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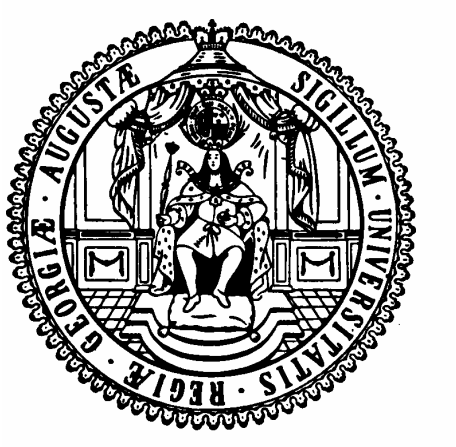

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Operationalizing Pro-Poor Growth
Country Case Study: Bolivia

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Executive Summary

Introduction

This case study examines to what extent Bolivia has been able to achieve pro-poor growth, what the mechanisms of achieving (or failing to achieve) pro-poor growth have been, and what options are available to ensure higher rates of pro-poor growth. The analysis focuses on the period from 1989 to 2003, which spans a time of relatively high growth in the 1990s, and low growth with social and political turmoil in the past few years. In contrast, there have been notable and sustained improvements in social indicators which continued to improve despite the economic slowdown.

Bolivia, a landlocked country with poorly developed infrastructure and a very uneven population distribution, has had a legacy of high economic and social inequality with a strong ethnic dimension. The political system has always been dominated by an urban-based elite and has only recently opened to serious indigenous representation. After a disastrous bout of hyperinflation, Bolivia embarked on a path of structural reforms in the late 1980s, which brought stability and fairly high growth throughout most of the 1990s. Growth decelerated since as a result of external shocks, which reversed some of the gains made in the previous decade. A large share of the population is dependent on subsistence agriculture and informal activities (some illegal including the production of coca leaves), with a small modern agricultural sector, a small formal sector, and a capital-intensive natural resource sector, which generates a large share of export earnings.

Poverty Trends, Profiles, and Pro-Poor Growth

As there are no national poverty data before 1997, we have created a new time series of poverty data from 1989 to 2003 by linking information from urban household surveys with nationally representative Demographic and Health Surveys. The new time series, which is robust to different sensitivity analyses, indicates large differentials in poverty between urban and rural areas. In addition, poverty rates in urban areas responded rapidly to economic opportunities (and the recent slowdown), while poverty in rural areas followed its own dynamic. The extent of poverty reduction in rural areas was moderate, did not affect the headcount ratio much and is partly sensitive to the assumption made in the data matching exercise. Using the Ravallion-Chen measure of pro-poor growth, we find that growth was pro-poor but relatively low throughout the 1990s, but became sharply anti-poor in urban areas since then. In rural areas, growth was slower, but generally more pro-poor. Due to the recent slowdown, pro-poor growth over the entire 1989-2002 period was too slow to lead to significant poverty reduction. A decomposition of poverty reduction shows that about 2/3 of poverty reduction was due to income growth with the remaining share being allocated to a redistribution component which, however, also includes the effect of favorable price shifts for the goods consumed by the poor.

A poverty profile shows considerable regional inequality, with the central highland and valley provinces being affected by much higher poverty, compared to the outlying valley and lowland provinces. The most important correlates of poverty are, apart from the urban/rural divide, ethnic background and education. There is comparatively little gender bias in education (but serious gender gaps persist elsewhere in the formal economy and in the home).

We link the record of pro-poor growth to the sectoral composition of growth and find that urban incomes were closely tied to macroeconomic developments, while rural incomes were more dependent on weather conditions and the coca economy. Consistent with the poverty profile, we also find that Bolivia is a highly segmented society with relatively sharp segmentations along a formal-informal divide, a rural-urban divide, and an ethnic divide. The formal-informal divide is related, among other things, to tight labor market regulation in the

urban formal market, poor credit access for informal producers and other barriers to formalization, relatively little opportunities for migrant workers to gain entry into the formal economy, and the small inherent size of the formal sector. The urban-rural and the ethnic divide are closely related and are partly a legacy of strong discrimination against the indigenous population, little success in modernizing highland agriculture, and little success in generating an income base in rural areas of the highlands and central valleys beyond the coca economy.

Initial Conditions, Policies, and Pro-poor Growth

Initial conditions were unfavorable for linking the poor to the growth process. Among them are an uneven population distribution, high initial inequalities (of land, other assets, human capital, and incomes), and comparative advantages in highly capital-intensive agricultural and resource extraction activities. Moreover, poor governance and the divisive and strife-torn political economy of Bolivia have made stable economic policy-making difficult.

Bolivia's macro policies were narrowly focused on stability, liberalization, and growth with little direct concern for distributional issues. Such a policy stance was feasible as long as the policy environment produced stable growth and some poverty reduction. In the current slowdown, which is largely caused by events beyond Bolivia's control but amplified by its liberalized economy, the legitimacy of this economic model has been seriously questioned.

The tax system is not progressive and the expenditure system generally reaches the poor but is not particularly well targeted. Despite this, a rapid expansion of social sector spending beginning in the mid-1990s, aided by funds freed from the HIPC II debt reduction initiative, has contributed to rapid improvements in health and education indicators (from a relatively low level). Unfortunately, the sustainability of this expansion is highly doubtful given the economic slowdown, the associated decline in tax revenues, and the emergence of huge budget deficits. Buying support for economic reforms through an expansion in social sector spending does not seem to be feasible anymore.

Using a dynamic CGE model we then assess the impact of shocks and policies on pro-poor growth, both to account for the developments of the past and to investigate policy options for the future. In an optimistic baseline scenario, Bolivia could achieve a sustainable 4.7% rate of growth per year with moderate poverty reduction, but a widening urban-rural gap. External shocks such as terms-of-trade shocks, El Niño, and declining capital inflows all served to lower economic growth in the latter half of the 1990s and contributed to rising poverty. Given Bolivia's high degree of dollarization and its dependence on foreign capital, exchange rate and monetary policies can do little to cushion the blow from external shocks.

As far as forward-looking policies are concerned, expansion of natural gas exports will boost growth and reduce urban poverty somewhat, but will lead to rising inequality and rising rural poverty. Labor market and tax reforms have the potential to increase growth and urban poverty reduction, with relatively little impact on rural poverty. The combination of gas exports and labor market and tax reforms would yield the highest outcome in terms of economic growth. If they were combined with transfer programs targeted at the rural poor, they would also lead to significant poverty reduction there. Other targeted interventions in favor of the poor such as improvements in credit access, agricultural technologies, and rural infrastructure have only a small impact on poverty reduction in the medium term, although the impacts are likely to be larger over a longer time horizon.

Institutions and Pro-Poor Growth

Bolivia's institutional environment is difficult and has recently deteriorated considerably given the political uncertainty and social instability. Bolivia scores particularly low on political stability and government effectiveness which is largely due to high perceived levels

of corruption and low judicial reliability. Lack of transparency and voice in the public sector appears to be the main factor responsible for the high levels of corruption. Well-intentioned decentralization aimed to bring the government closer to the people and involve the poor have not (yet?) had the desired outcome due to difficulties in implementation, the loss of fiscal control, and the inability to manage the high expectations of the population. Bolivia's PRSP process, once hailed as a model and enshrined in a permanent National Dialogue Law, is now largely seen as a failure. The goals were too ambitious, there was a serious disconnect between the consultation and the write-up of the strategy, it was too focused on determining how to allocate HIPC resources, there was no thorough discussion of economic policy-making, there was too little emphasis on strengthening the productive capacities of the poor, and by now nobody seems to own this document. As a result, revisions of the PRSP and the associated National Dialogue have stalled. It thus appears that the pay-off to the ambitious decentralization and PRPS processes has been quite low in Bolivia and might have contributed to some of the polarized political debates that currently undermine Bolivia's political and social stability.

Trade Offs between Growth and Poverty Reduction

Using the CGE model, we investigate trade-offs and win-win situations for growth and poverty reduction. Among the win-win scenarios would be a reform of urban labor markets and a tax reform, although the urban poor would benefit more than their rural counterparts. But both policies might face stiff opposition from interest groups and thus are not easily implemented.

The expansion of the natural gas sector appears to cause a trade-off between growth and rural poverty reduction. It raises the growth rate but leads to sharply increasing inequality so that nationwide poverty would fall only moderately, while rural poverty would actually go up. Only if the receipts of gas were channeled as transfer or investment programs into rural areas, could this trade-off be mitigated. The largest effect for pro-poor growth could be achieved if the gas exports, tax and labor market reform were combined with transfer programs that are better targeted to the rural poor than currently.

More fundamentally, the model-based assessments suggest that incremental reforms will have a limited impact on putting Bolivia on a sustainable pro-poor growth trajectory. In particular, it highlights the fundamental constraint imposed by the very low domestic savings rate, which limits growth, increases vulnerability to external events, and limits opportunities for pro-poor policy-making. In addition, the high dualism of the economy is sharply reducing the poverty impact of growth. It thus appears to be necessary to confront some of the deep-seated inequalities in opportunities, resources, and power.

Recommendations for Policy-Making

We find that there is a range of incremental policies that could lift growth and poverty reduction in urban areas, where, in the absence of shocks, poverty reduction is expected to continue in coming years. Among them are policies to develop the gas sector, deregulation of urban labor markets, and income tax reform. The options to reduce rural poverty are much more limited. Our model-based estimates suggest that transfer programs (such as a demand-side transfer program linked to human capital investments) might be the best option, although a combination of investments in rural infrastructure, micro-credit, and agricultural productivity might also be of some help. A combination of such transfer and investment programs with gas exports, tax and labor market reforms might be a politically and economically feasible option.

In addition, there are clear opportunities for improvements in policy-making at the macro and fiscal level. At the macro level, it is critical to develop policies that raise the domestic savings

rate. They could include institutional reforms to widen the coverage of savings, greater public savings (e.g. from the proceeds of gas exports) and, at the international level, further debt relief. In addition, it is necessary to implement, to the extent feasible, policies to reduce dollarization of the economy in order to increase the room to maneuver for an active monetary and exchange rate policy that could support growth and poverty reduction.

Similarly, there are opportunities to increase the progressivity of the tax system and improve the poverty impact of public spending. In addition, policies to strengthen the productive capacities of the poor (such as the *Cadenas Productivas* Initiative and other pro-active policies) should receive the same attention as the expansion of social sector spending has.

Apart from these incremental reforms, it appears urgently necessary to confront some of the deep-seated inequalities in assets, opportunities, resources, and power in Bolivia. Among the policies to consider are revisiting the stalled land reform program, policies to transfer proceeds from natural gas directly to the poor, and policies to increase the voice of Bolivia's marginalized indigenous communities.

Chapter 1: Historical Context

Bolivia is a large land-locked country with low population density (8 people per km2), difficult terrain, and consequently poorly developed transport and communications infrastructure (see Table 1). It is characterized by great economic and social inequalities with deep historical roots. Apart from a Spanish-speaking population (consisting of people of Spanish and mixed descent) that has dominated political and social affairs since independence in the early 19th century, Bolivia also has a very large indigenous population that comprises Aymara-speaking people in the highlands, Quechua-speaking people in the valleys, and smaller ethnic groups in the lowlands and the rainforest. Consequently, Bolivia is one of the most ethnically diverse countries in Latin America. Its index of ethnic fractionalization in 1998 stood at 0.74, compared to an average for Latin America and the Caribbean of 0.42 (Alesina et al. 2003).[1]

Until the revolutionary government of Victor Paz Estenzoro installed in 1952, most indigenous people lived in serf-like arrangements in rural areas. The agrarian reform in 1953 freed the peasants in the highlands and gave them access to land. Since then, subdivisions of land and population pressure have created smaller and smaller land-holdings (minifundismo) and landlessness has recently become a problem. In other parts of the country, particularly the lowlands, large estates dedicated to commercial farming predominate. As a result, the Gini coefficient for land inequality stood at 0.768 in 1989, indicating overall high land concentration similar to other Latin American countries (Deininger and Squire 1998). The other main source of incomes in the highlands, tin and silver mining, became progressively less lucrative and was sharply curtailed in the 1980s. Also here, the indigenous people had been used as forced labor for many centuries and as free miners since the 1950s, who organized themselves in unions. The mines became the breeding ground for considerable labor unrest throughout much of the 1970s and 1980s.

In contrast, the previously largely unpopulated lowlands surrounding Santa Cruz have become the focus of settlement and growth in recent decades, fuelled by a large-scale farming sector as well as the discovery of natural resources (oil and gas).

Starting in the 1970s, Bolivia became a major exporter of coca leaves, the input to cocaine, which became Bolivia's most lucrative cash crop. The coca growing regions (Chapare and Yungas) became the focus of much in-migration (temporary and permanent) from other rural areas, generating considerable remittances. At the same time, under pressure from the United States, Bolivian governments promised coca eradication and pursued it with varying degrees of intensity. In the late 1990s and early 2000s, coca eradication was pursued much more vigorously, leading to a decline in production of some 80% (World Bank 2004b). The ebb and flow of these eradication efforts have played a significant role in the income sources of poor rural households.

[1] The index measures the likelihood that two randomly drawn people from the population belong to different ethnic groups.

Table 1: Bolivia in a Comparative Latin American Perspective, 2001

	Bolivia	Argentina	Brazil	Chile	Ecuador	Guatemala	Paraguay	Peru
Economic Indicators								
GNI per capita (PPP $)	2240.00	10980.00	7070.00	8840.00	2960.00	4380.00	5180.00	4470.00
Average GDP Growth 1994–2001 (%)	3.46	1.48	2.86	5.14	1.64	3.85	1.76	4.30
Average Population Growth 1994–2001 (%)	2.30	1.26	1.30	1.34	1.95	2.63	2.55	1.69
Population density (people per km2)	7.85	13.70	20.39	20.57	46.52	107.75	14.18	20.58
Average Inflation 1999–2001	2.79	-1.06	6.25	3.58	62.00	6.16	7.67	3.07
Average GDP Shares 1999–2001 of								
Agriculture	15.27	4.84	7.99	8.57	10.98	22.83	20.85	8.58
Industry	28.92	27.36	29.88	34.53	36.86	19.82	26.08	29.90
Services	55.81	67.80	62.13	56.90	52.16	57.35	53.07	61.51
Exports	17.66	10.70	11.58	30.44	36.89	19.30	22.42	15.53
Current Account Deficit	-4.97	-3.01	-4.52	-1.24	3.01	-5.72	-2.92	-2.61
Budget Deficit	-4.14	-2.82	n.a.	-0.49	n.a.	n.a.	-2.71	-1.98
Gross Domestic Savings	7.80	15.73	19.74	23.07	24.85	7.72	10.24	18.11
Aid	7.23	0.04	0.05	0.08	1.04	1.36	0.97	0.82
External Debt	65.03	51.15	43.72	51.21	95.52	22.49	41.03	53.73
Human Development and Infrastructure								
Life Expectancy at birth (years)	63.06	74.08	68.31	75.79	70.04	65.23	70.58	69.57
Immunization, DPT (% of children under 12 months)	81.00	82.00	97.00	97.00	90.00	82.00	66.00	85.00
Hospital beds (per 1,000 people)	1.67	3.29	3.11	2.67	1.55	0.98	1.34	1.47
Total Years of Schooling (15+) 2000	5.58	8.83	4.88	7.55	6.41	3.49	6.18	7.58
Adult Illiteracy (%)	14.00	3.09	12.70	4.10	8.16	30.79	6.50	9.80
Female Illiteracy (%)	20.06	3.09	12.75	4.26	9.75	38.21	7.55	14.27
Roads, paved (% of total roads)	6.50	29.40	5.50	19.40	18.90	34.50	9.50	12.80
Roads to surface area (%)	4.90	7.75	20.18	10.55	15.23	12.97	7.25	5.67
Roads to total population (per ‘000)	6.46	5.89	10.14	5.25	3.42	1.27	5.73	2.85
Telephone mainlines (per 1,000 people)	62.21	223.83	217.84	232.51	103.71	64.68	51.24	77.50
Poverty and Inequality Data								
Year	1997	2001	2001	2000	1998	2000	1999	2000
PPP $1 Poverty Incidence	29.40	3.33	8.17	0.97	17.67	15.95	14.86	9.14
PPP $2 Poverty Incidence	51.69	14.31	22.43	9.58	40.77	37.36	30.29	37.71
Gini Coefficient	0.585	0.522	0.585	0.571	0.522	0.483	0.568	0.498

Source: http://www.worldbank.org/research/povmonitor/regional/Latin_America_and_the_Caribbean.htm; Barro and Lee (2000); World Bank (2003a).

