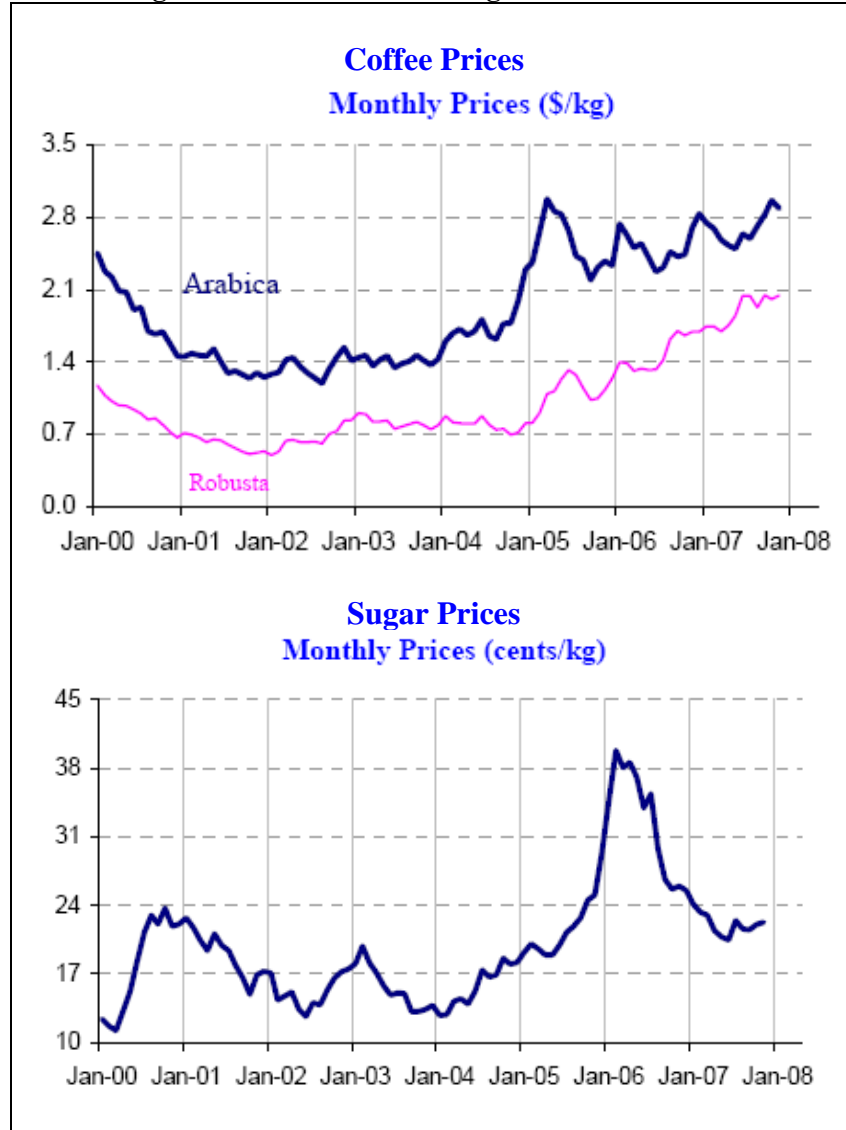
- Agriculture continues to be the sector yielding lowest average earnings, but returns are increasing at a good rate (3 percent per year on average over 2000-2006).
- Earnings in commerce have improved at a similar rate as in agriculture.
- While returns in manufacturing are growing, the improvement is only half of that in agriculture and commerce.
- In the services and construction sectors earnings have fallen at an average close to 2 percent per year.<sup>75</sup>
- When taking into account that hours of work are decreasing in all sectors but relatively more in agriculture, it can be seen by this measure of productivity that agriculture has been the leading sector of Guatemala's economy during 2000-2006.

**6.26 The recuperation of prices in main products lies behind the improvement in agricultural returns.** The coffee industry took a big hit earlier in the century when world coffee prices collapsed. Export revenues from this crop fell from close to \$580 million in 1999 to \$268 million in 2002 (World Bank 2005). Since then prices have recovered, to the point where they have surpassed their pre-crisis levels. Additionally, the sugar

<sup>75</sup> There are not enough observations in the survey to analyze the mining sector, so it is omitted from the discussion.

industry, Guatemala's second most important agricultural product, also experienced a tremendous price recovery, although prices have trended downwards since 2006 (Figure 6.2).

**Figure 6.4. Prices of Main Agricultural Products**



Source: World Bank, Development Prospects, 2007.

**6.27 Changes in productivity are driven by growth in earnings in the informal jobs.** On average, informal earnings in the period under study have increased while earnings in formal jobs have not. The growth in informal returns is primarily led by higher returns from the commerce, agriculture and manufacturing sectors (both in total and hourly earnings)

6.28 **Formal earnings (total and per hour) are trending downwards in all sectors and occupations, with the exception of agriculture.** Agricultural formal hourly earnings have increased at more than 3 percent per year, but more than half of the increase is due to a reduction in hours of work rather than increases in total earnings.

6.29 To better understand the role of labor productivity and labor markets in the reduction in overall poverty observed between 2000 and 2006, it is convenient to break the analysis of productivity along the distribution of consumption per capita. Consumption levels are increasing, in real terms, for the entire population. The overall poverty line, in real terms, has not changed. As a result, a lower share of households is under the poverty line. What is the role of labor productivity in these consumption changes, and therefore, in reducing poverty? We study productivity within each quintile of the consumption distribution. The main conclusions of the analysis are exposed subsequently.

6.30 There have been increases in the percentage of **workers with multiple jobs**, especially amongst workers in the **first three quintiles**; as a result, now around a fourth of the poorest workers hold more than one job. Furthermore, there have been increases in the proportion of **workers that diversify** across agriculture and non-agriculture, with stronger increases in the **first three quintiles** of the consumption distribution. Now, fewer than half of the workers with two jobs in the second and third quintiles diversify across sectors (down from a third)

6.31 The share of **workers in agriculture has decreased strongly for quintiles 2 and 3**, and also but less so for quintiles 1 and 4. Taking quintile 3 as reference, the decrease in the relative importance of agriculture has been in favor of a relative increase in manufacturing, and to a less extent, of services, construction and commerce. In the bottom two quintiles the decrease in the relative importance of agriculture is in favor of services, construction and manufacturing (not commerce). Nevertheless, **there is still a sharp gap between quintiles**, 2 thirds of the poorest workers are in agriculture as primary activity and only 7 percent of the richest workers are in that activity. Meanwhile, only 8 percent of the poorest work in services and more than 40 percent of the richest workers are in services

6.32 **Total and hourly labor earnings are improving for poorer households**, especially in agriculture, manufacturing and commerce, and the services sector (particularly for the 2<sup>nd</sup> quintile). This shows that the decrease in services earnings at the national level is masking heterogeneity within the consumption distribution. Rates of increase in hourly earnings are around 30 percent, only half the change is due to increases in total earnings, the other half by decrease in hours. The **rates of improvement in earnings in the poorer quintiles are faster than in the richest quintile**, implying some convergence and inequality reduction are taking place. There have been **no changes in informality within any quintile**; remains between 3 quarters to 2 thirds for the poorest workers, and less than one half for the richest, but **earnings are improving relatively more in the informal sector** than in the formal sector across all quintiles.