Table 2: Basic Economic and Human Development Indicators for Bolivia

	1985-1989	1989-1994	1994-1999	1999-2002
Economic Indicators				
Real GDP growth	1.62	4.08	3.93	2.18
Agriculture excluding mining	0.33	4.10	2.08	2.38
Mining	-0.16	4.07	2.36	2.80
Services excluding public administration	1.21	4.94	6.93	1.47
Public Administration	-0.98	1.88	3.93	2.44
Industry - Manufacturing	2.02	4.40	3.80	1.94
Export growth (goods and services)	15.56	4.08	1.54	0.02
Export growth (merchandise)	5.04	5.89	-0.89	0.09
Export growth (mineral and hydrocarbon)	-0.81	-2.49	-2.81	0.18
Ave. share of mineral and hydrocarbon exports to GDP	13.68	10.17	7.57	7.65
Ave. share of agricultural exports to GDP	2.14	3.87	5.16	5.28
Current Account Deficit	-5.28	-3.53	-6.05	-4.38
Budget Balance	-0.38	-1.92	-2.33	-5.06
Inflation	2414.35	13.41	7.43	3.10
Savings Rate (domestic)	10.91	9.05	10.53	7.52
Investment Rate	14.42	15.15	18.70	15.09
Human Development Indicators				
Population Growth	2.18	2.41	2.33	2.16
Child Mortality	146	122	97	80
Life Expectancy	56.19	58.81	61.03	62.56
Primary Enrollment (male)	100.81	103.29	111.34	116.66
Primary Enrollment (female)	89.80	94.71	106.26	115.07
Secondary Enrollment (male)	42.16	41.69	60.28	81.34
Secondary Enrollment (female)	35.92	35.74	54.54	77.87

Note: Data on GDP growth and current account is taken from UDAPE (various issues) and INE (various issues). Data on exports is taken from UDAPE (various Issues) and WDI (2003). All other data are taken from WDI (World Bank 2003a), covering the years up to 2001.

Source: WDI 2003; UDAPE (various issues); INE (various issues).

Politically, Bolivia oscillated between military dictatorships and civilian rule between the 1950s and the early 1980s when the latest military government was replaced with a democratic one, and democracy has persisted ever since. Bolivia's politics were dominated by three main political parties (MNR, MIR, and ADN) and a few smaller ones and all governments since 1982 have been coalition governments, where the coalitions only lasted for one term and then were replaced by another coalition among the three major parties (or coalitions involving smaller ones; all possible permutations of coalitions among the three major parties existed in the past 20 years); this was aided by the constitutional provision that a president can only serve one term in office. All three parties represented the Spanish-speaking population with little representation from the indigenous populations. As a result of these arrangements, horse-trading and patronage became central elements in Bolivia's political system, both to ensure the support of indigenous populations in elections and to generate coalition governments between groups with substantially different ideological agendas (Kaufman et al. 2003). This led to an increasing alienation and frustration of the population with the political process and led to the rise of powerful extra-parliamentary opposition forces, such as the coca growers' union and other civil society groups, which were in hostile opposition to the government.

The latest election in 2002 brought major breakthroughs for new parties aligned with indigenous groups, which for the first time have a major representation in parliament. In particular, a party allied to coca growers (MAS) was able to gain major representation in parliament. Apart from representing coca growers, they have also taken on a range of populist positions on macro and trade issues. In this new environment, politics as usual continued and a coalition between MNR and MIR brought Gonzalo Sanchez de Lozada back into power (he had been president before between 1993

and 1997). Some of the proposed reforms and measures of the government, in particular a poorly communicated tax reform in early 2003 and a proposal to sell liquefied natural gas via Chile to the USA, led to such opposition (within and outside of parliament) and civil unrest that the government was forced out of power in October 2003 and the vice-president, Carlos Mesa, took over as the constitutional successor to form an independent government. Despite enjoying some popular support (based on his background in media and his strong stance against corruption), he has little support in parliament and it is unclear whether he will be able to bring back stability to the country. A constitutional assembly has been called for 2005 tasked reassessing the entire political and economic model that has been followed in the past, with great uncertainties about what outcome this might generate.

Regarding economic policies, Bolivia had pursued a state-led import-substitution regime until the 1980s, which was largely financed through the export of raw materials (tin and silver). The first democratic government under Siles-Zuazo (1982-85) faced a very difficult internal (drought, social unrest) and external environment (debt crisis, global recession and collapse in tin prices in 1985) and was unable to stabilize the country but instead allowed a hyperinflation to develop which led to a collapse of the government in 1985. Victor Paz Estenssoro took over and first undertook a strict stabilization plan, which ended hyperinflation and brought back internal and external stability (for details see Sachs and Larrain 1998).

In addition, the Paz Estenzoro government designed and began implementation of a Nueva Politica Economica, which included a wide range of structural reforms, which were supported thereafter by structural adjustment programs of the World Bank and the IMF. These reforms , which in the early 1990s shifted to second generation structural reforms, were continued by most of the successive governments so that Bolivia stands out as a country having undertaken more structural reforms in line with the so-called 'Washington Consensus' than most developing countries (Rodrik 2003; Lora 2001). They included:

— Product market deregulation (freeing of prices, regulation of natural monopolies)

— Capital market deregulation (freeing of interest rates, reduction in reserve requirements, liberalization of the external capital market)

— Fiscal reforms involving the simplification of the tax structure where a value-added tax and an income tax (both at 13% where individuals could deduce value-added tax payments from the income tax bill) became the central revenue source and tax collection increased significantly as a share of GDP. On the expenditure side, there was a considerable expansion of expenditure in the social sectors (health and education), while expenditures on state-owned companies were sharply reduced through the privatization program.

— Trade liberalization (simplification and sharp reduction of import tariffs, elimination of non-tariff barriers, efforts to promote non-traditional exports)

— Liberalization of the FDI regime (regulatory framework, investor protection, equal treatment of domestic and foreign investors)

— Restructuring, closing, and 'capitalization' of the large state-owned companies. The latter refers to a scheme where public companies sold a 50% stake to strategic investors (where the proceeds remained with the companies to finance a pre-specified investment program). The proceeds from the remaining shares are being used to finance an annual old age pension (the Bonosol) for all citizens over the age of 65. This way, electricity, railway, telecommunications, mining, the national airline, and the national hydrocarbon company were transferred to (mostly foreign) strategic investors who took management control of these companies.

The one area where there were only few reforms was the labor market. Here, only government intervention in wage setting was reduced and there was some reduction in wages and benefits for public sector employees. The Labor Law of 1942 is still largely in force with quite high costs of

dismissal, few options for temporary work, substantial requirements to meet occupational health and safety standards, a prohibition of employment agencies, and other regulations which were aimed primarily at the mining sector but have since become a stumbling bloc for a smoother operation of the formal labor market.

In addition, the first government of Sanchez de Lozada (1993-97) undertook an ambitious decentralization program in the 1994 Popular Participation Law and the 1995 Decentralisation Law, which transferred a considerable amount of resources (and responsibilities) to Bolivia's 314 municipalities. In addition, the municipalities were also awarded all additional resources that were freed up as a result of the HIPC II initiative which were the focus of attention in Bolivia's first PRSP, concluded in 2000.

In several dimensions, Bolivia's structural reforms produced positive outcomes. Macroeconomic stability was achieved and maintained throughout the period with low inflation, low fiscal deficits, and a relatively stable exchange rate. The fiscal reforms, combined with the reform of the state sector, ensured that the fiscal situation improved dramatically over the 1990s. Exports, including non-traditional exports, improved, and there were significant improvements in human development indicators, particularly education (see Tables 1 and 2). While Bolivia remains a lot poorer than all of its neighbors, has higher poverty rates and lower life expectancy, it compares favorably in education indicators with some richer Latin American countries such as Guatemala or even Brazil (see Table 1).[2] Economic growth also improved and Bolivia grew at around 4% per year from 1990-1998, but only about 1.5% in per capita terms. This relatively positive performance was aided by a favorable external environment, with high growth of Bolivia's main trading partners, the expansion of natural resource exports, and a surge in foreign direct investment that accompanied the capitalization process. The combination of strong memories of the 1985 hyperinflation, an open capital account, and high political and economic uncertainty of a small open economy led to high and increasing dollarization in the economy, which permeates the financial system and significantly limits the options for an active monetary and exchange rate policy. There were few attempts to combat dollarization, which is extremely high to this day.

Exports, while improving throughout the 1990s, remained largely focused on primary products with the mix shifting from a heavy reliance on minerals to a much greater importance of hydrobarbons and agricultural cash crops produced by commercial agriculture (i.e. soybeans, sugar, and wood). The lack of diversification and the failure to develop manufactured exports appears to be due to a combination of geographical factors (land-locked country, poor infrastructure, high transport costs), economic risks and volatility (i.e. exchange rate risks and volatility vis-à-vis trading partners), Dutch disease problems associated with the primary exports, and institutional constraints (weak protection of property rights, high corruption, contraband economy, high regulatory burden for start-ups, high informality of the economy, e.g. Kaufman et al. 2001; World Bank 2004b). A continuing concern is also the very low domestic savings rate (see Tables 1, 2 and below), making Bolivia heavily dependent on capital inflows to finance investment.

Since 1998, economic growth has decelerated to an average of only about 1.5% per year and has become negative in per capita terms. The main causes for this slowdown are a series of external economic shocks that have affected the economy, including particularly the strong devaluations and recessions in Brazil and Argentina in 1999 and 2002, respectively, while the Boliviano appreciated significantly alongside the US$. This led to a sharply overvalued currency and the (independent) monetary authorities did little to combat this due to the risks of devaluations in a dollarized economy, but instead stuck to their policy of allowing only very small devaluations against the dollar (some 8% in 2001, falling to 4% in 2002). Instead, the economy slowed down considerably, credit contracted sharply as the financial sector experienced build-up of non-performing loans; as a

[2] One should note that the findings on poverty and inequality are quite sensitive to the choice of the survey, and to whether income or expenditure is being used as the indicator. When one uses expenditures and the 1999 MECOVI survey, the Gini stands at only 0.45 and the poverty headcount of below $1 a day falls to 14.4%. We report the income-based figures in Table 1 as the data from the other countries are also based on incomes.

result of the recession and costly amendments to a pension reform, budget deficits have soared to unsustainable levels, adding economic uncertainty to the already existing explosive political and social situation (World Bank 2004a). The financing of the large budget deficit through domestic and international borrowing has placed Bolivia in an increasingly vulnerable situation where rising shares of government spending must be allocated to debt service payments, thereby partially wiping out some of the gains realized by the HIPC debt relief (World Bank, 2004a). As the dollar has fallen recently against the currencies of Bolivia's main trading partners and raw material prices have increased, the external environment has improved somewhat and growth is projected to at 3.8% and 4.5% for 2004 and 2005, respectively. .

Regarding poverty and inequality trends, one first has to note that nationally representative household surveys with income and expenditure information are only available from 1997 onwards.[3] Before, there are income surveys for departmental capitals (plus El Alto) going back to 1989, and some spotty survey information from non-urban areas (see Annex 1). Thus rural areas (comprising about 40% of the population in 1994, with the share falling over time) and towns (comprising 12% of the population in 1994 with the share rising over time) were excluded from these surveys. In addition, there are three national censuses (1976, 1992, and 2001) and three nationally representative Demographic and Health Surveys (DHS in 1989, 1994, and 1998) none of which contain income information.[4] As a result there have been considerable disagreements about the actual trends in poverty in Bolivia as shown in Tables 1 and 2 in Annex 1 which compiles all poverty estimates we could find. Nevertheless, most of the studies agree on the following three stylized facts: First, in the late 1990s, poverty is much higher in rural than urban areas; second, there was some decline in poverty in capital cities since 1989 with an upturn in poverty again after 1997; third, non-income measures of poverty have declined stronger than income measures throughout the 1990s, particularly in urban areas.

For the purposes of this study, it was critical to generate nationally representative poverty data going as far back as 1989. In order to achieve this, we employed two alternative methodologies to generate national poverty data and poverty profiles for the time prior to 1997. The first uses information from the DHS to generate an asset index as a proxy for income following proposals from Sahn and Stiefel (2003) and Pritchett and Filmer (2001). Due to limitations in the data, we can do this only for 1994 and 1998.[5] The second combines information from the urban household surveys with the DHS to generate income and poverty information for the entire country from 1989 to 2002. The precise methodology and all of the statistical and econometric issues are discussed in Annex 1.

The most important results regarding poverty and inequality, based on the second methodology, are summarized in Table 3 below. We present our main estimates but also include (in brackets) the results of a sensitivity analysis of one of our key assumptions underlying the simulation which might lead to an overestimate in the decline of poverty in rural areas.[6] Moreover, one should note

[3] The 1997 survey is also not comparable to later surveys so that a consistent national time series only emerges in 1999.

[4] There are further restrictions on the DHS. The 1989 DHS only includes households with women of reproductive age (15-49), while the later ones include a representative sample. The 2003 DHS is due to be out in June. We will be able to report on some summary information from the survey which was made available to us below.

[5] We are also not convinced that this approach will be appropriate for inter-temporal comparisons of welfare and poverty as changes in tastes and relative prices might systematically distort such an inter-temporal assessment. See Annex 1 for a further discussion. We nevertheless used this method primarily as a robustness check on our other approach.

[6] In particular, we assume that the difference in returns to assets and endowments between rural, urban, and capital cities did not change between 1989 and 1999. In our sensitivity analyses we replace the fixed difference assumption with the assumption that the difference in the impact of assets moved in accordance with the overall growth rates or rural areas, towns, and capital cities which show that rural incomes increased more slowly than incomes elsewhere.

that the use of consumption (including auto-consumption) as the welfare measure in rural areas and income as the welfare measure in capital cities (the nine departmental capitals and the city of El Alto) and towns (all other cities and towns), as is standard practice in Bolivia (e.g. INE-UDAPE, 2002), will lead to lower levels of inequality compared to using incomes in rural areas which are reported to be considerably smaller. Using incomes for rural areas as well would raise the Gini in 2002 to about 0.598. But as incomes in rural areas are implausibly low (about 25% lower than consumption with many households reported extremely low incomes--including incomes from own-consumed goods--that are impossible to survive on), we believe that it is preferable to stick to the mixed definition.[7] Lastly, we should point out that the poverty lines used here are based a regionally differentiated basket of goods that allows sufficient caloric consumption which has been updated using local price data on these goods. The extreme poverty line is derived by just allowing for enough caloric consumption while the moderate poverty line also makes allowance for non-food items (see annex 1 for further discussion). As will be shown below (and in annex 1), the updating of the poverty line is not in line with the developments of overall prices as the prices of the poor have risen less than the overall CPI.

With these caveats in mind, the following observations are noteworthy: First, using our methodology, we are able to reproduce actual poverty trends in capital cities (where we have actual data for comparison) fairly well, particularly for the poverty gap measure, which is quite reassuring. We tend to slightly underpredict the headcount ratio (poverty rate) most of the time but also here, the most important trends (in capital cities where we can make a comparison) are accurately reflected.[8] Second, consistent with other studies, there is a steep gradient in poverty levels between capital cities, towns, and rural areas, with poverty being much higher in the latter. As far as the poverty rate is concerned, this differential between capital cities and rural areas gets larger over time (from about 25 percentage points in 1989 to nearly 29 percentage points in 2002). This is not true, however, when we consider the poverty gap, for which the differential gap has somewhat narrowed. This suggests that the very poor have been able to make some gains in the 1990s while rural dwellers close to the poverty line did not benefit as much. Third, there is a clear poverty trend in capital cities, which closely mirrors macroeconomic conditions. Thus poverty (using the headcount or the poverty gap measure) declines considerably between 1989 and 1999 and then increases again between 1999 and 2002. In towns and rural areas, in contrast, the dynamics of poverty are not as closely aligned to macroeconomic developments. In particular, there is no poverty reduction at all in rural areas between 1989 and 1994, then considerable poverty reduction between 1994 and 1999, and stagnation (headcount) or slight further reductions (poverty gap) between 1999 and 2002. Note also that the pace of poverty reduction in rural areas is smaller in our sensitivity analysis but does not change the general picture (see figures in brackets).

Using the first approach (see Annex 1 for tables and discussion) to generate poverty data largely confirms the findings above for the time period 1994 to 1998, but with some slightly different nuances. While the asset index which we use as a proxy for incomes increases overall and in all three regions, which is consistent with the findings above, the increase in the asset index is largest in towns, followed by capital cities, and smallest in rural areas (see Annex 1), suggesting that rural poverty reduction measured this way has been somewhat smaller than urban poverty reduction.