## IMPROVING THE TREND: FOCUS ON BOTTLENECKS TO PRODUCTIVITY

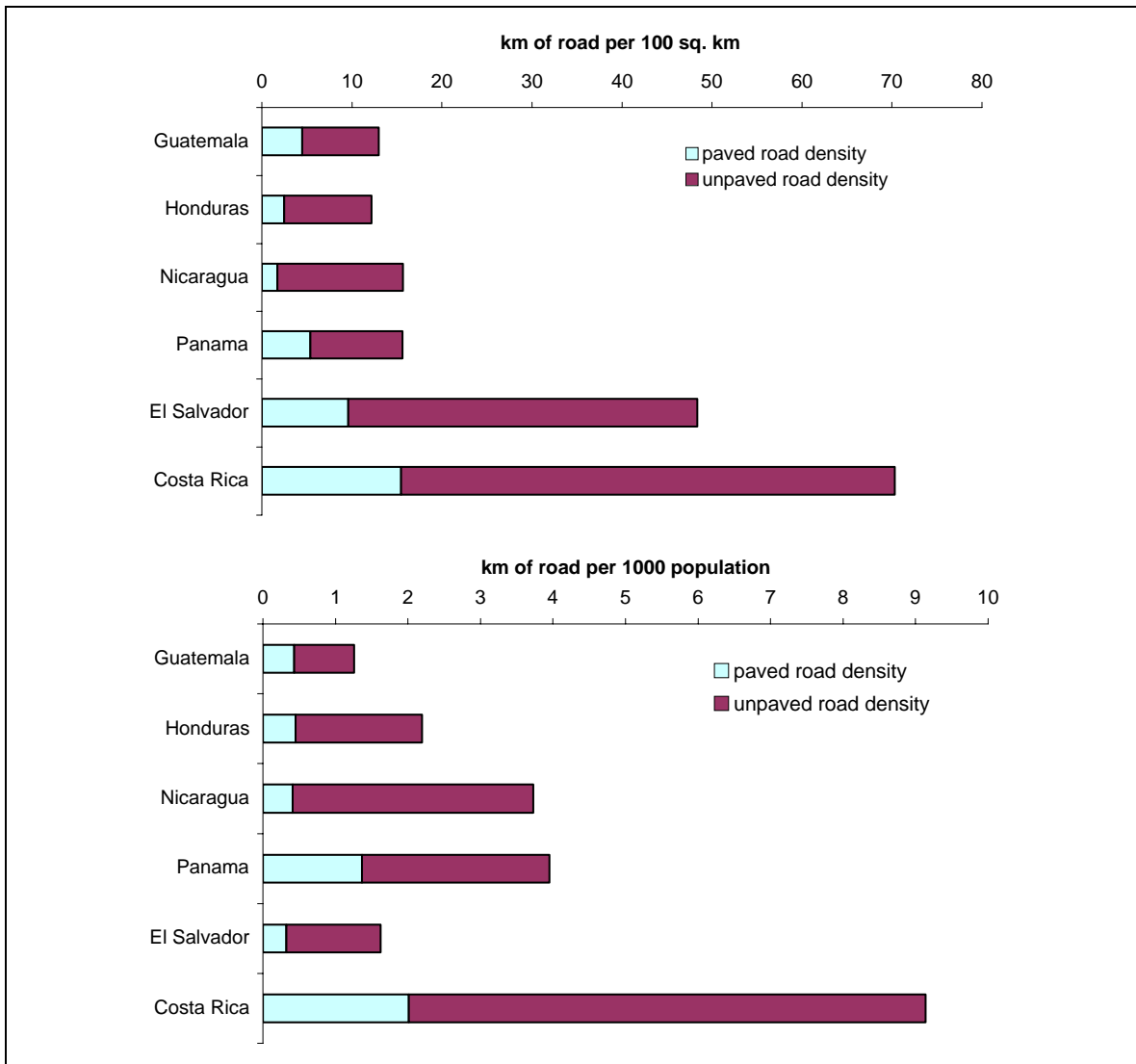
**6.33 Productivity has evolved modestly but favorably. What can be done to further improve the results Guatemala is obtaining?** Evidence from firms (Enterprise Survey 2006, World Economic Forum Executive Opinion Survey 2006) shows that the main constraints for investment and competitiveness are: crime and violence, bureaucracy, corruption, poor infrastructure and unskilled labor force. Guatemala has been making progress in these fronts in the last years, and that is reflected in the achieved economic growth and poverty reduction:

- Guatemala has undertaken a process of reforms that have improved the legal and institutional framework, which have placed the country as one of the top ten reformers in the world (Doing Business 2007).
- Education indicators, as shown in previous chapters, are also improving, and as these new cohorts enter the labor market it will raise the quality of the labor force.
- Transport infrastructure has seen progress as well, with the share of paved roads growing from 25 percent in 1997 to almost 45 percent in 2006 (World Development Indicators). There have also been efforts to increase connectivity of rural locations. With the support of the World Bank, rural roads were improved in the department of San Marcos, and then extended to Huehuetenango.

**6.34 The positive trend is encouraging, but there is still a long way to go.** Although road infrastructure is improving, within the Central American economies, Guatemala has the **poorest road infrastructure**. Guatemala's total road density, whether measured relative to territory or population, is lower than all other countries of the region (Figure 6.5). This is a note of caution considering that road infrastructure of the Central American countries is precarious by Latin American standards. In the 2007 Enterprise Survey, 20 percent of manufacturing firms consider transport a major or severe constraint, the highest in Central America and among the top five in the region (World Bank 2008).

**6.35 Poor road infrastructure affects productivity in a number of ways.** First, the most obvious and pervasive is the limited access to markets. This has a strong implication that is unobservable from available surveys: investments that are halted and do not take place due to the lack of adequate transport infrastructure. Second, focusing on those investments that do take place, a precarious transport infrastructure exerts its influence, among other channels, through increases in logistics costs, losses caused by damaged shipments, elevated inventory costs, and more uncertainty to business operations.

**Figure 6.5. Road Infrastructure in Guatemala & Central American Countries**



Source: World Development Indicators

**6.36 Inadequacy of skills of the labor force remains a crucial bottleneck to business in Guatemala.** In both 2003 and 2007 Enterprise Surveys around 30 percent of firms consider lack of education of workforce a major or severe constraint to business. This percentage is higher than any other Central American country, except for El Salvador. As the new better educated cohorts join the labor market, this constraint is expected to loosen up. In the meantime and as a complement, on-the-job training may be useful to bridge the gap. However, Guatemalan manufacturing firms provide on average less training than all their Central American counterparts, except for Nicaragua (World Bank 2008).

**6.37 Policy implications:** in the wake of DR-CAFTA and an era that presents Guatemala with opportunities to deepen the progress achieved in the last few years, the country should benefit from improving its competitiveness by relieving constraints and

setting conditions for business development and investment generation. Albeit suggestive, evidence from household and enterprise surveys indicates that infrastructure, in particular roads and transport, is a key area of intervention. Improving productivity in the context of low tariff barriers to trade, needs to be accompanied by easing domestic barriers to the movement of goods. Projects in the northern part of the country are in-tune with this, and efforts should be directed towards the design of a strategy that takes into account both construction and maintenance of a better road network. That infrastructure can be an important driver of productivity growth and poverty reduction is further illustrated in the next section, which presents a comparative study of the contrasting evolution of two regions of Guatemala.

6.38 The government should consider training programs aimed at improving the quality of the labor force. Guatemala is at a human capital disadvantage compared to neighboring countries, and that might limit the benefits from free trade. International evidence (Mexico, Peru, Colombia, Argentina, and Chile) suggests that lifelong learning programs could be an effective tool to improve on the quality of existing workers that have surpassed the school-age. Private-public partnerships, with private demand and design of training contents and public financing to overcome the lack of incentives to provide training by firms that cannot fully capture the fruits of such investment could be explored.

6.39 The government should also continue with the institutional reform program to reduce red-tape-type of barriers. That firms cite **regulations** as a main obstacle for doing business helps to explain why the size of the **informal economy** remains high, with the addition that labor productivity has improved in the informal sector, but not in the formal one.

6.40 Crime and violence are indeed part of the policy agenda, and are treated separately in Chapter 7. Unlike the previous areas of intervention, this is partly a regional issue, given the role that drug-trafficking and deportations play in the problem, and therefore the policy toolkit includes measures that exceed the control of Guatemalan authorities.

6.41 The next section of the chapter aims at shedding further light on the factors that may contribute to poverty reduction, by studying the curious case of two regions that are next to each other but have experienced opposite evolution in terms of poverty.

### **REGIONAL CONTRASTS IN POVERTY EVOLUTION**

6.42 The two single most important changes in poverty have taken place in the neighboring regions of the Northeast and Southeast, with the provocative difference that the poverty changes have been in opposite directions. Poverty in the Southeast has declined by 14 percentage points while extreme poverty in the Northeast has increased in 11 percentage points.

**Table 6.5. Regional Contrasts in Poverty Changes**

	Extreme Poverty		Overall Poverty	
	2000	2006	2000	2006
Southeast	20.2	14.0	68.5	54.4
Northeast	9.0	20.0	51.8	53.3

Source: ENCOVI 2000-2006.

**6.43 The socio-demographic composition of the Northeast and Southeast regions has evolved in similar ways.** The population of these regions has not changed differently between 2000 and 2006, in magnitude or composition. Moreover, these regions are demographically very similar. Both regions have roughly the same number of inhabitants, and demographic composition looks remarkably similar. Hence, differences in composition of the population and its trend over time due to phenomena like migration do not seem to be the reason behind the very different observed changes in poverty.

**Table 6.6. Demographic characteristics of regions Northeast and Southeast, 2000-2006**

	Northeast		Southeast	
	2000	2006	2000	2006
population (thousands)	933	1073	999	1038
urban	25.8	32.7	23.0	32.7
male	48.7	48.9	48.8	47.9
indigenous	15.6	13.1	4.1	7.1
age 14 or less	43.4	41.6	44.3	42.0
age 15-20	11.9	12.5	13.4	12.3
age 21-25	8.6	7.9	7.0	8.3
age 26-35	10.8	11.7	11.5	11.4
age 36-50	13.2	13.0	12.8	12.7
age 51-64	7.1	7.6	7.1	7.1
age 65+	5.0	5.7	4.0	6.2
literacy	53.5	60.5	55.2	60.2
education (years)	3.2	3.7	2.9	3.4
no formal education	48.5	41.8	46.5	41.5
pre-primary	0.9	1.8	0.5	2.1
primary incomplete	28.8	30.1	34.4	33.3
primary	9.4	10.9	9.9	11.3
secondary incomplete	7.7	9.4	5.9	8.0
secondary	3.4	4.3	1.7	2.7
superior	1.3	1.6	1.0	1.1
#households (thousands)	193	224	188	217
household size (members)	4.9	4.8	5.3	4.8
head female	18.5	24.2	16.6	24.1
head's education (years)	4.1	4.4	3.6	3.8

All numbers in percentage except when noted. Source: ENCOVI 2000-2006.

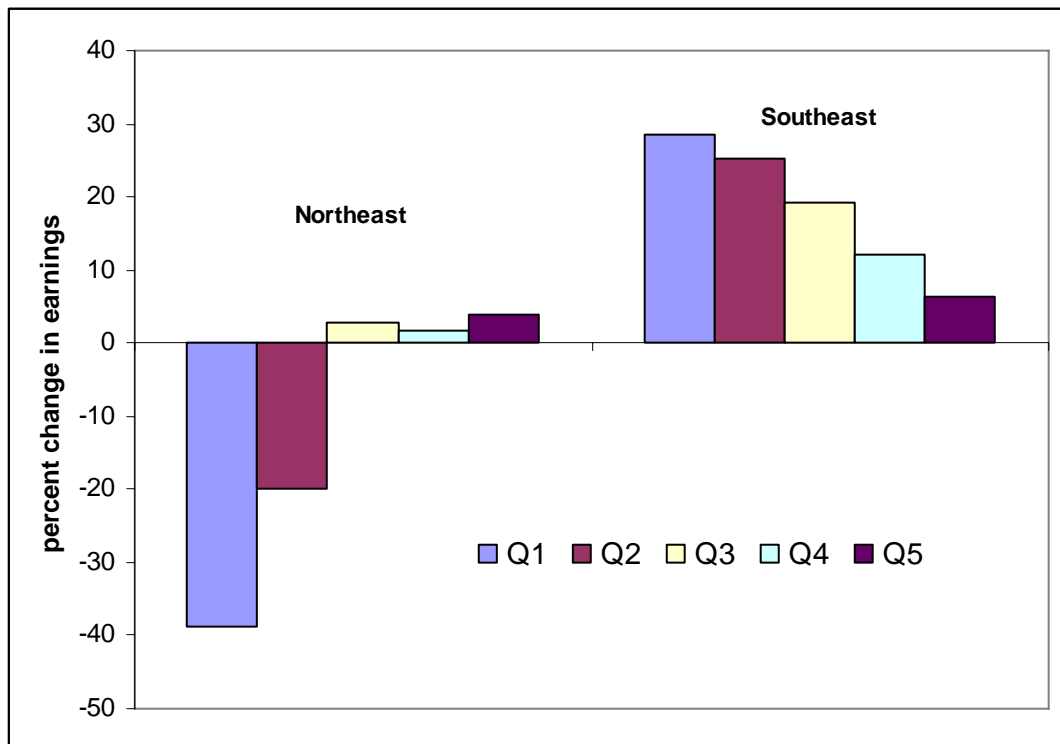
**6.44 The sharp contrast in the evolution of labor productivity is a fundamental reason behind the contrast in poverty changes.** Differences in labor market trends are