Regarding inequality, the trends follow closely the poverty discussion, but with some additional features. In particular, the sharp increase in inequality in capital cities between 1999 and 2002 is noteworthy. Measures that are more sensitive to the bottom of the distribution, such as the Atkinson measure with e=2, show even more dramatic deteriorations (see Annex 1) suggesting that the urban

[7] At the same time, we acknowledge that using consumption in one area and income in another may also lead to biases that are hard to quantify. It is not possible to use expenditure throughout as expenditure data are not available prior to 1999.

[8] In Annex 1 (Table 5), we show that most of the differences in our prediction are due to our specification of the error term in the underlying regression where we assume a normal distribution. We will experiment with other distributional assumption to address this issue.

poor have fared particularly badly in the last few years. In other areas, inequality seems to have fallen and thereby somewhat offsetting the dramatic worsening of inequality in capital cities. Overall, the Gini in 2002 is similar to 1989. It thus appears that the fate of the urban population, including the urban poor, has been closely linked to macro developments and has recently led to a significant deterioration in poverty and inequality. In contrast, the much poorer rural poor have been more detached from improvements and deteriorations in the overall economic environment and their poverty trends have followed another logic.

Table 3: Poverty and Inequality Trends using Moderate Poverty Line*

	1989		1994		1999		2002
	Observed	Simulated	Observed	Simulated	Observed	Simulated	Observed
Headcount							
Capital Cities**	67.2	64.8	59.5	57.4	51.1	48.1	55.1
Towns		81.1 (80.7)+		75.1 (74.3)	69.1	64.2	67.7
Rural		89.7 (87.8)		89.6 (87.8)	83.4	79.1	83.8
Total		76.9 (76.0)		72.4 (71.6)	65.2	60.3	67.2
Poverty Gap							
Capital Cities**	32.9	32.9	25.7	25.3	21.0	21.3	24.4
Towns		51.3 (50.7)		44.7 (44.0)	34.7	33.6	32.9
Rural		58.3 (55.2)		60.9 (58.2)	47.7	43.1	44.9
Total		45.5 (44.1)		41.9 (40.7)	32.5	30.1	32.9
Gini Coefficient							
Capital Cities**	0.505	0.497	0.481	0.455	0.480	0.488	0.540
Towns		0.547		0.537	0.455	0.500	0.452
Rural		0.475		0.497	0.423	0.443	0.421
Total		0.555		0.555	0.525	0.531	0.551

*The moderate poverty line is, in line with standard practice in Bolivia, applied to income in urban areas, and consumption in rural areas (as income data are considered not to be reliable there and consumption data are not available for the urban household surveys prior to 1997). While the extreme poverty line in Bolivia is only based on ensuring adequate nutrition, the moderate poverty line also makes allowance for some non-food expenditures. The moderate poverty line stood at about US$40 per capita and month, the extreme poverty line at about US$20. For details on the poverty lines and the results for the extreme poverty line, refer to annex 1.

**Capital cities refer to the 9 departmental capitals and El Alto (the city adjacent to La Paz).

+ The figures in brackets refer to sensitivity analyses which no longer assume that the impact of endowments on growth did not change between urban and rural areas between 1989 and 1998 but that it changed in proportion with the differential in aggregate growth performance in the three areas. See Annex 1 for details and full results.

One should point out that Bolivia's record in non-income dimensions of poverty is considerably more favorable than its record in income poverty reduction. As shown in Table 2, Bolivia has achieved impressive improvements in the reduction of child mortality and the expansion of primary and secondary education. More recent data suggest that the decline in infant and child mortality as well as the expansion of reproductive services and immunization coverage has continued at a rapid pace, including in rural areas (INE, 2004), while education data suggest that the poorest quintile have (in contrast to richer groups) suffered from slight declines in enrolment and attendance rates (World Bank 2004b). The index of unsatisfied basic needs which combines information on housing, sanitation, education, and health care, also shows strong improvements between 1992 and 2001; but the improvements are much smaller in rural areas where in 2001 91% of the population continues to suffer from unsatisfied basic needs (see Annex 1 and World Bank, 2004b). The apparent disconnect between rapidly improving social indicators and only moderate improvements in income poverty are one of the conundrums of Bolivia's economy (see below).

Chapter 2: Analysis of Growth and Its Distributional and Poverty Impact

Growth Decomposition and Pro-Poor Growth. Two ways to provide further insights about the links between poverty, inequality, and growth trends is to do a decomposition of the observed poverty reduction and provide estimates of the rates of pro poor growth (Datt and Ravallion 1992; Ravallion and Chen, 2003). The decomposition of the observed poverty reduction into a growth and an inequality contribution (and an interaction term which cancels if one the average of a 'forward' and 'backward' decomposition) is using the methods proposed by Ravallion and Datt (1992). As discussed in detail in the Grimm and Günther (2004), the distribution component in this decomposition also implicitly includes the impact of changes in the real value of the poverty line (i.e. how prices paid by the poor have moved relative to the overall price level). As shown in Table 4 of Annex 1, the prices paid by the poor (in particular food prices) have risen somewhat less than the overall price level (particularly in recent years) so that the purchasing power of the poor has increased by more than suggested by the change in their real incomes. This is implicitly captured in the decomposition as a distributional shift favoring the poor.

Table 4 – Growth Inequality Decompostion of Poverty Changes (Moderate Poverty)

	1989–1999	1999–2002	1989–2002
		Total Bolivia	
Change in poverty	-0.118	0.020	-0.099
Growth component	-0.080	0.018	-0.064
Redistribution component	-0.038	0.002	-0.035
		Departmental Capitals	
Change in poverty	-0.163	0.040	-0.123
Growth component	-0.105	0.025	-0.080
Redistribution component	-0.057	0.015	-0.043
		Other Urban Areas	
Change in poverty	-0.117	-0.015	-0.132
Growth component	-0.067	0.017	-0.074
Redistribution component	-0.050	-0.032	-0.058
		Rural Areas	
Change in poverty	-0.068	0.005	-0.064
Growth component	-0.041	-0.005	-0.039
Redistribution component	-0.028	0.010	-0.025

Notes: Calculated using the Datt-Ravaillion (1992) method of growth-inequaltiy decomposition.

Source: Own calculations. For the extreme poverty line, see Table 12 in Annex 1.

The result of the decomposition analysis (Table 4) for the entire period show that about two-thirds of the 10 percentage point decline in poverty for total Bolivia is attributable to growth, and about one-third to a distributional shift favoring the poor. [9] As the income distribution hardly shifted between the two periods (see Table 3)[10], most of this distributional shift is actually due to the poverty line effect which increased the real purchasing power of the poor. Considering sub-periods and different parts of the country shows a more differentiated picture. In the period 1989-99 both the growth and redistribution (and/or poverty line) effect served to reduce poverty in all parts of the country. In the latter three years, the picture has changed drastically. Now poverty has increased in capital cities nationally, and particularly in capital cities where 60% is due to falling incomes and 40% due to adverse distributional shifts.

When one splits out this poverty line effect from the distributional component (results not shown), we find that 'pure' redistribution helped to lower poverty in all of Bolivia between 1989 and 1999 as well as capital cities and towns, while the redistribution component was essentially zero in rural areas. Between 1999 and 2002, the redistribution component served to increase poverty in all regions and Bolivia as a whole. For the overall period (1989-2002), this 'pure' redistribution effect had a slightly poverty-increasing effect for Bolivia as a whole so that the poverty decline that happened occurred mostly due to growth and a favorable development of the prices paid by the poor. This adverse distributional effect is entirely driven by an adverse distributional shift in capital cities which dominates a favorable distributional shift in towns and rural areas.

A second way to examine the linkages between growth, inequality, and poverty is the Ravallion-Chen measure of Pro-poor Growth which takes the average of growth rates of the quantiles of the population that were poor in the initial period (see Ravallion and Chen 2003).[11] The growth incidence curves underlying this analysis are shown below for the entire period (1989-2002); for sub-periods they are available in Annex 1. For the entire country and the entire period, they are above 0 for all groups, and moderately downward sloping from the 10th to the 90th percentile suggesting that, on the whole, the poor gained proportionately more from growth than the rich. This is not true below the 10th percentile and above the 90th percentile suggesting that the extremely poor were not benefiting as much and that the very rich were benefiting more from growth.[12] Matters are different when one considers the different parts of the country. In departmental capitals (and El Alto), growth over the period was anti-poor with the poor gaining less than the rich (particularly due to the influence of the period after 1999), while it was strongly pro-poor in towns, and moderately pro poor in rural areas.

The annual rate of pro poor growth, shown in Table 5, summarizes the information provided in the growth incidence curves.[13] We also show the results of our sensitivity analysis for towns and rural

[9] This changes very slightly in our sensitivity analysis which is available on request.

[10] Whether income distribution in Bolivia worsened between 1989 and 2002 is sensitive to the choice of inequality indicators which give different weights to different parts of the distribution. But all show that whatever distributional shifts occurred were small.

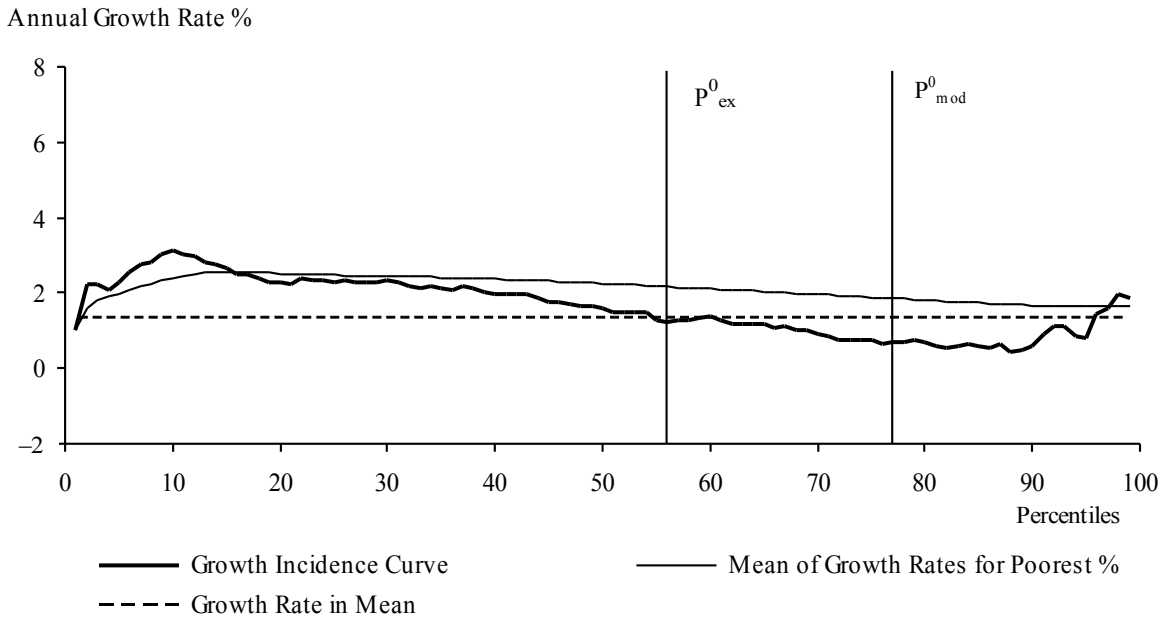
[11] There are various criticisms of this approach of measuring pro-poor growth some of which can be found in Klasen (2004).

[12] One should note that measurement error might have a considerable influence at the two tails of the distribution so that these results should be treated with some caution.

[13] We should point out that Jimenez and Landa (2004) from UDAPE have, for the World Bank poverty assessment (World Bank 2004b), also been calculating rates of pro poor growth using the Ravallion and Chen method whose results, on the surface are quite different from ours. Their growth incidence curves for 1999-2002 point to sharply rising inequality in rural areas and somewhat rising inequality in urban areas (combining capital cities and towns); the calculated annual rates of pro poor growth are -6% per year. Where we use the same information (per capita incomes for capital cities between 1999 and 2002), our findings are virtually identical. The most important reasons for the discrepancy appear to be that they use income as the welfare indicator in rural areas while we use consumption, in line with the usual practice in Bolivia. Using the income indicator for rural areas shows massive declines in per capita income which are implausible in two ways. First, they imply income levels in rural areas that are unlikely to assure basic survival and second the growth rates, -20% per year for the poorest quintile over three

areas (and by implication, all Bolivia) in brackets. The most important findings are the following. Overall, there was Pro Poor Growth between 1.9 and 2.2% per year between 1989 and 2002, which was mostly due to high pro poor growth in towns and some pro poor growth in rural areas, while pro poor growth in capital cities was negligible. As before, it is useful to consider sub-periods. Between 1989 and 1999, there was a considerable amount of pro-poor growth in total Bolivia, in capital cities, towns, and rural areas, regardless of the poverty line. Also, the rate of pro-poor growth exceeded the growth rate in the mean, suggesting that growth was accompanied by falling inequality. The particularly high growth rate in total Bolivia (2.23%) is due to growth in the three areas plus a shift in the composition of the population from the poorer rural areas to the richer urban areas. Between 1999 and 2002, we find that there was a strongly anti-poor contraction in capital cities, wiping out most of the gains the urban poor have made in the ten previous years. In other urban areas, the contraction was not particularly anti-poor so that the poor had roughly stagnant incomes. In rural areas, incomes continued to rise, although very slowly, and growth continued to be somewhat higher for the poor than for the non-poor. Given that the rural poor predominate among the poor, overall growth was only slightly anti-poor between 1999 and 2002, and this finding is sensitive to the choice of the poverty line. In the sensitivity analysis, growth and pro poor growth is somewhat smaller in total Bolivia and more significantly so in rural areas which hardly experienced any growth mean income growth between 1989 and 2002; but the rates of pro- poor growth remain between 1.2 and 1.4% suggesting that the poor were able to make some gains over the period.

Figure 1 — Growth Incidence Curve for Bolivia, 1989 to 2002



years, is not consistent with all the known information about economic developments between 1999 and 2002 (where per capita incomes declined slightly, but not by these magnitudes). For the period prior to 1999 (1993-1999), they calculate only very moderate pro poor growth rates in capital cities, in contrast to our higher figures; this discrepancy is probably largely due to the different time periods considered. Beginning in 1993 omits high (and pro-poor) growth from 1989 to 1993. Thus we find those figures to be roughly consistent with ours (which they should given that we both use incomes and use a similar income definition).