behind the main causes of the observed differences in poverty changes across the Northeast and Southeast.

6.45 The Northeast presents a scenario of drastic declines in labor earnings for the poorer workers; workers from households in the bottom quintiles of the consumption distribution, among which extreme poverty is increasing 11 points, are seeing drops in their labor returns of between 40 and 20 percent.

6.46 In the Southeast all workers have seen important improvements in their returns, but especially so those workers of poorer households. The improvements are even more salient when considering hourly earnings, since hours of work fell during the period.

**Figure 6.6. Change in Earnings 2000-2006, the Northeast and Southeast regions, by quintile**



Source: ENCOVI 2000-2006.

6.47 **Labor markets in the Southeast allow for a better diversification of activities.** Workers in the Southeast have strongly improved the ability to access a second source of labor income, to complement and diversify the returns of their labor. The percent of workers holding more than job has almost doubled for poorer workers in the 2000-2006 period. Moreover, this phenomenon is characterized by a diversification across agriculture and non-agriculture. That is, workers are more able to insure against sector-specific risks by having links to activities in both sectors.

6.48 **In the Northeast, workers have experienced a decline in the ability to diversify and complement the returns of their labor.** In the poorest 40 percent of the region's households, workers can branch out their labor to a second job much less than 6 years ago. This capacity has dropped by a third; the percentage of workers with a second



job has fallen from 30 to 20 percent. Furthermore, diversification across sectors for poorer workers is more difficult than before. Now less than 5 percent of the workers have links to both agricultural and non-agricultural sectors.

6.49 In 2000, the Northeast and Southeast did not differ in the sources of employment and earnings from labor, but since then they have followed different paths. In the Southeast, where poverty is falling, there has been a general trend to switch out of agriculture as the primary source of employment, and work in construction, commerce and services sectors. Earnings are growing in every sector, especially commerce. All in all, the Southeast has become a more diversified economy that is generating higher labor returns across sectors. As a note of caution, all this is taking place with an increase in the incidence of informality that has taken place across all sectors.

6.50 In the Northeast, in the aggregate workers rely on agriculture as much as before, and the poorest have even increased their dependency on agriculture as source of employment. Overall, labor earnings have not seen significant increases in any sector of the Northeast economy, with the poorer taking a big hit in their agricultural (and main source of) income.

6.51 **The agricultural sector has followed different trends across the Northeast and Southeast.** Given the relative importance of agriculture for the poor, and the dissimilar evolution of this sector across the Northeast and Southeast, we investigate this sector in more detail: i) in the Southeast, the production is more diversified than in the Northeast, with a large proportion of households growing coffee and beans aside from the main subsistence crop, corn. In both regions growing beans has become more usual, unlike coffee which has become more common practice only in the Northeast; and ii) what they do with the production of their farms sheds a bit more light to understand dissimilar poverty trends. In the Northeast, households in the poorest quintile (those around the extreme poverty line) are losing their connection to markets; a lower share of their production gets sold. By contrast, in the Southeast there is a trend amongst poor households to sell higher share of their production, especially in the fourth quintile (near the overall poverty line) of the consumption distribution (Table 6.7).

**Table 6.7. Type of produce and share of production sold, NE and SE regions, 2000-2006, quintiles of per capita consumption**

	Quintile 1		Quintile 2		Quintile 3		Quintile 4		Quintile 5	
	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006
<b>SE</b>										
coffee	29%	28%	31%	18%	35%	21%	43%	27%	41%	24%
bean	69%	70%	62%	78%	59%	68%	54%	61%	46%	64%
corn	98%	98%	97%	97%	93%	96%	92%	93%	86%	88%
share sold	17%	25%	26%	28%	35%	32%	<b>33%</b>	<b>41%</b>	52%	48%
<b>NE</b>										
coffee	7%	17%	1%	18%	0%	17%	19%	12%	9%	7%
bean	37%	66%	44%	63%	39%	50%	44%	62%	50%	37%
corn	99%	98%	79%	95%	92%	90%	80%	92%	79%	87%
share sold	<b>27%</b>	<b>23%</b>	25%	35%	24%	34%	28%	40%	32%	39%

Source: ENCOVI 2000-2006. Note: other crops like cardamom, banana, are not included due to low number of observations.

6.52 Underlying differences in infrastructure, precipitations and soil conditions are at the core of the observed differences in labor market and agricultural performance. Recent evidence by the World Bank (2005) finds that the region occupied by the Southeast has better access to infrastructure, with higher road density and coverage, and more favorable topographical conditions (soil type and quality, soil depth and slope) than the Northeast. All in all, the Southeast offers a setting with higher economic and agricultural potential than the Northeast.

6.53 According to the Guatemalan authority in hydrology and meteorology, (INSIVUMEH, 2008), the area where the Northeast is situated is exposed to higher risks of droughts and more variable precipitation conditions. The Northeast is right to the East of what is called “*Corredor Seco*” (dry runway), where apart from droughts there is a tendency to have inconsistent patterns of rain, with some periods receiving excess rain followed by long periods of lack of rain.

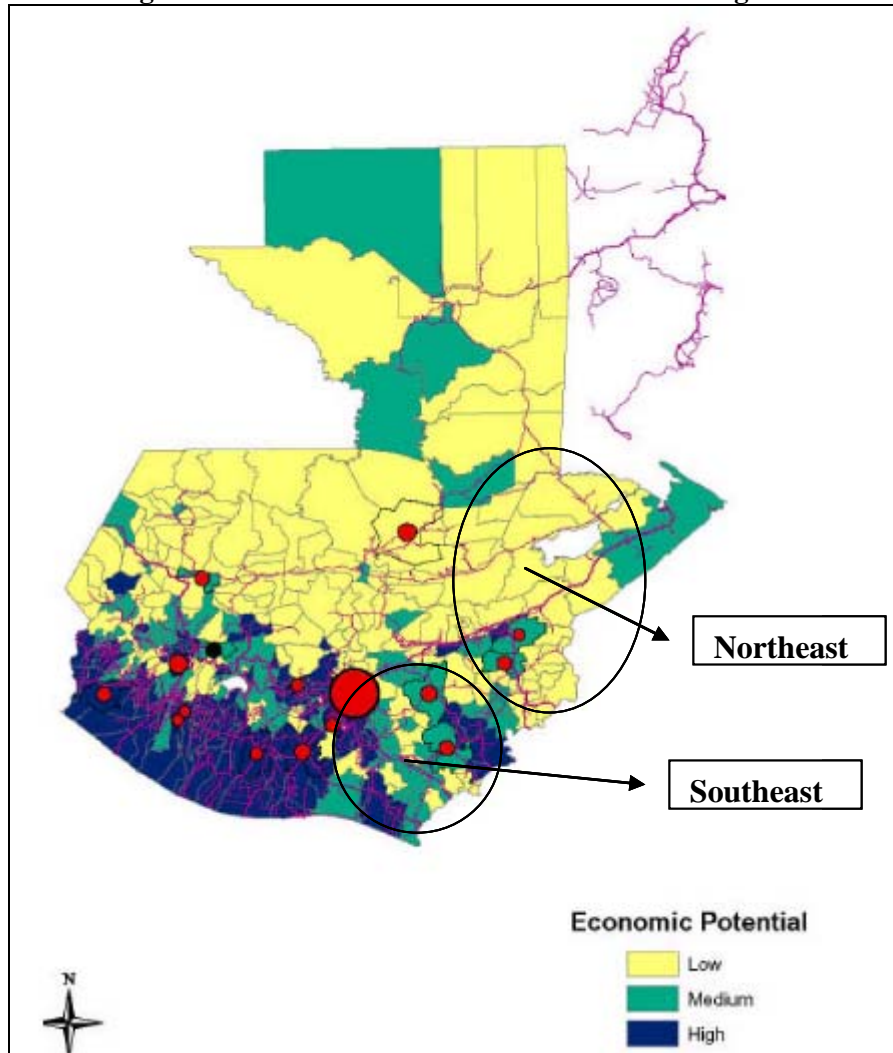
6.54 These **contrasting experiences** observed in two neighboring regions have **important policy implications** for what to expect and what can be done in the years to come, in an environment of high food prices that is expected to remain for at least five more years.

6.55 Given the prospects of free trade and high food prices in the near future, it is key for the government to generate the complementarities needed for food producers to capture the benefits of that environment.<sup>76</sup> Investment in infrastructure, strengthened road networks and facilitated mobility will lower transport and transaction costs, ease connection to markets of agricultural production, and enable individuals to diversify their activities across agriculture and non-agriculture.

<sup>76</sup> In ongoing work, we are analyzing whether in this region there is a prevalence of net-producers or net-consumers of food, which give a more complete idea of how the rise in food prices might impact these regions.

6.56 Moreover, the government should strengthen safety nets and social assistance mechanisms to ensure that they are in place and functional for areas subject to worse rain and weather conditions. Droughts and irrigation variability escape the control of policymakers, but good policy should learn from past experiences (see Stan in next chapter) to consolidate a strong and effective system that aims at minimizing the unavoidable losses caused by natural disasters.

**Figure 6.7. Economic Potential of Guatemalan Regions**



Source: Guatemala Drivers of Rural Growth, p. 26, World Bank (2005)



## CHAPTER 7. SHOCKS AND VULNERABILITY

7.1 There are events and conditions beyond the control of individual households that influence the wellbeing of its members. Poor households are more vulnerable to these “external factors” and changes that do not look significant for the country as a whole, can have an important negative impact on their wellbeing. Traditionally, **weather events** are included in this category but other type of incidents such as **reduction in remittances**, **food price changes** and **crime and violence** are also important and thus considered in this chapter

7.2 There are two characteristics used to classify a household or person as vulnerable to negative shocks: a high probability of being affected and, more important, having few resources or means to deal with the shock. The particular conditions of the poor -their and lack of savings and other means to compensate for an unexpected lose-; make them especially susceptible or vulnerable.

7.3 For example, poor quality construction materials used to build their houses or location in unsafe terrain make poor households more susceptible to experience important losses due to extreme weather conditions. Having a higher share of their consumption dedicated to food made poor households more sensitive to food price increases over time. Also remittances for poor households represent a higher share of their total income and hence, are less able to cope with them. Crime and violence are not more prevalent in poor households but certainly the ability to prevent them, replace stolen property or deal with a physical attack is much lower for the poor.

7.4 The present study aims at providing some insight regarding the impact of shocks, remittances, food prices, and crime and violence; however, it is not a substitute for a more comprehensive analysis on each of these factors. This study is part of a longer time frame engagement between the World Bank and the Guatemalan Government, and more in depth analysis should follow up.

7.5 Several conclusions and recommendations emerge from the chapter:

- a. Hurricane Stan showed the high level vulnerability level of many Guatemalan households and the lack of preparation to face natural disasters. The government of Guatemala should improve disaster prevention plans.
- b. Remittances have dramatically increased with more families (poor and non poor) receiving international remittances in 2006. International remittances represent 38.1 percent of the poor’s consumption<sup>77</sup>. Up to Mach 2008 and according the Bank of Guatemala, international remittances growth rate have not decreased. Nevertheless, given the worsening economic climate in the United States and the poor’s dependency on remittances, the government of Guatemala should be prepared to deal with a possible reduction of remittances in the future.
- c. During the last year (April 2007 to April 2008) food price increases have only a limited impact in Guatemala but, given the high levels of vulnerability experienced

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<sup>77</sup> For poor households receiving remittances.

by the poor, the Government of Guatemala should follow up very closely the evolution of prices and supply levels and take all necessary precautions to avert a crisis. The Government of Guatemala ten point plan to deal with food price increases is the appropriate type of preventive measure necessary. Implementation of the plan should not be delayed<sup>78</sup>.

- d. Crime and violence is a severe problem, and it is on the rise. High impunity and social exclusion, an ineffective crime justice system, and youth facing a decision problem with perverse incentives are some of the factors contributing to criminal activity. An integral, serious approach should be designed and implemented based on prevention, action by local communities and improvement of the police and judicial systems.
- e. The roll and dynamics of shocks, potential remittances' reduction, food price changes and violence should be explored further. The results presented in this study are only preliminary and more in-depth work is necessary to understand fully the impact on the poor and how the government can better address these emerging problems.