Figure 2 — Growth Incidence Curve for the Departmental Capitals of Bolivia, 1989 to 2002

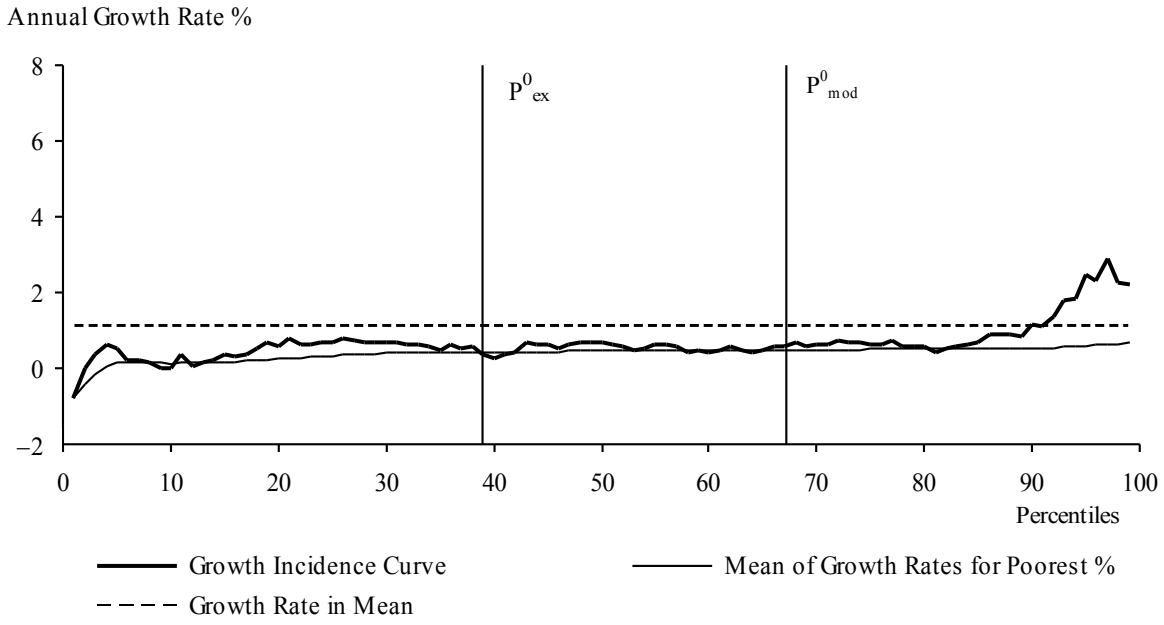


Figure 3 — Growth Incidence Curve for Other Urban Areas of Bolivia, 1989 to 2002

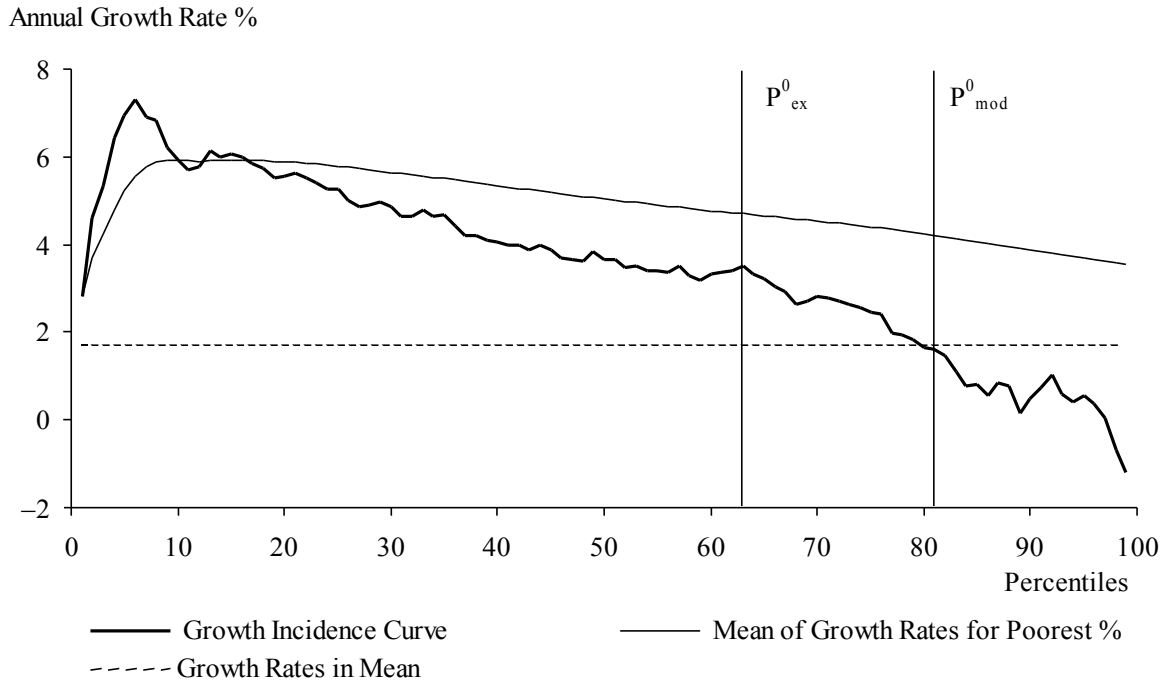
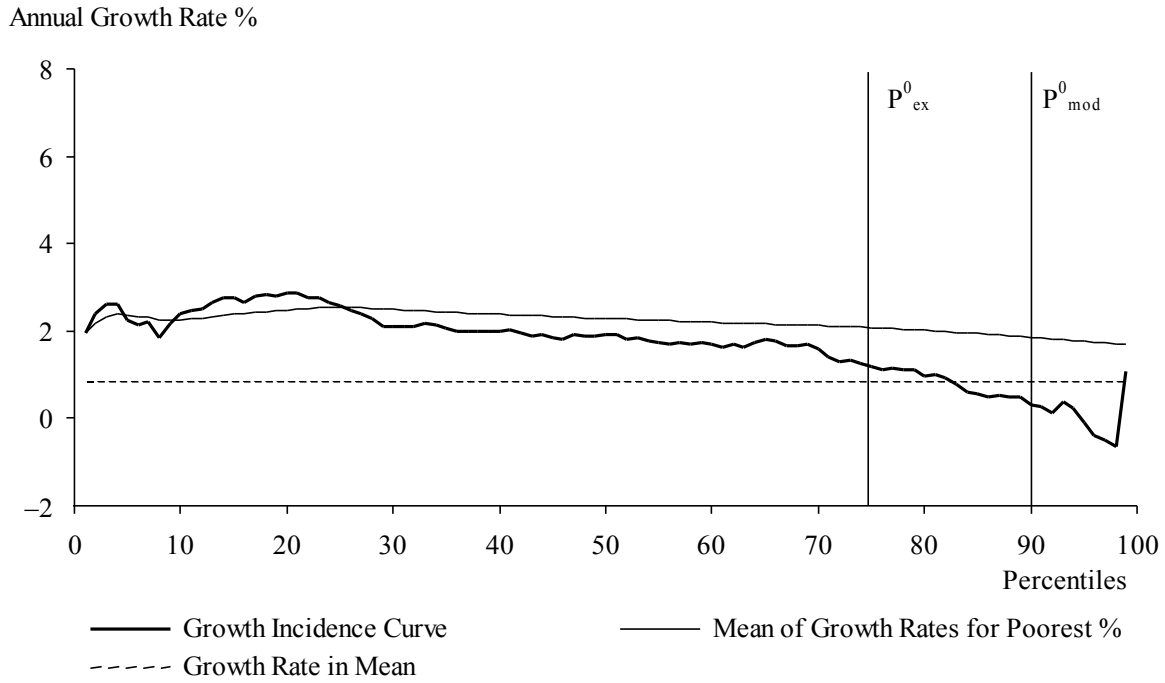


Figure 4 — Growth Incidence Curve for Rural Areas of Bolivia, 1989 to 2002



With the exception of the strongly anti-poor growth in capital cities in recent years, it appears that growth has been quite pro-poor throughout most of the last 15 years, and particularly so in towns and (moderately so) in rural areas. One may wonder how this squares with the results in Table 3 which showed only slowly falling poverty rates in rural areas in the 1990s. But these results are entirely consistent with each other when one notes that the depth of poverty in rural areas is so large that even considerable pro-poor growth does not lift many of the poor above the poverty line (but does reduce the poverty gap as indeed happened, particularly between 1994 and 1999). Thus the problem of Bolivia's poverty is not so much that growth in the 1990s has been biased against the poor, but that overall growth has not been very high throughout the period and that the initial inequality was so large that the poor remained poor despite some improvements in incomes. It would probably have taken another decade of such growth to make serious inroads into poverty, particularly in rural areas. Unfortunately, that did not happen. With the type of growth experienced since 1999, rural poverty will not change much and urban poverty is on a sharply increasing trend.

Table 5: Annual Pro-poor Growth Rates (per Capita)

	1989 - 2002	1989 – 1999	1999 - 2002
		Total Bolivia	
Growth Rate in the Mean	1.41	2.23	-1.29
	(1.25)	(2.02)	
Mean of Growth Rates for			
Extremely Poor	2.16	3.39	-0.88
	(1.74)	(2.81)	
Moderately Poor	1.85	3.21	-2.22
	(1.49)	(2.74)	
All	1.67	2.98	-2.56
	(1.34)	(2.56)	
		Departmental Capitals	
Growth Rate in the Mean	1.19	2.01	-1.51
Mean of Growth Rates for			
Extremely Poor	0.44	2.56	-6.30
Moderately Poor	0.48	2.58	-6.44
All	0.69	2.50	-5.01
		Other Urban Areas	
Growth Rate in the Mean	1.76	2.89	-1.90
	(1.58)	(2.64)	
Mean of Growth Rates for			
Extremely Poor	4.70	6.23	0.48
	(4.53)	(6.01)	
Moderately Poor	4.22	5.80	-0.22
	(4.03)	(5.55)	
All	3.75	5.25	-1.03
	(3.56)	(5.00)	
		Rural Areas	
Growth Rate in the Mean	0.87	0.94	0.59
	(0.17)	(0.02)	
Mean of Growth Rates for			
Extremely Poor	2.07	2.31	1.86
	(1.40)	(1.39)	
Moderately Poor	1.86	2.18	0.99
	(1.18)	(1.28)	
All	1.73	1.99	0.86
	(1.02)	(1.06)	

Source: Own calculations. Growth rates use the actually observed levels of income/expenditure where available (in capital cities throughout and elsewhere from 1999 onwards). Figures in brackets are based on sensitivity analysis as discussed in text (footnote 6) and in Annex 1.

(Sectoral) Sources and Proximate Determinants of Growth. Before discussing the determinants of pro-poor growth, it is important to first discuss the sources of overall growth in Bolivia in the past 15 years. Table 6 gives an overview over the sectoral composition of GDP and its growth. Regarding the sectoral composition of GDP in 2002, agriculture makes up about 14%, about half of which is subsistence agriculture where many of the rural poor live. About 10% of GDP is generated by mines, oil, and gas and only about 16% by manufacturing. Most of this manufacturing consists of food processing and the processing of raw materials (wood, oil, and minerals), with hardly any light or heavy industry present in the country. The remainder of GDP consists of services of various kinds, which includes mostly services that involve the rural and urban poor (such as trade and transport services). Employment shares differ radically from this sectoral composition of GDP (see Table 7). Agriculture employs 60% of the workforce, sales employs another 10% of the workforce, while manufacturing, oil and gas, and high-value services employ only a small fraction

of the workforce. Thus Bolivia is a highly dualistic economy with a large employment in low value agriculture and the small-scale service sector and very small employment in manufacturing.

Overall GDP growth between 1989 and 1999 was driven largely by sharp growth in commercial agriculture, oil and gas production (and associated construction and production in the electricity, gas and water sector), some small-scale food processing industries, and some services. In contrast, subsistence agriculture, mining, hotels and restaurants, and public administration grew less than proportionately. Between 1999 and 2002, virtually all sectors grew slower, with the exception of oil and gas, which expanded production due to enhanced exports to Brazil. The figures for coca production show a continuous and sharp decline between 1989 and 2002. This decline in reported coca production is very likely overstating the actual decline. While eradication efforts were intensified throughout the 1990s, the enforcement varied considerably. It was particularly strong under the Banzer regime (1997-2002), but it is still likely that clandestine production is much larger than reported here (and it is also likely that coca production increased considerably recently as enforcement has flagged).

One should also note that the oil, gas and mineral sectors only account for about 10% of Bolivia's GDP and less than 1% of its employment, but more than 40% of Bolivia's exports, so that the importance of these sectors for Bolivia's external position is much larger than its GDP share. Thus we find that Bolivia has a highly dualistic economy, with the most dynamic sectors being the oil and gas sector, industrial agriculture (concentrated in the lowlands) and some high-value service sectors. The remainder of the economy showed a much more moderate evolution.

TFP Analysis. Another way to examine the proximate sources of growth is to examine the influence of input factors (labor, capital, human capital) and the residual component, total factor productivity (TFP). This can be done using a growth accounting framework based on the Solow growth model and is such an analysis was done by Loayza et al. (2002). Depending on whether human capital and the input factors are adjusted for capital utilization, the results show that the contribution of capital to GDP growth was negative on average in the 1981-1990 period (-0.26 to -0.31% per year) indicating very low investment rates. Similarly, TFP growth was negative indicating worsening efficiency. In the 1991-2000 period, things turned around with capital contributing about 0.45% to annual growth and TFP contributing about 1.23-1.66% per year depending on the assumptions. Labor throughout both periods contributed about 1.4-1.7% per year and its contribution was very stable. While the findings for the crisis-ridden 1980s are to be expected, the remarkable finding for the 1990s is the very low capital contribution to growth, suggesting very low investment rates that are barely able to make up for depreciation. This, in turn, is related to Bolivia's very low domestic savings rate (Table 1) which, even with generous aid and capital inflows, leads to only a moderate investment rate and thus quite low growth attributable to capital deepening (see Table 2 and below).

Table 6: Sectoral Composition of GDP and its Growth, 1989–2002

	Production in 1990 Bs ('000)			Annual Growth	
	1989	1999	2002	1989-99	1999-2002
A. PRIVATE SECTOR	11876	18054	19209	4.3	2.1
1. AGRICULTURE	2267	3071	3296	3.1	2.4
- Non-industrial Agricultural Products	1062	1358	1437	2.5	1.9
- Industrial Agricultural Products	212	558	605	10.2	2.7
- Coca	193	74	39	-9.1	-18.9
- Cattle and other Livestock	669	896	1005	3.0	3.9
- Forestry, Hunting and Fishing	130	185	211	3.6	4.5
2. MINING AND QUARRYING	1470	2017	2191	3.2	2.8
- Crude Oil and Natural Gas	644	978	1189	4.3	6.7
- Metal and Non-Metal Minerals	826	1039	1002	2.3	-1.2
3. MANUFACTURING	2430	3633	3849	4.1	1.9
- Food, Drinks and Tobacco	1109	1745	1975	4.6	4.2
- Other Industries	1321	1889	1874	3.6	-0.3
4. ELECTRICITY, GAS, AND WATER	235	452	475	6.7	1.7
5. CONSTRUCTION	462	819	819	5.9	0.0
6. TRADE AND COMMERCE	1270	1820	1937	3.7	2.1
7. LOGISTICS & COMMUNICATIONS	1365	2331	2562	5.5	3.2
8. FINANCIAL AND BUSINESS SERVICES	1528	3161	3103	7.5	-0.6
- Financial Services	242	974	914	14.9	-2.1
- Business Services	382	1113	1040	11.3	-2.2
- Real Estate	904	1075	1149	1.7	2.3
9. PERSONAL SERVICES (INCKL. DOMESTIC SERVICES)	667	973	1073	3.8	3.3
10. RESTAURANTS Y HOTELS	507	688	734	3.1	2.2
11. IMPUTED BANKING SERVICES	-234	-911	-830	14.5	-3.1
B. PUBLIC SECTOR	1570	1991	2140	2.4	2.4
TOTAL A AT FACTOR COSTS	13537	20045	21350	4.0	2.1
INDIRECT TAXES	1222	1764	1916	3.7	2.8
TOTAL AT MARKET PRICES	14759	21809	23266	4.0	2.2

Source: UDAPE (various isues).

Table 7: Employment Shares, 1999

A. PRIVATE SECTOR	2528708	95.1%
1. AGRICULTURE	1598358	60.1%
2. MINING AND QUARRYING	44051	1.7%
3. MANUFACTURING	249167	9.4%
4. ELECTRICITY, GAS, AND WATER	3986	0.1%
5. CONSTRUCTION	116845	4.4%
6. TRADE AND COMMERCE	253974	9.5%
7. LOGISTICS & COMMUNICATIONS	66776	2.5%
8. FINANCIAL AND BUSINESS SERVICES	12802	0.5%
9. PERSONAL SERVICES (INCKL. DOMESTIC SERVICES)	107401	4.0%
10. RESTAURANTS AND HOTELS	75348	2.8%
B. PUBLIC SECTOR	131464	4.9%
TOTAL	2660172	100.0%

Source: MECOVI survey.

Poverty Profile. These analyses have so far provided quite an aggregative picture of developments in poverty as well as of GDP growth. We now turn to a detailed poverty profile to give a better sense of who and where the poor are, and what they mainly live off. In Tables 8 and 9, we present

our results for the poverty gap, which also captures the depth of poverty.[14] Apart from the already noted rural-urban divide, there are very large regional variations in the poverty gap in the different departments. In particular, poverty gaps are very high in the two highland and valley departments of Chuquisaca and Potosi, while they are much lower in the lowland departments of Santa Cruz, Beni, Pando, and the valley department of Tarija. The former two provinces are particularly dependent on subsistence agriculture, while the latter three are the home to large-scale farming, as well as most oil and gas production. The three provinces La Paz, Oruro, and Cochabamba take on an intermediary position.