### HURRICANE STAN<sup>79</sup>

7.6 During the first ten days of October 2005 hurricane Stan affected Guatemala, specially the South West region along the Pacific Ocean. According to the National Agency for Disaster Relief (CONRED), 1,372 communities were negatively impacted, over fifteen hundred persons died or disappeared, and 30 thousand houses and 349 schools were damaged.<sup>80</sup>

7.7 The week after Stan, FAO conducted a 397 family interview in 142 communities concluding that: *(i)* over one million persons (150,000 families) were negatively affected by Stan; *(ii)* staple grain production loses ranged between 45 and 65 percent in the Occidente Region, 30 percent in the Oriente region, and between 60 to 90 percent in the Pacific Cost Region; *(iii)* a 2004 drought had increased the vulnerability of the poor making it even more difficult to cope with Stan; *(iv)* stock animal weathered the storm much better than crops, *(v)* the rain fall experienced during Stan shouldn't have produced as much damage as reported; and *(vi)* there are structural problems within a very vulnerable sector of the population without the tools to cope with natural disasters.

7.8 By 2006, 20.3 percent of Guatemalan households answered yes to the ENCOVI question: Was your household impacted by Stan last year? Important variations by region and poverty groups were found. **Poor households endured a disproportionately greater impact from Stan.** Poor households reported

**Table 7.1 Incidence of Stan in Guatemala 2005**

National	20.3%	Nororiente	10.4%
All Poor	25.8%	Suroriente	38.3%
Non Poor	16.7%	Central	31.2%
Region		Suroccidente	41.7%
Metropolitana	6.4%	Noroccidente	12.4%
Norte	1.9%	Petén	4.2%

Source: World Bank staff estimates based on ENCOVI 2006

<sup>78</sup> The plan is divided in three areas: (i) solidarity accords to slow price inflation for selected agricultural products; (ii) solidarity actions to promote agricultural production and costs reductions; and (ii) economic stability, investment promotion and increased competition.

<sup>79</sup> Technically, Stan was classified as a Thunderstorm.

<sup>80</sup> CEPAL-SEGEPLAN, UNDP Reporte del Impacto de la Tormenta Stan en Guatemala.

being affected by Stan 25.8 percent of the time compared to 16.7 percent of non poor households (Table 7.1). Stan incidence was highest in the Suroccidente (Southwest), Suroriente (Southeast) and Central Regions.

7.9 **Crop losses were by far the most common damage associated with Stan** (68.7 percent), followed by housing (30.6 percent), goods and animals (13.6 percent each). Other losses such as vehicles, businesses, people or other were reported by less than 10 percent of households.<sup>81</sup>

7.10 **The Guatemalan government was not prepared to deal with natural disasters such as Stan.** Few households received government assistance due to Stan. Indeed, only one in ten affected households reported any government assistance.<sup>82</sup> **The most common government assistance type was food (84.5 percent)**, followed by clothing (31.6 percent), medicine (18.1 percent), and shelter (15.8 percent).<sup>83</sup>

## REMITTANCES

7.11 Remittances (not migration) are not controlled by the household members. For households receiving remittances, changes in the amount and frequency received can be an important assistance (for positive changes) or shock (for negative changes) to their budget. International remittances received in Guatemala are related to the economic conditions of the country of origin, mainly the United States. Migratory policy changes in the country of origin can also improve or hinder the remittances sent to Guatemala.

7.12 To measure the overall impact of migration in the country one has to take into consideration the added income provided by the remittances and the forgone income contribution that the migrant would have provided if she or he had stayed and worked at home (the counter-factual scenario). Previous studies covering the impact of migration are mentioned, but for this study migration is considered to be fixed and the only variable being analyzed is remittances.

7.13 Using the Guatemala ENCOVI 2000 data set, the overall impact of remittances was estimated by Adams, 2004 and Acosta et. al. 2007. In both cases the counter-factual case was taken into account, obtaining an overall impact of remittances in poverty.

7.14 Adams found that “internal and international remittances reduce the level, depth and severity of poverty in Guatemala” with the greatest impact shown on severity being reduced by as much as 19.8 percent. Acosta also found important reductions in the distribution of income, remittances were specifically associated with a 1.8 percent reduction in the Gini coefficient and a 6.3 percentage points decrease in the US\$2 (PPP) a day poverty rate<sup>84</sup>.

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<sup>81</sup> 2006 Guatemala ENCOVI

<sup>82</sup> Assistance was also provided by international organizations (3%), private entities (2%), NGOs (2%), churches (4%) and the community (2%).

<sup>83</sup> Other forms of assistance were labor tools (6.1%), construction materials (6.0%), and cash (1.1%). Households reported more than one type of government assistance. Source: ENCOVI 2006.

<sup>84</sup> From 41.7 to 39.1 percent.

7.15 Due to the slow down of the economic growth in the United States of America, remittances from the US to Guatemala are expected to decrease in the future. The government of Guatemala might implement policies to palliate the negative impact of remittances reduction on the poor. To have an idea of the size of such government program it would be useful to know how much of the international remittances are received by the poor, and how much would be needed to compensate for specific remittances reductions. By 2006, 14.4 percent of the poor received remittances and for those households, the remittances value was, in average 38.1 percent of consumption (Table 6.X)

7.16 The minimum cost to compensate for the poor's income reduction will vary according to the remittances reduction. For example, **if remittances decreased by 30 percent, it will cost the Government of Guatemala at least Q. 471.1 million per year or 0.21% of GDP to keep the poor's average income from falling (ceteris paribus)** (Table 7.2). This is a lower bound estimate; the cost of any program to transfer such amounts would additionally have administrative transaction costs and leakages (benefits received by the non-poor), increasing the total bill. Also, identification of the persons whose income was decreased by the international remittances reductions is impossible and difficult to justify. Any government intervention should be directed to the poor and not to specific groups within them. A cash transfer can compensate the average income decrease of the poor and the poverty gap increase but not the wellbeing of specific households.