Table 8: Regional Disaggregation of the Poverty Gap

	Moderate Poverty Gap				Extreme Poverty Gap			
	1989	1994	1999	2002	1989	1994	1999	2002
Total	45.45	41.89	32.53	32.94	27.53	25.21	15.73	15.32
	(0.35)	(0.25)			(0.34)	(0.22)		
By Type of Municipality								
City	32.92	25.74	21.02	24.37	15.29	9.58	8.00	9.79
Town	51.31	44.68	34.70	32.88	34.10	27.02	13.97	13.10
	(0.92)	(0.69)			(0.90)	(0.63)		
Rural	58.30	60.90	47.71	44.86	39.13	43.33	27.37	23.88
	(0.50)	(0.34)			(0.57)	(0.38)		
By Department								
Chuquisaca	58.81	60.79	53.94	49.16	40.34	44.86	35.43	29.12
	(0.81)	(0.70)			(0.90)	(0.74)		
La Paz	45.19	37.11	35.12	33.53	26.48	20.09	18.04	16.48
	(0.70)	(0.50)			(0.66)	(0.46)		
Cochabamba	43.02	41.97	30.20	36.30	24.66	23.68	12.44	17.14
	(0.83)	(0.76)			(0.81)	(0.62)		
Oruro	48.27	49.55	34.57	36.15	30.67	33.34	15.76	18.36
	(0.82)	(0.70)			(0.79)	(0.69)		
Potosí	64.69	63.87	50.53	47.24	49.40	50.62	30.24	26.99
	(0.73)	(0.58)			(0.93)	(0.64)		
Tarija	50.78	50.27	28.92	28.67	31.16	30.46	12.19	9.21
	(0.75)	(0.74)			(0.75)	(0.62)		
Santa Cruz	31.41	28.16	20.47	23.97	14.84	12.48	6.92	8.44
	(0.81)	(0.57)			(0.66)	(0.46)		
Beni & Pando	47.05	50.11	20.03	26.66	26.90	31.05	4.20	8.77
	(0.84)	(0.83)			(0.80)	(0.78)		

Source: Own calculations. Standard errors are in brackets (only applicable to the simulated poverty rates). For 1999 and 2002, we use the actual poverty rates.

Regarding household characteristics of the poor, large households, those with many dependents, and those with a young head are significantly poorer, although the latter influence is quite small. This suggests an important influence of fertility on pro-poor growth, where fertility decline could make a significant contribution to the decline of poverty and inequality (see Box 1). Particularly striking are the very large differences in poverty by language and education. The poverty gap of those speaking an indigenous language is nearly twice as large when the moderate poverty line is applied, and three times as large when the extreme poverty line is used. Similarly, there is hardly any poverty among those with more than completed secondary education, while there are very high poverty rates among those with less than 5 years of schooling. Given the differences between employment shares and sectoral contributions to GDP (as shown in Tables 5 and 6), it is not surprising to find considerable differences in poverty rates by the sectoral employment of the household head. In particular, those working in agriculture have a much larger poverty gap than

[14] The poverty gap index (or P1 from the FGT family of indices) divides the percentage average shortfall of the poor from the poverty line with the total population. Other results can be found in Annex 1. We should note that the surveys were not designed to be representative at the level of departments so that the results presented here should be treated with some caution (particularly in the case of the smaller departments such as Beni and Pando).

those working in any other profession. Unemployed heads also have very large poverty rates while the poverty rate among white-collar workers is predictably low. It is also interesting to note that the gender of the household head does not appear to have a big impact on poverty. If anything, female-headed households are less poor than male-headed households, a finding common to many Latin American countries (see Marcoux 1998). Similarly, education gaps by gender, an important cause of poverty, have largely disappeared. But females continue to be disadvantaged in other ways, particularly in the labor market but also in the household (see Box 2).

There are no dramatic trends in terms of changes of the characteristics of the poor over time.[15] But a few changes are noteworthy. In particular, the poverty gap in Chuquisaca appears to have declined the least so that it surpassed Potosi as the poorest province by 2002. In contrast, in Tarija, Beni and Pando, poverty reduction appears to have been particularly rapid. As far as household characteristics are concerned, small households appear to have reduced poverty more rapidly than large households, particularly in relative terms. While the absolute reduction for the poorly educated and those speaking indigenous languages were larger than for others, in relative terms it was smaller so that the relative gap between them and the rest has widened. Similarly, the relative gap between farming households and while-collar households has widened considerably in the past 15 years even if the poverty gap was reduced considerably in farming households.

Using the asset index confirms most of the results shown above, but in a somewhat more accentuated fashion (see Annex 1). The difference between rural areas, towns, and capital cities in the asset index is larger than in the simulated incomes leading to starker differences in poverty rates between the three areas. The poverty profile confirms that larger households[16] and those with less educated and younger household heads are poorer, and find even stronger differences in poverty rates by language and education of the household head and spouse. Also here, female-headed households are less poor than male-headed ones. Thus we find large and significant differences in poverty rates among different groups.

Accounting for Inequality Change. It is useful to further examine the causes of the observed changes in inequality over the past 10 years. Here we draw on findings from Gasparini et al (2003), which decompose changes in inequality in (equivalized) household labor income in capital cities between 1993 and 1997 and urban and rural areas from 1997 to 2002. Between 1993 and 1997, they find a slight increase in household labor income in capital cities which is mostly driven by a rising employment gap between the highly educated and the less educated, a slight shift in educational inequality, and a significant increase of in the returns to unobservable characteristics, while returns to education were equalizing. Between 1997 and 2002, inequality in household labor incomes increased considerably in capital cities and here all factors (returns to education, inequality in employment, inequality in education, and inequality in returns to unobservables) all contributed to this rise in inequality.[17] The importance of the rising inequality in unobservables points to increasing disparities in the returns to characteristics such as educational quality, labor market connections, and unmeasured skills. While reducing educational and employment inequality would serve to reduce inequality and thus help with poverty reduction, the high returns to inequality in unobservables points to deeper segmentations of the Bolivian economy, to which we turn now.

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[15] To a limited extent, this is true by construction as we use correlates of incomes to simulate incomes which include the characteristics listed in the table. But since we allow these correlates to vary over time, we would be able to discern if there have been significant changes in the determinants of poverty.

[16] The effect of household size on poverty is found to be smaller using the asset index than with the simulated per capita incomes. This is to be expected given that large households are likely to possess more assets and thus appear less poor in an asset-based index than in an income-based one. See also the discussion below.

[17] In rural areas they find declines in inequality between 1997 and 2002. As this is based on reported labor income, it only captures a small portion of the rural economy.

Table 9: Disaggregation of the Poverty Gap by Household Characteristics (Total Bolivia)

	Moderate Poverty Gap				Extreme Poverty Gap			
	1989	1994	1999	2002	1989	1994	1999	2002
Total	45.45	41.89	32.53	32.94	27.53	25.21	15.73	15.32
	(0.35)	(0.25)			(0.34)	(0.22)		
By Hh Size								
<=3	38.52	31.35	19.48	17.21	20.94	16.19	7.24	5.70
	(0.83)	(0.60)			(0.78)	(0.45)		
4-6	42.88	40.86	29.51	30.17	25.09	24.14	13.93	13.34
	(0.45)	(0.31)			(0.44)	(0.29)		
>=7	54.88	53.74	43.48	42.76	36.50	35.79	22.56	21.75
	(0.67)	(0.47)			(0.71)	(0.46)		
By Age of Hh Head								
<=34	47.04	41.79	33.79	33.59	28.48	24.30	16.47	14.78
	(0.62)	(0.41)			(0.60)	(0.36)		
35-49	45.92	42.89	33.45	34.97	28.12	26.22	16.37	16.97
	(0.52)	(0.36)			(0.52)	(0.35)		
50-65	42.78	39.03	27.74	27.66	25.16	23.46	12.43	12.65
	(0.79)	(0.61)			(0.77)	(0.47)		
>=66	41.73	44.57	34.33	30.57	25.78	30.39	17.80	12.98
	(1.45)	(0.95)			(1.33)	(0.89)		
By # of Hh Members Between 15 and 65 Years to Total Hh Members								
<= 0.5	52.02	50.23	40.15	40.90	33.27	32.00	20.83	19.97
	(0.41)	(0.30)			(0.42)	(0.30)		
> 0.5	36.45	31.29	23.45	23.52	19.67	16.59	9.66	9.82
	(0.54)	(0.41)			(0.50)	(0.29)		
By Language of Hh Head								
Spanish	38.80	32.51	21.34	23.03	21.40	16.39	7.80	8.30
	(0.40)	(0.33)			(0.34)	(0.26)		
Indigenous	64.48	63.80	44.18	42.14	45.08	45.83	24.00	21.83
	(0.67)	(0.42)			(0.78)	(0.48)		
By Gender of Hh Head								
Male	46.23	42.80	32.87	33.61	28.31	26.11	16.06	15.55
	(0.40)	(0.27)			(0.38)	(0.25)		
Female	41.45	37.49	30.62	28.81	23.55	20.91	13.91	13.90
	(0.78)	(0.62)			(0.85)	(0.52)		
By Average Education of Respondents and Partners								
<=5	58.88	60.30	49.35	47.76	39.07	42.14	28.28	26.03
	(0.48)	(0.37)			(0.52)	(0.39)		
6-12	35.61	32.98	28.29	27.97	18.06	15.48	11.23	10.76
	(0.59)	(0.46)			(0.50)	(0.34)		
>=13	13.44	10.12	6.33	7.52	4.55	2.96	1.10	1.83
	(1.00)	(0.59)			(0.59)	(0.33)		
Sectoral Employment of Head								
White Collar	24.06	15.60	13.17	9.68	11.16	5.79	3.68	2.62
	(0.72)	(0.62)			(0.58)	(0.37)		
Blue Collar	43.84	39.06	30.31	32.63	24.62	19.59	11.28	13.40
	(0.75)	(0.56)			(0.67)	(0.49)		
Agriculture	65.51	68.22	52.21	48.35	46.15	50.73	31.60	26.52
	(0.59)	(0.38)			(0.72)	(0.47)		
Sales & Services	37.27	30.26	22.80	19.45	19.11	13.19	8.72	6.07
	(1.06)	(0.69)			(0.89)	(0.50)		
Not Employed	48.52	43.16	32.45	29.57	29.80	24.05	19.15	13.67
	(2.33)	(1.63)			(2.32)	(1.49)		
No Partner	41.42	36.80	n.a.	n.a.	23.55	20.95	n.a.	n.a.
	(0.89)	(0.61)			(0.79)	(0.50)		

Source: Own calculations. Standard errors are in brackets (only applicable to the simulated poverty rates). For 1999 and 2002, we use the actual poverty rates. In the DHS, the employment of the head is not listed directly and can only indirectly be inferred by the employment of the partner of the women who was the respondent. In some cases, this partner of the respondent might not be the head of household so that there might be some inaccuracies here. For 1999 and 2002, the head's employment is listed in the data and we do not need to rely on the partner's employment status (and thus the option of 'no respondent' no longer exists). The change in poverty between 1994 and 1999 by head's employment should therefore be interpreted with some caution.

Box 1:

Population Growth, Household Size, Poverty, and Pro-poor Growth

Bolivia has a surprisingly high population growth rate. The intercensal annual growth rate of the population went up from 2.1% between 1976 and 1992 to over 2.7% between 1992 and 2001 (INE 2003a). Based on revised census counts, officials at INE argue that the correct intercensal growth rates would be 2.4% for both periods, which still indicate very high population growth by South American standards (see Table 1). Part of the high population growth is due to continued high fertility. The 2001 census estimates the TFR to be at 4.4, while the DHS 2003 reports it to be at 3.8 (INE, 2003b; INE, 2004). The impact of this TFR (and the much higher levels of TFR in the past) generates a considerable demographic momentum through the impact of large increases in the number of women of reproductive age. The second source of high population growth has been a sharp fall in mortality levels in the past 15 years and as such is a welcome development (see Table 2).

There has been a considerable fertility decline in the past 20 years, which is now clearly visible in the age structure of the population where the absolute number of 0-4 year olds has recently begun to decline. If these trends continue, Bolivia will soon be about to enter the phase which has been referred to as a 'demographic gift' by Bloom and Williamson (1998), where the share of the working age population will be particularly large (and dependency rates correspondingly low), enabling the country to save more, to invest more in the quality of children, and, if employment opportunities are there for the large working age population, to boost growth of per capita incomes.

The 'demographic gift' is likely to make growth more pro-poor as it is particularly the poor who are now in the process of further reducing their household size and thus benefiting from reduced dependency rates (see also Klasen 2003; Klasen and Woltermann, 2004; Eastwood and Lipton 2001). This can be seen when considering two factors. First, as shown in Table 8, poverty rates are highly correlated with household size. This also holds if we calculate poverty rates based on adult equivalents (rather than based on per capita incomes), which assumes that children need fewer resources and that households benefit from considerable economies of scale (see Annex 2). More importantly, it appears that the poverty risk of household size has sharply increased over time. Based on adult equivalent incomes, the poverty rate of households with more than 6 members was nearly 20 percentage points higher in 2002 than of those with less than 4 members, up from a difference of less than 10 percentage points in 1989. The differential has similarly widened when using per capita incomes.

Second, the poor have much larger families and thus disproportionately suffer the costs of large families. Using the unsatisfied basic needs index and applying it to the 2002 Census, 'marginal' households have a TFR of 6.9, compared to a rate of 2.1 for those with satisfied basic needs. If fertility decline reaches the poor, it is likely to have a major impact on poverty reduction as it did elsewhere in recent years (e.g. in East Asia and in countries such as Brazil).

Policies that would further such a development would be a combination of further improvements in education and health access for the poor, combined with the availability of low-cost family planning for the poor which still appears to be a problem among uneducated women in some rural areas (see INE 2004).

Box 2:
Gender and Pro-poor Growth

Compared to other Latin American countries, Bolivia had considerable gender inequality in a variety of indicators of well-being, human capital, access to resources, and income earning opportunities. For example, as late as 1976, there was a 24 percentage point gap in literacy rates among adults (INE, 2003). On many fronts, there has been considerable progress in closing these gaps. The gap in education has closed the fastest. In 2001, the gap in literacy rates has narrowed to 12 percentage points (with the remaining gap being largely due to past discrimination) and gaps in enrolments or progression are now limited to a few pockets in more remote municipalities (Anderson and Molina, 2004).

As shown in the international literature on the subject, the closing of the gender gap in education could have important positive effects for growth and human development (e.g. World Bank, 2001; Klasen, 2002). This is due to the direct impact of the removal of an artificial distortion that limits the potential of women to contribute to economic development and through the indirect impact female education has on fertility, mortality, and education of children. The impact of female education on fertility is well-documented in Bolivia. Females with more than 12 years of education have only 1.9 children, compared to 6.7 for (the by now very few) females with no education (INE 2003b). Thus the closing of the gender gap will further accelerate the on-going fertility decline with the potential benefits described in Box 1.

As shown in the poverty profile below, it is also noteworthy that female-headed households are generally less poor than male-headed households, which is a common finding in Latin America but much rarer elsewhere (e.g. Marcoux, 1998). But one should caution that female-headed households represent a very heterogeneous group of households (e.g. single female elderly, single professional women, divorced women with or without children, women of migrant workers with or without children, etc) so that it may well be that sub-groups are particularly vulnerable to poverty (an issue that deserves further examination).

Less positive is the record on female opportunities in employment. Here we find that females have much fewer employment opportunities, making up only about a third of formal sector employees, while constituting about 50% of informal and self-employment. In all three sectors they then suffer from considerably wage gaps with gender having one of the largest effects on wages (Tannuri-Pianto et al. 2004); these are also considerably larger than in other Latin American regions (World Bank 2004b). Also, female migrants (who are over-represented among rural to urban migrants) were, prior to 2002, had to accept lower wages than the (already depressed) female wages of non-migrant counterparts in urban areas (Pianto et al. 2004).

As shown in Klasen and Lamanna (2004), such discrimination in employment has also been found to reduce economic growth due to the distortion such discrimination brings about. Moreover, it is likely to have an adverse effect on poverty reduction as female earnings increase their bargaining power within households which has been found to increase investments in education, health, and nutrition of children (e.g. Thomas, 1997).

Lastly, a particularly worrying development is the high incidence of domestic violence in Bolivian households, particularly against women. About 10% of women report being beaten regularly, nearly half occasionally, and some 15% of women report occasional incidences of forced sexual relations (INE, 2004). These problems are not only well-being issues for the women concerned, but also clearly affect their and their children's ability to contribute to, and profit from economic development opportunities.

In sum, there has been notable progress in closing gender gaps, particularly in education, but gender gaps in employment and pay as well as an unusually high incidence of domestic violence continue to generate formidable obstacles for women to contribute to pro-poor growth.

Segmentation of the Bolivian Economy and its Impact on Growth and Poverty. Based on the findings above, particularly the large gaps by region, education, and economic sector, it is clear that Bolivia's economy suffers from considerable segmentation, with the poor being largely separated from the income-generating and growth processes that tend to favor urban areas as well as resource-based sectors and modernized agriculture. In this section we want to discuss various forms of segmentation of the economy in some more detail.

(i) Urban-rural and formal-informal divide

The urban-rural divide in Bolivia is particularly strong as was shown by the poverty rates, the depth of poverty, and the poverty profile. The particular mechanisms leading to this large divide relate to initial conditions, the dynamics of internal migration, the educational system, and the urban labor market.

The initial conditions relate largely to Bolivia's population distribution. Bolivia's poor are heavily concentrated in the rural areas of the altiplano (highlands) and the valles, following Bolivia's historical settlement pattern which focused on these areas. As these rural areas face difficult ecological and climatic conditions for agricultural production, and suffer from the proliferation of tiny plots, it is not surprising that poverty rates are higher there. In addition, Bolivia's poor have been relatively slow to settle in the areas of dynamic economic development in the lowlands, partly for climate and health reasons as well as the lack of support networks in these areas. Thus much migration of the poor has involved moving to urban areas in the altiplano and valles as well as rural-rural migration within these areas (with particular emphasis on migration related to the coca economy) (CODEPO 2002, Pianto et al. 2004). In 1997, 46% of recent rural migrants went to other rural areas, presumably due to agricultural employment (esp. coca production) as well as family reasons. By 2002, this share had dropped to 37% (with metropolitan areas taking in a larger share of migrants), probably in line with the sharp decline in coca production (Pianto et al. 2004). Probably as a result of the economic crisis which is concentrated in the capital cities, return migration from them to rural areas (as well as to towns) was between 1997 and 2002 very large, making up about 43% of total migration flows between the three regions. It is important to note that female heads of households are over-represented among the rural-urban migrants who apparently see better economic opportunities in large cities; at the same time, migrants do not come from the poorest areas of the country. As far as the economic success of migrants are concerned, they are mostly able to earn as well as their urban non-migrant counterparts, which then raises the question why there is not more migration to equate the large earnings differentials between the regions (World Bank 2004b).[18]

In sum, migration currently does not appear to be a reliable mechanism for ensuring quick convergence of regional disparities and thus is currently unlikely to contribute much towards poverty reduction; this might be an issue for the attention of policy-makers concerned about the poverty impact of these regional disparities (see below).[19] Another point of note is that rural-urban migrants retain a connection to rural areas to which they can return to, suggesting that the segmentation between the regions is not so relevant for this group. Lastly, not only has economic performance of smaller towns has outperformed rural areas and departmental capitals (also in terms of pro poor growth), but they are also the beneficiaries of considerable in-migration. If the past performance is any guide, encouraging and supporting migration from rural areas to these towns could make a significant contribution to poverty reduction.

The large educational divide between urban and rural areas amplified this distinction. In 1976, the average years of schooling of the rural adult population stood at a dismal 1.8 years, compared to 6.1

[18] It is important to note that females were not able to benefit economically as much from migration in the 1990s although things appear to have improved (Pianto et al. 2004).

[19] This is also borne out by regional growth figures which show that the departments with the lowest poverty rates grew the fastest. It is true, that these departments (i.e. Tarija, Santa Cruz, Pando) were the targets of considerable in-migration from poorer departments but this did not enough to reduce disparities (see World Bank 2004b).

years in urban areas (INE 2003a). While investments in rural education have led to better outcomes, the differences remain substantial. In 2001, average years of schooling were 9.2 in urban and 4.2 in rural areas (INE 2003a). In addition, analyses of the selectivity of migrants clearly show that young, well-educated people speaking Spanish as their main language have a much higher likelihood to migrate, thus contributing to a drain of skills from rural areas (Pianto et al. 2004). Taken together, these differentials continue to seriously compromise the economic opportunities of the poor population.

Third, tight regulation of the formal labor market especially with respect to dismissal protection and high costs of formality restrict the access of rural workers and the urban poor, who predominate in the informal and self-employed sectors, to income-earning jobs and keep employment in the formal labor market below levels that would otherwise be possible. This is exacerbated by particularly high institutional and regulatory barriers to formalization in Bolivia, which sharply reduces the incentive for firms to formalize (Kaufmann et al. 2001). As a result of these two problems, the share of informal employment in total employment is among the highest in Latin America (World Bank 2004b). In the 1990s, this was less of a concern since, as a result of other macroeconomic reforms, the demand for labor in the formal sector grew nonetheless and the participation rates in urban areas increased despite considerable rural-urban migration (Jimenez, Pereira, and Hernany 2001; Spatz 2004). However, when the Bolivian economy was hit by external shocks, the tight regulation became a more serious problem and reduced the employment opportunities for recent arrivals and urban informals, as evidenced by the drop of the formal sector share in urban employment to only 50% of employment in 2001 (from 55% in 1997) (Spatz 2004).[20]

While one should not see the urban formal sector as completely closed to rural-urban migrants and the urban poor (Pianto et al. 2004; Tannuri-Pianto et al. 2004), the conditions of entry into the formal sector are distinctly less favorable for these groups. In particular, participation equations in the formal sector suggest that formal sector employment is particularly difficult to achieve for women, for people with a non-Spanish mother tongue, and for the poorly educated (Tannuri-Pianto et al. 2004). In addition, selectivity-corrected earnings regressions show that earnings in the formal sector are much lower for these same groups suggesting that their ability to enter formal sector employment is restricted and happens under worse conditions, both factors that militate against urban formal employment as being an important tool for poverty reduction.

A last barrier associated with the formal-informal and rural-urban divide is the very restricted credit access for self-employed and informal producers. Despite the fact that some of Bolivia's microfinance institutions have been hailed as models to ensure sustainable credit access, data show that the expansion of the portfolio of micro-credit institutions in recent years was associated with a contraction in the portfolio of banks, and that it only covers about 10% of the population operating in 68 of Bolivia's 314 municipalities. In rural areas, credit is virtually unobtainable for anyone except very large producers, and also in urban areas it is highly restricted. These problems are exacerbated by little movement to restructure state wholesale finance institutions and years of inconclusive debate about the possibilities for bringing in informal institutions into the regulatory system.

(ii) The ethnic divide

The urban-rural and formal-informal divide is posing particular problems for the non-Spanish populations of Bolivia, who predominate in rural and urban informal sectors. As shown by Andersen, Mercado, and Muriel (2003), there is very large inequality in educational attainments between indigenous and non-indigenous populations. Analyses of earnings regressions show that lower education levels and lower quality of education account for most of the earnings differences in urban and rural areas between Spanish-speaking and indigenous populations. It is important to note here that Bolivia has, compared to 13 other Latin American countries included in a

[20] Using different data and a slightly different definition, the formal sector share in urban employment dropped to only 32% of employment in 2002 (from 44% in 1997) (Tannuri-Pianto et al. 2004).

comparative study, the lowest educational output in public education in terms of language test scores of fourth graders, while private educational institutions, which largely serve the Spanish-speaking urban populations, exhibit much higher scores (Mercado 2003). The earnings differentials are further exacerbated by occupational crowding of indigenous people in sales, agricultural, domestic service, and other low earnings occupations in the informal and self-employment sectors (Andersen, Mercado and Muriel 2003; Tannuri-Pianto et al. 2004). It is particularly interesting to note that this occupational crowding extends with equal force to public sector employment in education, health, administration and the like (Anderson, Mercado, and Muriel 2003). This adds to a perception of powerlessness among indigenous groups and their consequent mistrust of the government, which until recently had hardly any indigenous representation. It also can explain the finding that subjective poverty rates among particularly Quechua-speaking populations are even higher than objective poverty rates, presumably due to a felt sense of discrimination and powerlessness (World Bank 2004b). This sense is also supported by the finding of particularly low social mobility in Bolivia, compared to other Latin American countries, which transmits poverty intergenerationally (Andersen 2003).

(iii) Highlands agriculture versus the resource-based economy

These divides would be less important if it had been possible to ensure that productivity in highlands agriculture, the mainstay of incomes for many of the poor, had improved in past decades. But here, success has proved elusive for the majority of producers. Qualitative work by Tuchschneider (2001) shows that about 90% of highland producers find that their yields have deteriorated throughout the 1990s due to worsening climatic conditions (higher temperatures and less rain), lack of irrigation, deterioration of soil quality due to overexploitation, lack of land, population pressure and lack of modern inputs. Most development projects to support highland agriculture (which, interestingly, were concentrated on areas that were better integrated avoiding the most remote parts of rural areas) have been deemed unsuccessful by the respondents. Among the reasons cited are that they were often not focused on the central problem of declining agricultural productivity, did not take a holistic approach that addressed the technical, institutional, and economic aspects of the problem, and had little local participation, input, and support. Those few who claim to have benefited particularly value that the projects were focused on achieving substantial changes in the production and crop systems, improved access to irrigation and improved seed varieties and inputs. Given the importance of highland agriculture for employment and incomes, the failure to improve productivity there is critical. It is therefore not surprising that there was little improvement in rural incomes and poverty which is consistent with the international experience that stresses the importance of smallholder agricultural productivity for pro-poor growth (e.g. Eastwood and Lipton 2001; Timmer 1997, Klasen 2004).

In contrast, the most dynamic sectors of the economy have been capital-intensive, export-oriented lowlands agriculture, and the resource-based economy involving oil and gas, which are also highly capital-intensive with little linkages to the poor. In this context it is of particular importance to stress that the decline of tin mining since the mid-1980s (when the tin price collapsed and the government largely abandoned tin mining) took away one form of income from which the poor in some of Bolivia's poorest provinces (particularly in Potosi) had benefited directly and indirectly.

Linking Growth to Poverty Reduction. From the analysis above it is not surprising to find high levels of inequality and poverty in Bolivia and the relatively poor record in poverty reduction in the past 15 years. If anything, it is somewhat surprising that during the 1990s the poor were able to improve their incomes somewhat (from a very low level), including in rural areas, which is true even in our sensitivity analysis (although the rate of pro poor growth is very low). It is likely that this is driven partly by temporarily favorable weather conditions in agriculture, a recovery from particularly poor conditions in the late 1980s, some spill-overs of the growth in the urban formal economy to the rural sector (through migration and remittance linkages), and the considerable importance of the coca economy which is likely to have had a significant direct and indirect impact

on incomes and expenditures in some of the poorest rural areas (such as Chuquisaca, Potosi, and Cochabamba).

Chapter 3: Factors Affecting the Participation of the Poor in Growth

In this chapter we are discussing the impact of initial conditions and policies on the participation of the poor in the growth process. We approach this question using two different methods. First, we discuss the role of initial conditions as well as macro and public spending policies on pro-poor growth in the past 15 years. We then turn to a formal assessment of the role of policies using a dynamic CGE model. While the particular policy simulations used are trying to assess the potential for pro-poor policy reforms as we look into the future, we also use these simulations to explain the record in the past.

a) Role of Initial Conditions

Bolivia's initial conditions are generally unfavorable for achieving pro-poor growth. Bolivia suffers from being a large land-locked country with a poorly developed infrastructure that increases the remoteness of many of the poor from markets and potential income-earning opportunities. Remoteness is also likely to account for the high poverty rates and the few changes in Bolivia's most remote and poorly developed highland and valley provinces (particularly Potosi and Chuquisaca). For those poor the otherwise positive impact of a liberalizing and integrating economy has been found to be much smaller (World Bank, 2004b), a finding similar to Christiaensen, Demery and Paternostro for a sample of African countries (Christiaensen, Demery and Paternostro 2002). Thus whatever growth has taken place has been concentrated in areas with lower poverty, while the poorest provinces have experienced below average growth and thus lower poverty reduction. The high initial income, land, and ethnic inequality is making poverty-reducing growth more difficult to begin with (World Bank 2000, Klasen, 2004) and the high ethnic fractionalization is making policy-making for pro-poor growth particularly difficult (e.g. Alesina et al. 2003). In fact, Alesina et al. (2003) cite Bolivia as a particular example of how high ethnic fractionalization contributed to poor policy choices and poor quality of public goods in the 1980s. While governance clearly improved after the crises and reforms of the mid-1980s, governance indicators remain weak compared to Latin American averages in past years (Kaufmann et al. 2003, see also below). A particular governance challenge that was inherited from decades of military rule and coalition governments was the rise of patronage relationships and informal procedures and practices in the public sector, which in turn supported a growing informalization of the private economy which severely restricts its growth potential (Kaufman et al. 2001).

Lastly, Bolivia is hurt by an economic structure where (with the exception of coca) its most lucrative exportable products, particularly oil, gas, some mining products, soya and other agricultural exportables, are highly capital-intensive and provide few linkages to the poor. This is partly due to nature and geography, but also linked to the inability to develop a dynamic smallholder agricultural sector with a great potential for import substitution and exports. As a result (as will be shown below in some of the simulations), the potential impact of these export products for poverty reduction is small and can even be negative if the Dutch Disease effects dominate the otherwise potential beneficial effects of greater exports for poverty reduction.

Box 3:
Land Distribution and Reform and Pro-poor Growth
As part of the revolutionary government of Victor Paz Estenzorro in the early 1950s, Bolivia enacted comprehensive land reform that included a freeing of peasants from labor duties and gave them access to

some land. Despite some short-term success, the reform did not solve the problems of poverty in the highlands. Instead, subdivisions and increasing land pressure led to increasingly smaller plots with little modern inputs. The process largely stopped in the 1970s and due to the emergence of landed estates in the lowlands, land inequality in Bolivia is as high as elsewhere in Latin America.

A new push for agrarian reform came with a new land reform law in 1996. The focus here is on titling although the expectation was that this would lead to restoration of illegally seized land, redistribution of public lands, and a renewed push for land reform. Unfortunately, despite relatively good progress in titling (which is nevertheless somewhat behind schedule by now, see Anderson and Evia, 2003), little redistribution has happened as a result of this process, leading to considerably disappointment with land reform process and calls for redistributive land reforms.

Plan Tierra tried to address this by redistributing some public lands in specific projects, but this was widely seen as too little, too late, and not broad enough. Landless movements have sprung up and demands for further land reforms are considerable. At the same time, it is clear that there is not much land available for redistribution in the highlands and valles (apart from some public lands) and most land for redistribution would be in the lowlands. At the same time, there might be some scope for land reform by using land taxes to bring underutilized private to the market, a subsidy and support program for emerging farmers, and further redistribution of public lands.

Land reform is among the most pressing social and political issues currently under discussion and it is clear that political and social stability will depend on successful resolution of these issues.

Source: Urioste (2003), World Bank (2003b).

b) Macro Policies and Pro-poor Spending

Bolivia's macro and public expenditure approach to poverty reduction can be seen as closely following the World Bank's 1990 model for poverty reduction, which focused on developing a growth-oriented strategy and accompany it with investment in human resources and safety nets for the poor (World Bank 1990). Consequently, the growth agenda was largely seen as separate from a poverty-reduction agenda in the belief that high growth would ensure sufficient poverty reduction. This should be aided by investment in human resources that could then allow for a participation of the poor in the growth process. For those who were left behind, safety nets (such as the Bolivian Social Fund and public works programs) should try to address this problem. While this approach worked as long as growth was satisfactory and there were increasing resources to be used for expanding social sector spending, it failed to sufficiently promote the productive activities of the poor and in addressing the large equity problems permeating Bolivia's society.

Macro policies and poverty. As already discussed in Chapter 1, the macro policy agenda was mainly one of stabilization and liberalization. One particular focus of macro policy was to ensure low and stable inflation and this has been achieved for the past 20 years (see Table 2). Given that inflation tends to hurt the poor disproportionately, this macro policy is likely to have supported poverty reduction. In addition, the external capital account was liberalized and a friendly foreign investment regime was established. While this allowed a significant increase in foreign direct investments throughout the 1990s (Schweickert et al. 2002, World Bank 2004a) the liberalization of the external capital account contributed to a further increase in dollarization of the economy which severely limited the room to maneuver as far as exchange rate policies are concerned. There were no efforts to combat dollarization, which remains high to this day. While the policy of allowing dollarization *per se* is neither pro- nor anti-poor, it increases the vulnerability of the economy to exchange rate shocks (such as the appreciation of the US$, or the sharp devaluation of the Brazilian and Argentinian currencies as it occurred in the 1998-2001 period) which can hit the poor more as they are unable to shield themselves against such shocks. Also, it was not possible to use exchange rate policies to affect the distribution of income through the use of a real depreciation that would

favor poor export and import-competing producers at the expense of wealthier import-consuming parts of the population (see Klasen 2004). In addition, strong trade liberalization, while improving the allocative efficiency of Bolivia's economy, further undermined the ability of Bolivia to manage its external environment to support poor producers, particularly in an environment of sharply fluctuating currency movements with its trading partners.