**Table 7.2 Estimated Cost of Remittances Reduction on the Poor, Guatemala**

Reduction in remittances	Reduction in poor's income	
	Total cost value for the Poor (Q. m./year)	Cost as % of GDP
<b>10 percent</b>	157.0	0.07%
<b>20 percent</b>	314.1	0.14%
<b>30 percent</b>	471.1	0.21%
<b>40 percent</b>	628.1	0.27%
<b>50 percent</b>	785.2	0.34%

Source: World Bank staff estimates based on ENCOVI 2006

7.17 The role of remittances in reducing poverty has increased over time. Calculating poverty without remittances provides us with an upper level<sup>85</sup> estimate of the impact of remittances. By comparing poverty changes of differences over time, the evolution of the effect of remittances was estimated. The results are presented in Table 7.3. **Increase in**

<sup>85</sup> It is the appropriate level for national remittances because consumption by the person sending the remittance was reduced and included in the survey. For international remittances, it is also the appropriate level for households receiving remittances from migrants since 2000 or earlier. It is an upper level estimate for households whose members migrated between 2000 and 2006 because it assumes the migrant did not have any impact on the household consumption level in 2000. In other words, no counterfactual case was estimated for international remittances.



all remittances<sup>86</sup> received between 2000 and 2006 reduced extreme poverty up to 3.1 percentage points and overall poverty up to 2.5 percentage points.

**Table 7.3 Poverty Headcount With and Without All<sup>a</sup> Remittances, Guatemala 2000 and 2006**

Poverty		Year		Change
		2000	2006	
Extreme	Headcount official estimate	15.7%	15.2%	
	Headcount without remittances	17.7%	20.4%	
	Estimated impact of remittances increases	-2.1%	-5.1%	-3.1%
Overall	Headcount official estimate	56.1%	51.0%	
	Headcount without remittances	58.0%	55.3%	
	Estimated impact of remittances increases	-1.9%	-4.3%	-2.5%

<sup>a</sup> International and national (local) remittances

Source: World Bank staff estimates based on ENCOVI 2000 and 2006

## FOOD PRICES

7.18 Global food commodity prices have increased dramatically in the past few years, with a variety of implications for the welfare of people in the developing world. During the last twelve months, food prices have increased in Guatemala 14.5 percent while overall inflation was estimated at 10.4 percent for the same period of time<sup>87</sup>.

7.19 Increases in food prices will typically have a larger effect on the poor. In general, the overall price index in each country is constructed using a particular basket of goods. While methods vary, the basket is intended to reflect what a “typical” person consumes and is usually determined using mean or median information on consumption patterns. The poor, however, have consumption patterns that differ systematically from the overall population. Most importantly, a greater portion of a poor person’s consumption is devoted to food than is the case for an average consumer in the same country.

7.20 To assess the extra burden for poor households in Guatemala, Busjeet et. al. (2008) estimated a Poor Person Price Index (PPPI). The PPPI takes the food and non-food components of the overall price index (the Consumer Price Index, CPI) and re-weights them to reflect the higher food share for the poor. Using this methodology, a 0.9% yearly decline in the poor’s purchasing power was estimated in Guatemala.

**7.21 Applying the same methodology to the household level produces more precise estimates of the impact on the poor’s purchasing power poverty headcount, depth and severity of poverty.** Using the ENCOVI 2006 household survey a more precise application of the methodology was applied: instead of re-weighting using the overall

<sup>86</sup> To evaluate the redistributive impact, international and national (local) remittances were included.

<sup>87</sup> Guatemalan Central Bank’s Web Page, based on information provided by the National Statistics Institute of Guatemala from April 2007 to April 2008.

food share of the poor as a group, individual food shares were used.<sup>88</sup> The impact on the headcount, depth and severity of poverty and extreme poverty are presented in Table 7.4.

**7.22 The extra burden endured by poor households is only marginally higher than that experienced by the rest of the population.** The inflation differential between the CPI and food inflation during the last twelve months (4.1 percentage points) had a small impact on overall poverty. Poverty increased 0.8 percent (0.4 percentage points) due to the consumption characteristics of the poor.

**7.23 The impact of food inflation is higher on the extreme poor and on the Depth and Severity indexes.** Indeed, the estimated impact on extreme poverty (3.9 percent) is higher for overall poverty. Depth and Severity increases are estimated at 1.7 and 2.5 percent for overall poverty and at 4.8 and 5.9 percent for extreme poverty (Table 7.4).

**Table 7.4 Estimated Impact of Food Price Increases in Guatemala**

	Overall Poverty FGT's			Extreme Poverty FGT's		
	Headcount	FGT1	FGT2	Headcount	FGT1	FGT2
<b>Percentage Points</b>	0.4%	0.3%	0.2%	0.6%	0.2%	0.1%
<b>Percentage</b>	0.8%	1.7%	2.5%	3.9%	4.8%	5.9%

Note: FGT stands for the Foster-Greer-Thorbecke (Foster et. al., 1984)

Source: World Bank staff estimates based on ENCOVI 2006 and CPI official numbers.

**7.24** The analysis has some limitations: it overestimates the impact of food inflation by not taking into consideration substitution effects and it does not include possible income increases for net food producers. A more detailed analysis using increases on individual commodity prices and considering the food increase on producers would improve the accuracy of the results when estimating the impact on households. It is important to recognize that while overall impact is not significant, there might be special groups more sensitive to food price increases and less able to cope even with small changes. Special attention should be given to the most vulnerable and provisions for further food price increases are necessary.

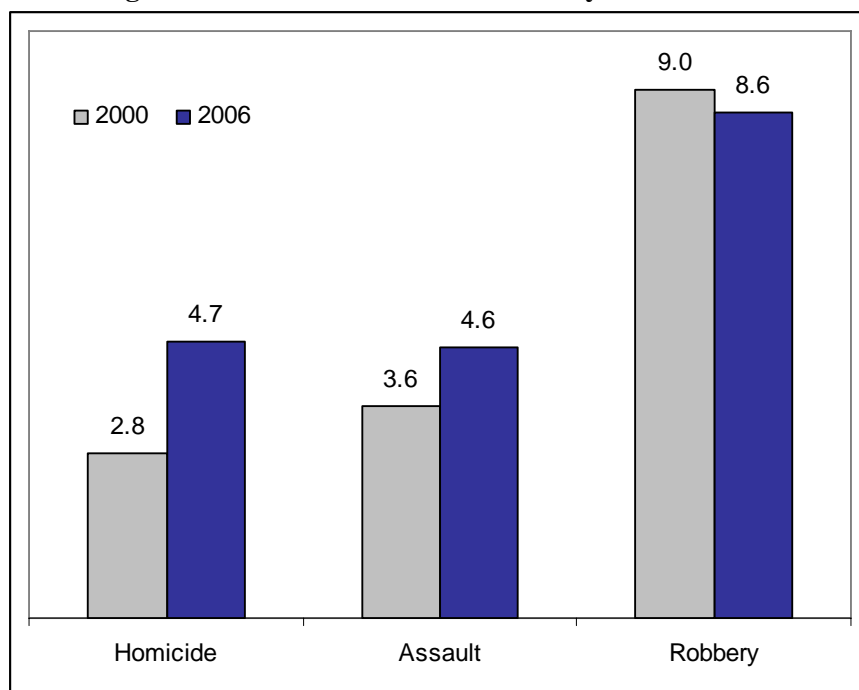
## CRIME AND VIOLENCE IN GUATEMALA<sup>89</sup>

**7.25 Crime and violence is a severe problem, and is on the rise.** During the period 2000-2006, violent crime, measured by number of homicides, has more than doubled, reaching almost 6,000 cases in 2006. This translates into a homicide rate of 4.7 homicides for every ten thousand inhabitants, which places Guatemala among the top ten most violent countries in the world. Furthermore, over a 12 month period, one in every five households suffers at least once of some form of victimization; most commonly, robbery or assault. Moreover, assaults increased by 27 percent between 2000 and 2006. All this in a context of rising drug traffic, and the increasing problem from *maras* (gangs) fed by deportees from the United States.