Fiscal and public expenditure policies. In the areas of fiscal and public expenditure policies, the pro-growth agenda initially dominated policy-making and fiscal policy aimed at low budget deficits, which was achieved through tax reforms, prudent expenditure policies, and divestiture from loss-making state-owned enterprises. Tax reforms largely focused on broadening the tax base through a value added tax and a transactions tax which together make up some 60% of tax revenues in 2002. A hydrocarbons tax is the only other significant tax generating about 18% of revenues (Servicio de Impuestos Internos 2003). As a result, there is no progressivity in the tax system, which could be achieved via an income tax on those employed in the formal sector, a serious tax on large land-holdings (also to facilitate the sale of underused land by large landowners) or other real estate, or significant surcharges for particular items mainly consumed by the non-poor.[21]

As long as growth was relatively high in the 1990s, and tax revenues continued to rise, the government was able to maintain relatively low budget deficits while at the same time ensuring rising expenditures for priority social sectors, such as health and education. Public expenditures as a share of GDP rose sharply in the 1990s, and also public capital expenditures were high by international standards (World Bank 2004a); excluding social security, Bolivia now devotes the second-highest share of its GDP to public social expenditures in all of Latin America (World Bank 2004c).

This was also supported by generous aid flows and complemented by funds made available by HIPC I and II, with the latter being channeled entirely to the municipalities to fund priority investments, mostly in the social sectors and recently also in infrastructure.[22] Public expenditures in health, education, and infrastructure do reach the poor, although to varying degrees (World Bank 2004a, c). In particular, while the poor get the same absolute amount of resources as the rich of public health expenditures, they get slightly more than that in public primary education (the poorest 40% capture about 50% of public expenditures on education, presumably due to their larger families and greater use of the public system). Public funds for secondary education are proportional or slightly pro-rich depending on the study (World Bank 2004a, c), largely due to an income gradient in enrolment rates, and public spending is sharply pro-rich at the tertiary level. As universities take up 32% of total education spending in 2003, the total effect of education spending is proportional, i.e. it reaches the poor about as much as the rich. Payments from the public pension system are strongly pro-rich with the non-poor (who make up 40% of the population in the study) collecting 83% of benefits. As a result of this strong bias, total current public social spending was pro-rich, i.e. with 54% of the benefits going to the non-poor and only 46% to the poor.

Investments in infrastructure at the municipal level are also strongly pro-rich, with the richest quintile capturing about twice the absolute amount of subsidies as the poorest fifth in 2000 (World Bank 2004a). This bias has been considerably reduced in the last several years, partly as a result of the National Dialogue Law, which required spending from HIPCII resources to be targeted to poorer communities (World Bank 2004c).

Thus public spending presents a mixed picture as far as its poverty and equity impact is concerned. While it does reach the poor to some extent, it could do so much more than is currently the case.

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[21] Such taxes could, however, face compliance problems in an economy where contraband is widely available and tax evasion is considerable (Delgadillo 2000). In 2003, a few taxes were changed to increase tax revenues but they did not seriously affect the progressivity of the tax system.

[22] The World Bank Public Expenditure Report notes that from 1996 to 2001, 75-80% of municipal investment was in the social sectors, while in 2002 infrastructure received 34% with social sectors falling to 58% (World Bank 2004a). Investments in productive activities were always low and only amounted to 3-6% in the period.

Better targeting could be achieved through demanding greater co-payments for health and education for the non-poor, as well as boosting access to health services and enrollments in secondary and higher education for the poor (through dedicated programs including subsidies). Moreover, as the pension system overwhelmingly benefits the non-poor, limiting the obligations would automatically reduce the anti-poor bias of the overall social expenditure system.

The ability to combine the maintenance of fiscal discipline with rising social expenditures collapsed in the late 1990s leading to ever-rising and now unsustainable budget deficits (reaching 9% of GDP in 2002). Three factors largely account for this deterioration (World Bank 2004a). First, tax revenues plummeted in line with the economic slowdown that began in 1999, while expenditures continued to rise. Second, a mismanaged pension reform led to much higher than anticipated costs. It is now costing 5% of GDP while providing benefits to only 2% of the population, most of them non-poor formal sector retirees in urban areas. Third, due to Bolivia's decentralization program and the dedication of HIPC funds to the municipalities, there is little central control or even information over expenditures, thereby weakening the ability of the central government to maintain fiscal discipline.

As will be discussed in more detail below, the bargain that maintained economic growth and social stability in the 1990s and involved the continuation of an economic model fashioned on the Washington Consensus, while ensuring social stability through significant transfers to the social sectors, thus became unstuck. It appears that in a situation where inequality, social and ethnic tension are high, such a bargain proves unsustainable and extremely fragile. It has contributed to great opposition to the government, calls for populist reforms, and now has thrown the debate about the appropriate economic model wide open in the form of the constitutional assembly that will now address these issues. A continuation of the current bargain seems not possible, nor is it fiscally feasible, and a new approach to economic policy-making is required.

c) Assessment of the Impact of Shocks and Policies on Pro-poor Growth

In this section, we make use of the dynamic CGE model described in Annex 2 to assess the impact of shocks and policies on Pro-poor growth. While the general approach in this section is to simulate forward-looking policies and focuses on the impact of shocks and policies on the ability to reduce poverty and inequality, we will also comment on the extent to which they are able to explain past performance in growth, inequality, and poverty reduction.

In its Poverty Reduction Strategy Paper (PRSP), which was completed in May 2001, the Bolivian government formulated ambitious social goals to be achieved over the period 2001–2015 República de Bolivia 2001). Among the improvements the PRSP envisages are the following targets with respect to income poverty:

- a reduction of the nationwide poverty incidence from 63 % to 41 %;
- a reduction of the urban poverty incidence from 47 % to 32 %;
- a reduction of the rural poverty incidence from 82 % to 52 %.

Success in reaching these and other social targets will to a large extent depend on Bolivia's ability to achieve higher growth. The PRSP calls for average growth in excess of 5 % over the period under consideration, compared with an average growth rate of about 4 % in the 1990s. It acknowledges that faster growth will require additional structural reforms – in particular a more flexible labor market and a more efficient tax system – which enable the country to boost private investment, and that only measures specifically tailored to poverty groups, such as investments in rural infrastructure, can make growth more pro-poor than in the past.

So far, the expectations raised in the PRSP have not materialized. During the protracted economic slowdown of the last 5 years, both per capita income and the incidence of poverty have stagnated at

best. In a recent revision of the PRSP, the Bolivian economy is projected to grow at an average rate of 4.8% between 2006 and 2015 (UDAPE 2003a), which is somewhat below the original projections. Moreover, poverty elasticities with respect to overall growth have been revised downwards from -0.77 to -0.60 and from -0.54 to -0.26 for urban and rural areas, respectively. Given these estimates, which are extremely low in international perspective, and the target growth of 4.8%, the headcount index is now only expected to fall to 54 % nationwide and to 45 % and 75 % in urban and rural areas, respectively, until 2015.

Against the background of these fairly disparate projections, Bolivia's prospects for achieving pro-poor growth will be evaluated using the CGE model. In particular, it will be examined how external shocks and policy reforms in different areas, ranging from macroeconomic stabilization to poverty-focused interventions, might affect the trajectory of the Bolivian economy and the evolution of poverty.

While assessing model results, two central characteristics of the model have to be kept in mind. First, economic growth is determined by changes in the endowments of the primary factors capital and labor as well as the efficiency with which these factors are used. As far as efficiency of using factors is concerned, the model assumes an exogenously given rate of TFP growth of 2% per year.[23] Thus all changes in the simulations will depend on changes in the primary factors capital and labor. The major driving forces of labor dynamics are population change, migration, the rate of labor productivity growth, and the change in human capital. Of these, the model only takes account of population changes, which are kept constant over simulations, and migration. The driving forces for capital accumulation are domestic savings and foreign capital inflows as well as relative returns on financial (domestic and foreign) and physical assets. Since net capital inflows are exogenously given in most simulations[24], differences in growth rates across simulations are the result of changes in total domestic savings. Second, the model assumes a full employment situation for all types of labor and capital categories in each period of the simulation horizon. Hence, unlike other models for Bolivia that analyze short-run issues (e.g. Jemio 2001; Jemio, Wiebelt 2003; Thiele, Wiebelt 2004), this model neglects Keynesian multiplier effects that might result from changes in current and investment expenditures. With the exception of some taxes and limited intersectoral mobility of certain factor categories, there is essentially no difference between the technologically feasible production possibility set and the resulting transformation set reflecting market behavior and institutional characteristics of the economy. All markets are cleared and overall output is almost fixed within individual periods. Taken together, these two model characteristics imply that the model cannot be viewed as a short-run projections model and is not intended for that purpose. It is better suited to explain medium- to long-term trends and structural responses to changes in external conditions and development policy. But the problems facing pro-poor growth are inherently longer-run problems, and the model thus naturally reflects an emphasis on the long run rather than on the short run, on growth rather than stabilization, and on trends rather than cyclical variation.[25]

(i) An Optimistic Baseline Scenario

A scenario that describes how the Bolivian economy might evolve in the absence of shocks and policy changes serves as a benchmark against which all alternative developments will be evaluated.

[23] Two comments are in order. First, while the assumption of TFP growth of 2% is relatively high (slightly higher than was found for the 1990s), for an optimistic baseline scenario it appears realistic. Second, one may speculate that some of the policies proposed will have an impact on TFP growth. This is possible but there is very sparse literature on this subject, both in an international as well as in a Bolivian context. One might therefore speculate that the effects of some policies might be larger because of knock-on effects on TFP growth.

[24] Exceptions are the simulations of declining capital inflows, where capital inflows are changed exogenously, and of a devaluation, which changes the domestic currency value of capital inflows.

[25] As such, it is also not possible to use the model to track the actual development over the 1990s where short-run cyclical variations play a considerable role. Instead, we can comment on the impact of the various shocks and policies on past growth and poverty reduction.

In this scenario, the economy exhibits smooth economic growth of about 4.7 percent on average over a ten-year period (Table 10)[26], where economic growth is driven by capital accumulation, (exogenous) growth of the labor force, and (exogenous) technical progress (2% TFP growth). This not only describes an optimistic forward-looking scenario, but is also a good description of the record of Bolivia in the 1990s. The growth process is associated with roughly constant domestic savings and investment ratios, which implies that the large savings gap is not closed over time. The continuing savings gap corresponds to a persistent current account deficit, and both are reflected in a fairly stable real exchange rate.

In line with past experience, the structural change projected in the baseline scenario is rather moderate. The shares of the broad aggregates "Agriculture", "Industry" and "Services" in total value added barely change over time. More pronounced shifts of resources are taking place within these three sectors. Within agriculture, for example, the more productive export-oriented segment gains at the expense of the traditional, subsistence-like segment. The same pattern prevails in the services sector, where higher productivity growth and a higher income elasticity of demand raise the provision of formal relative to informal services.

From a distributional point of view, the baseline scenario suggests that without further policy reforms and without external shocks the rise in urban inequality observed over the 1990s will continue, and that the rural-urban gap in income levels will widen. In addition, inequality within rural areas will also increase. In both urban and rural areas inequality is already at very high levels, which is why aggregate growth in Bolivia barely translates into poverty reduction. As the following figures indicate, this holds in particular for rural areas. In the course of the simulated 10-year period, the national headcount merely declines from 63.6 percent to 55.3 percent. The moderate reduction results from a decrease in the urban headcount from 49.7 percent to 38.9 percent, and a reduction in rural poverty of only 4 percentage points from 86.9 percent to 82.8 percent. Even under this optimistic scenario, Bolivia would just manage to reach the revised national poverty reduction target. According to our model, however, poverty reduction in rural areas falls short of the reduction predicted in the revised PRSP, while urban poverty declines faster.

(ii) Accounting for External Shocks

The assumption made in the baseline scenario that no external shocks occur during the simulation period is highly unrealistic in the Bolivian context. Most predictably, the agricultural sector is recurrently hit by the El Niño phenomenon. Furthermore, a resource-based economy such as Bolivia's has to cope with volatile terms of trade for primary goods. And as the Brazilian crisis forcefully demonstrated, Bolivia's small open economy can hardly avoid being affected by instabilities in neighboring countries. In particular, the experience of the Brazilian crisis suggests that the high level of foreign capital inflows realized in the mid-1990s should not be taken for granted. Doubts about the sustainability of these inflows are reinforced by the fact that most foreign direct investment was related to the capitalization process, which was more or less completed at the end of the 1990s.

El Niño. Among the external shocks threatening Bolivia, El Niño carries the highest cost in terms of short-run agricultural output losses. An El Niño shock of average size may lower GDP growth by about one percentage point in the year of its occurrence. Since this is only partly compensated by higher growth in subsequent periods, and since El Niño tends to occur every three years, the losses add up to significantly lower average growth rates (Table 10). In addition, the fall in agricultural exports during El Niño years leads to a deterioration of the current account balance and a real depreciation of the Boliviano. The real depreciation, in turn, gives rise to a reallocation of resources from inward-oriented sectors such as utilities, construction, and informal services to more outward-oriented sectors such as intermediate goods and mining.

[26] For more detailed information, see Annex 4, which also includes other poverty measures and inequality measures. It should be pointed out that the poverty gap often shows larger results than the poverty headcount, as has been the case in the past.

The direct distributional consequence of El Niño is that smallholders and agricultural workers suffer income losses. The same is true for employers, who obtain a significant share of their capital income from investments undertaken in modern agriculture. The negative impact on these three household groups is somewhat dampened by a slight increase in domestic agricultural prices as a result of supply shortages.[27] The price increases are not strong enough, however, to show up in lower real incomes for urban food consumers. In urban areas, the only major effect of El Niño on household incomes runs via the real devaluation, which makes the providers of non-traded informal services worse off. By contrast, the overall income position of non-agricultural workers and employees is hardly affected as their gains in tradable sectors tend to offset their losses in non-tradable sectors. The decline of urban informal income results in a quite considerable increase in the urban poverty incidence. In some periods, the urban headcount increases by more than 1.5 percentage points compared to the baseline scenario. The rise in urban poverty is comparable to that in rural areas where the headcount is on average about one percentage point higher than in the base run. Inequality rises somewhat within urban areas, and quite considerably in rural areas, which is mainly due to the fact that the losses of the employers in modern agriculture are less pronounced than those for rural workers and smallholders.

Terms-of-Trade Shock. Terms of Trade shocks, such as the 10-percent decrease in world market prices for agricultural and mineral products considered here, differ from supply shocks, such as El Niño, in one main respect: they do not impair production capacities and thus do not lead to major output losses as long as the economy operates at or near full employment.[28] Rather, the direct effect of the Terms of Trade shock is to reduce relative output prices and the incomes earned in the affected sectors, which induces a shift of production towards non-affected sectors. Further economy-wide repercussions are caused by the fall in agricultural prices, which lowers intermediate input costs for processed agricultural products and thereby boosts output in the consumer goods sector, and – analogous to the case of El Niño – by the real devaluation that follows the widening of the current account deficit.

The negative income effect of the Terms of Trade shock is most strongly felt by agricultural workers as the export-oriented modern agricultural sector, where they earn their living, experiences a marked decline. For smallholders, who mainly serve the domestic market, the drop in real income levels is much less severe. For the urban household groups, various factors work in opposite directions, and they appear to cancel out. Urban informals, for instance, benefit from lower food prices, while the real devaluation and an increase in rural-urban migration exert downward pressure on their real income. Therefore, urban poverty remains virtually constant, whereas poverty in rural areas increases slightly. In rural areas, the income distribution worsens to some extent because of the income losses experienced by the workers in modern agriculture.

Declining Capital Inflows. If foreign direct investment (FDI) falls by almost a third, as has been the case in Bolivia in the year 2000, this causes only about half the immediate output losses of El Niño, but the impact turns out to be much more persistent.[29] Even after ten years, growth has not fully recovered. The fall in FDI lowers the domestic investment ratio by about 2.5 percentage points, which narrows the savings gap because domestic savings hardly change. Correspondingly, the current account deficit improves, with rising exports and falling imports. The losses incurred at the macro level are spread over all sectors using formal capital, and over those producing capital goods. Since traditional agriculture and informal services lack access to formal capital, smallholders

[27] It is assumed that domestic agricultural prices are to a large extent determined by world market conditions so that there is only limited scope for independent domestic price movements.

[28] The assumption of full employment, which does not rule out the existence of underemployment, seems to be justified at least in non-recession years where open unemployment tends to be very low. But even shocks which mainly affect agriculture are unlikely to drive up open unemployment as the rural population cannot fall back on a social safety net.