<sup>88</sup> The entire sample was first sorted by per capita consumption and then divided into one hundred groups of equal size. Each group food share was used to re-weight the CPI and to estimate the real change in purchasing power for each household.

<sup>89</sup> This section summarizes some of the preliminary findings of an ongoing Crime and Violence study by The World Bank for Central America.

**Figure 7.1 Crime and Violence Severity and Evolution**



Homicides measured in cases per ten thousand persons. Assault and robbery in %.  
Sources: Guatemala National Police and ENCOVI 2000-2006.

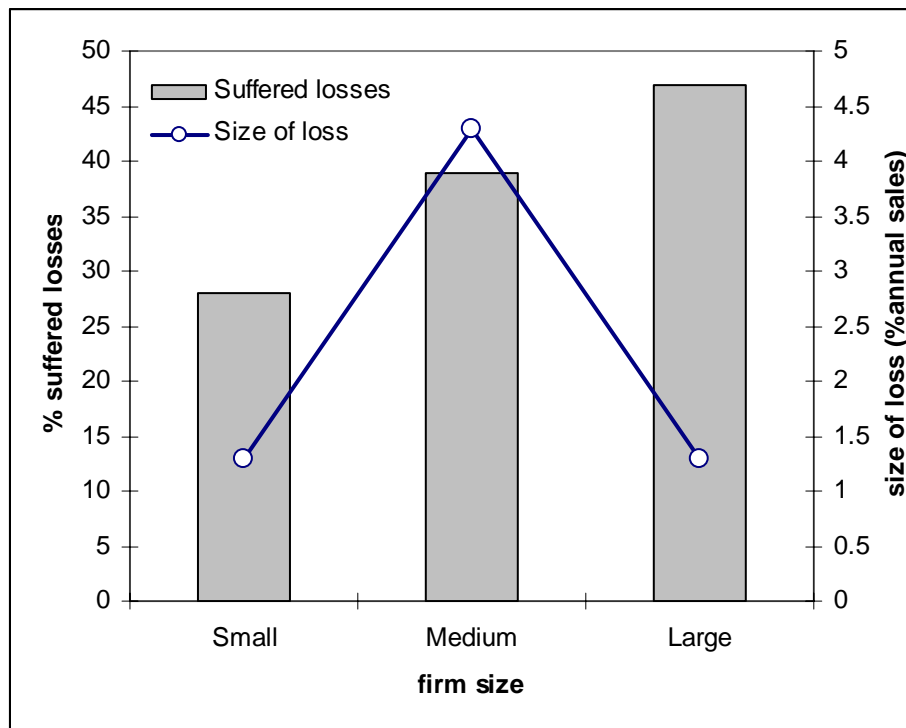
7.26 High impunity and social exclusion are behind the major causes of the severity and worsening of the crime and violence problems. Criminality is a terribly complex social problem, the result of the action and interaction of a number of cultural, institutional and economic factors. In Guatemala, the history of armed conflict is often mentioned among the main reasons behind the high levels of violence. It is also acknowledged, however, that the roots of the problem and the reasons behind its growth are more related to institutional weakness and social exclusion.

- The **criminal justice system does not seem to be working well**. Less than 2 percent of the homicides end in a conviction (UNDP 2007). As a result, few crimes are even reported to the police. In fact, reporting of robberies has declined from 30 percent to 20 percent between 2000 and 2006. In most cases, the reason for not reporting is that the victim “does not believe it would do any good” (ENCOVI 2000-2006).
- The **youth face a decision problem with perverse incentives**. While international evidence shows that school plays a crucial role in keeping the youth out of criminal activities, Guatemalan schooling rates in the secondary level are remarkably low. Lack of formal education and skills make it difficult to find good quality jobs. This scenario of low schooling, lack of opportunities and low probability of punishment increases the risk of youth engaging in illegal activities.

7.27 **Crime poses obstacles to business and employment generation**. An environment of high crime can affect the business climate by halting investment decisions and, when investment is made, by “taxing” it with losses caused by crime and security costs incurred to prevent losses caused by it. In other words, by posing obstacles

on investment and the creation of employment, crime further fuels the process of perverse incentives. Enterprise Surveys from the World Bank reveal that firms consider crime as an extremely serious problem. In 2003, 84 percent of firms considered crime and violence a major obstacle to business development. More than a third (36%) of firms reported direct losses due to crime, including nearly half (47%) of large firms. Losses for a medium size firm reached on average more than 4 percent of its annual sales, even higher than losses in comparable countries like El Salvador and Honduras.

**Figure 7.2 Firms' Losses Caused by Crime**



Source: Own elaboration based on Demombynes and Hincapie (2008).

**7.28 Policy options.** Attacking a problem with the complexity of crime and violence requires an integral approach. An effective solution involves a combination of strategies for crime prevention (likely to yield returns in the medium to long run) and crime control (with more immediate returns). Local and international evidence suggests that an effective set of policies should include (World Bank 2007):

- a. Prevention approaches that reduce individual risk factors; for example: school, home visitation, social development, and gun control programs
- b. Programs based on crime prevention through environmental design (CPTED), aimed at reducing violence by focusing on the settings of crime rather than the perpetrators; for example: local level, urban renewal, and slum upgrading programs
- c. Approaches of community-driven development (CDD), focusing on building social capital, trust, and cohesion
- d. Deterring and controlling crime by strengthening the police and judicial systems, a deep reform that solves the problem of impunity and establishes effective punishments that deters criminality.

## CONCLUSIONS

7.29 Guatemalans live with high levels of vulnerability. The country is not prepared to appropriately deal with unexpected natural disasters, changes in the international conditions affecting remittances, or changes in international food prices. Lack of personal security, and crime in general, makes the situation even more difficult for the average Guatemalan. These characteristics are not fully incorporated in the poverty estimates but have an important impact on people's well being.

7.30 Improving people's well being in Guatemala and some times maintaining past improvements requires important investment to prepare for unexpected negative impacts from natural disasters or international conditions and crime and violence.



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