[29] Since a dramatic fall in FDI can be expected to lead to temporary open unemployment on a significant scale, the true short-run losses probably exceed those reported here.

and urban informals are the only household groups, which do not immediately suffer from the shock. A real devaluation of the Boliviano, however, indirectly hurts the urban informals, while it benefits modern agriculture to such an extent that the sector's loss of FDI is overcompensated.

Temporarily, smallholders and agricultural workers gain slightly from the shock, but lose somewhat in the medium run as a result of lower economic growth. This drives the evolution of the rural poverty incidence, which decreases slightly in the shock period, but increases by up to 0.7 percentage points afterwards. Over the entire simulation period, the rural income distribution improves quite considerably. By contrast, all urban households are negatively affected by the decrease in FDI. During adjustment to the shock, the urban headcount increases by almost two percentage points compared to the baseline scenario. The urban income distribution worsens somewhat, which is mainly due to the very pronounced decrease in urban informal income.

A similar drop in portfolio investment, which was the main consequence of the Brazilian crisis, strongly reinforces the negative short-run impact of the fall in FDI. During the initial year, both shocks combined drive the growth rate of real GDP down by about 1.5 percentage points. Since lower portfolio investment reduces growth only temporarily, the medium-run impact is dominated by the reduction of FDI. Average growth over the whole simulation period is about 0.3 percentage points lower than in the baseline scenario. The medium-run poverty outcome for the combined shocks is very similar to the FDI shock alone. In the short run, however, the impact on urban poverty is much stronger, with an increase of the urban headcount by 3 percentage points during the first period.

All in all, a realistic baseline scenario for Bolivia's medium-run development prospects would have to acknowledge that under the current policy framework average growth rates are unlikely to lie markedly above 4 percent. Compared to the optimistic scenario, this implies worse prospects for poverty reduction.

Apart from helping to arrive at a realistic assessment of Bolivia's medium-run development prospects, the simulations discussed above may also contribute to explain the past evolution of the economy.[30] Over the 1990s, the foreign investment boom triggered by the capitalization process has in all likelihood been a key factor behind the comparably high growth rates until 1998. And according to our results, the poverty impact of foreign-investment-driven growth tends to be biased in favor of urban households, but does not completely bypass the rural economy. Compared to this effect, agricultural shocks have only played a minor role between 1990 and 1998. The only major exception is a severe El Niño, which in combination with declining prices for some primary products led to negative per capita income growth in 1992 and thus may have worsened the overall poverty outcome for rural areas in the early 1990s (as found above). A favorable external environment for agricultural production may at least partly explain the result obtained in Chapter 2 that the rural poor fared exceptionally well over the period 1994 to 1998. The recession that started in 1999 has in all likelihood hit urban households harder than rural households because the sharp decline in foreign capital inflows in the year 2000 has clearly dominated the agricultural shocks (El Niño, deterioration of terms of trade), which set in a year earlier.

(iii) Macro policies

One of Bolivia's biggest achievements since the beginning of reforms in 1985 has been the containment of inflation by means of prudent monetary, fiscal and exchange rate policies.[31] It might be argued that now, with an internal equilibrium that is firmly established, the exchange rate could be used to improve the external competitiveness of the Bolivian economy and affect its income

[30] With a grain of salt, the simulation results may be used for the explanation of past developments because the baseline scenario considered here is basically an extrapolation of the situation prevailing in the 1990s before the recent recession.

[31] Since inflation is unlikely to be among the major policy issues in the foreseeable future, measures aimed at containing inflation will not be analyzed here.

distribution, given that the Boliviano has always been quite strong (Schweickert et al. 2003). The macroeconomic policy instruments are also still needed to bring about the real devaluations required in the face of negative external shocks.

Nominal Devaluation. A higher yearly devaluation of the Boliviano within the crawling peg regime causes an almost complete exchange rate pass-through to domestic prices, which will rise by nearly the same amount as the Boliviano is devalued as Bolivia's ability to respond to higher import prices with competitive import-substituting domestic production is quite limited.[32] The resulting real devaluation is therefore too small to provide the incentives for a significant reallocation of resources, and the minor real adjustment that occurs has no discernible effect on aggregate economic performance. Real effects, however, originate from the financial side of the economy, which is strongly and directly affected by the devaluation. This is because in the highly dollarized Bolivian economy the value of most assets and liabilities is indexed to the Dollar exchange rate. As a consequence, the net wealth position of net creditors in the financial system improves, while that of net debtors worsens. Since the economy as a whole – in particular the government – is a strong net foreign debtor, the overall wealth effect of the devaluation is negative. The deterioration of the domestic wealth position leads to a drop in aggregate real investment and a fall in the growth rate, which accelerates over time due to a compound interest effect. Among the household groups, the two richest, employers and employees are the only major actors on financial markets. Both are net creditors and thus benefit from higher net wealth and interest income, i.e. the revaluation of assets caused by the devaluation tends to reinforce existing wealth disparities. All other household groups are adversely affected by the negative growth effect. Unskilled workers and urban informals are most severely hurt because many of them are employed in the construction sector where production growth is lower because of lower real investment demand. As a consequence, urban inequality increases and urban poverty rises somewhat more than rural poverty. Thus such a policy would be counter-productive and poverty-increasing in the current environment of near complete pass-through to domestic prices, high dollarization, and large foreign debt. Conversely, tackling any of these three constraints successfully could change the assessment of such a policy considerably.

[32] During recessions such as the current one, when capacities are underutilized, the pass-through will of course be lower, but the question here is whether the exchange rate can contribute to improve Bolivia's competitiveness in the medium run.

Table 10: The Impact of Shocks and Policies on Growth and Poverty

	Average Growth (%)	National[a] Headcount	Urban[a] Headcount	Rural[a] Headcount
Baseline Scenario	**4.7**	**55.3**	**38.9**	**82.8**
Terms-of-Trade Shock	4.7	55.6	39.1	83.3
El Niño	4.4	56.3	39.7	84.1
Declining Capital Inflows	4.4	56.3	40.3	83.3
Nominal Devaluation	4.5	56.7	40.4	83.9
Real Devaluation (restrictive monetary policy)	4.7	54.8	38.1	82.9
Labor Market Reform	5.0	54.4	37.4	82.8
Tax Reform (revenue-neutral)	5.0	53.9	37.0	82.4
Gas Projects (higher government consumption)	5.1	54.9	37.8	83.8
Gas Projects (constant government consumption)	5.3	53.8	36.1	83.7
Gas Projects (constant government consumption) plus Labor Market Reform plus Tax Reform	5.8	52.0	33.5	83.0
Improved Access to Credit for Smallholders	4.7	55.2	38.8	82.8
Investment in Rural Infrastructure (high productivity effect)	4.8	55.0	38.6	82.4
Investment in Rural Infrastructure (low productivity effect)	4.8	55.1	38.7	82.5
Industrial Policy (modern agriculture)	4.7	55.7	39.6	82.7
Industrial Policy (consumer goods)	4.6	54.9	38.3	82.8
Transfer Program (lower government consumption)	4.7	53.8	37.9	80.5
Transfer Program (lower public investment)	4.5	54.6	38.9	81.1
Gas Projects plus Transfer Program	5.1	53.5	37.1	81.0

[a]Ratio at the end of the 10-year simulation period. Please note that the initial poverty headcounts are: 63.6% national, 49.7% urban, and 86.9% rural.

Source: Own calculations based on the CGE model.

Real Devaluation. A real devaluation can be achieved if the Central Bank conducts a restrictive monetary policy. By constraining the opportunities of private banks to supply credit, such a policy temporarily lowers aggregate real investment demand and thereby exerts downward pressure on the domestic price level. The drop in real investment, in turn, causes a temporary economic slowdown. Specifically, it has a contractionary impact on capital-intensive sectors and on the sectors providing capital goods. This effect dominates the restructuring of production resulting from the real devaluation, which brings about an improvement of the current account. Household incomes are only moderately affected by these adjustments. While the investment slowdown makes non-agricultural workers, in particular construction workers, slightly less well off, the real depreciation entails minor losses for urban informals and minor gains for rural households. After the short-run adjustments, the economy soon shifts back to the old growth path, and household incomes evolve largely as in the base run. As construction output rebounds rather strongly, non-agricultural workers and urban informals even realize small medium-run gains so that urban poverty declines somewhat towards the end of the simulation period. All in all, the negative impact on poor households often attributed to real devaluations is unlikely to occur in Bolivia.

(iv) Structural reforms

By Latin American standards, Bolivia has also made remarkable progress in the area of structural reforms (see, e.g., Lora 2001). The main exception is labor market reform, where Bolivia lags behind most other Latin American countries. Among the labor market distortions that still prevail, the segmentation of the urban labor market into formal and informal parts stands out. The tax system is another area where further reforms may be warranted. In particular, the question arises of whether the income tax, which hitherto has been of only marginal importance, should become a major source of government revenues.

Labor Market Reform. If the government makes it easier for urban informals to be employed as unskilled workers in the formal labor market, e.g. by lowering the costs of dismissal or by granting more options for temporary work, the obvious direct effect is that average real wages go down for unskilled workers and up for urban informals. Better earning opportunities in the urban informal sector, in turn, induce rural-urban migration on a significant scale, which moderately increases the incomes of those who stay in traditional agriculture. At the macro level, the efficiency gains achieved by reducing labor market segmentation – the wage differential between informal labor and unskilled labor is roughly halved – translate into average economic growth rates which are more than 0.3 percentage points higher than in the base run.

On balance, these developments cause negligible distributional shifts in urban areas because higher incomes for informals are offset by lower incomes for unskilled workers. Nonetheless, urban poverty decreases because of higher growth, but it takes some periods for the positive growth effect to materialize. The rural income distribution changes somewhat in favor of poorer groups due to the gains experienced by smallholders. This change and a slight increase in rural growth do not show up in the poverty headcount, but the rural poverty gap falls moderately (see Annex 2).

Tax Reform. A rise in income taxes for all household groups except smallholders and urban informals directly forces the two richest household groups, employers and employees, to consume and save less. For worker households the impact on disposable income is not strong enough to alter consumption and savings significantly.[33] The main indirect effect runs via a tax-induced fall in aggregate private consumption, which lowers the prices received by smallholders and urban

[33] The impact of the tax increase on aggregate poverty and income distribution cannot be calculated because the household survey on which the distributional measures are based does not contain information on income tax payments.

informals und thus worsens their real income position. The growth effect of the tax increase depends on how the receipts are allocated between consumption and investment. Under the assumption that the government broadly retains the original structure of expenditures, it is likely to be moderately contractionary in the medium run as the rise in public investment does not suffice to fully offset the fall in private investment. This in turn would have a negative impact on the factor incomes of all household groups.

If higher income taxes are combined with lower indirect taxes so as to arrive at a revenue-neutral tax reform, the economy-wide outcome is different.[34] Lower indirect tax rates cause an expansion of capital-intensive industries (oil and gas, mining, intermediate goods), where the indirect tax burden is highest, and thus boost investment and growth. Overall, given the current tax structure, a revenue-neutral tax reform can be expected to improve Bolivia's growth performance. As for household incomes, the decrease in indirect taxes raises private consumption expenditures, thereby offsetting the negative demand effect that higher income taxes have on smallholders and urban informals. The main beneficiaries of the reform are non-agricultural workers, many of whom work in the mining and the intermediate goods sector, as well as in construction, which benefits from higher investment demand. The expansion of the construction sector additionally favors urban informals so that on balance their incomes are also significantly higher than in the base run. The gains of these two groups reduce the urban headcount ratio by up to 2 percentage points, and even rural poverty falls a little due to the growth effect.

(v) Gas Projects

Perhaps more than any macroeconomic and structural policy reform, the development of the natural gas sector promises to change the medium-run growth path of the Bolivian economy. Two large export-oriented hydrocarbon projects with Brazil and Argentina are already being implemented and another project involving the export of liquefied natural gas to North America has entered the planning stage but is currently on hold (IMF 2004). Taken together, these projects could roughly double the share of oil and gas in total domestic production from 5 to 10 percent within a decade, oil and gas could finally account for as much as 50 percent of total exports. Since the sector is an "enclave" in the sense that it uses negligible domestic inputs and generates little employment, its main link to the economy is through the fiscal accounts via increased revenues from taxes, and through its effects on the balance of payments – the current account improves and the exchange rate appreciates in real terms.

The natural gas boom translates into markedly higher economic growth. In 2008 and 2009, when the liquefied natural gas project is assumed to reach full capacity, the growth rate is likely to approach 6 percent.[35] These average gains are likely to be somewhat underestimated because the upfront investment necessary to construct and develop large gas projects is not taken into account.[36] The size of the growth effect will also depend on how the government uses its additional revenues. If the receipts are channeled into consumption, the average gains over the simulation period will only be about two thirds as large as if consumption growth is left constant and the resources are instead used to prop up public savings. Choosing the latter option would increase the overall domestic savings ratio by up to 3 percentage points compared to the base run, a remarkable improvement which macroeconomic and structural reforms are unlikely to achieve.

The real appreciation of the Boliviano, which in the peak years of the resource boom might reach 8 to 9 percent, leads to a contraction of export-oriented sectors such as modern agriculture, mining,

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[34] To arrive at a revenue-neutral tax reform, tax rates in those sectors that are mainly subject to indirect taxes have to be lowered by roughly 20 percent.

[35] The growth results obtained here come quite close to the projections reported in IMF (2004).

[36] While most of the inputs, in particular capital goods, will need to be imported, some domestic activities such as construction and business services might benefit during the early phases of the gas projects. The pipeline construction to Brazil is estimated to have contributed some 1.5% of GDP in 1996-97.

and consumer goods, and an expansion of nontradables, in particular construction. This is the well-known Dutch Disease effect of resource booms, which, however, turns out to be rather moderate except for the two peak years. By keeping consumption growth constant, the government can slightly dampen the Dutch Disease effect. As a further economy-wide repercussion, lower consumer goods production reduces intermediate demand for agricultural raw materials so that modern agricultural activities contract even more, while smallholders suffer from declining prices as they can hardly adjust supply. A restructuring of final demand away from private consumption reinforces the pressure on smallholders' prices and also hurts urban informals. Together with the fact that rural-urban migration rises considerably, this explains that urban informals are slightly worse off as a result of the gas projects even though they benefit from the real appreciation and the expansion of the construction sector. Overall, rural areas, i.e. smallholders as well as agricultural workers, suffer significant income losses, in particular in the two peak years. In urban areas, both unskilled and skilled workers gain, with the gain of skilled workers, who are for the most part employed in the public sector, being much more pronounced if government consumption expands.

These changes in relative factor prices induce major distributional and poverty changes. From a national perspective, inequality increases substantially, which is due to both rising inequality between and within urban and rural areas. In the scenario with higher government consumption, the national Gini coefficient increases by about one percentage point. The results regarding the evolution of poverty during the gas boom are disappointing. Despite considerably higher growth rates, the decrease in nation-wide poverty is only moderate compared to the baseline scenario. More remarkably, rural poverty even increases substantially, with a rural headcount that falls by up to one percentage point. The rural poverty gap ratio, which during the second half of the simulation period is about 2.5 points higher than in the baseline scenario, illustrates that many of those who were already poor incur income losses.

A somewhat more favorable outcome could be expected if the government refrained from raising consumption expenditures. In this case, the headcount would be significantly lower in urban areas, but rural households would hardly benefit and thus would remain markedly worse off than without the gas projects. In addition, the rise in inequality would be somewhat less severe due to the dampened Dutch Disease effect, with an increase in the Gini coefficient of about 0.5 percentage points.

A fairly large medium-term boost for the Bolivian economy might become possible if the gas projects were combined with the structural reforms discussed above. Such a policy package could raise average economic growth by more than 1 percentage point and lower the national headcount by more than 3 percentage points. The gains would, however, exclusively accrue to urban households. They would benefit from a substantial drop in the poverty rate by more than 5 percentage points compared to the base run, while rural poverty would even rise a little. Clearly, such a strategy maximizes growth, but not pro-poor growth.

(vi) Targeted interventions in favor of the poor

The low poverty elasticities with respect to growth point to the problem that many of Bolivia's poor are not well integrated into the economy and are additionally too poor to be lifted above the poverty line as a result of moderate economic growth. Among the policies which might help increase the productivity of the poor, particularly in rural areas where poverty is most persistent, improved access to credit for smallholders and investment in public goods such as rural infrastructure and agricultural research figure prominently (Thiele 2003). More direct ways of raising incomes of poor households could involve the subsidization of activities where many of the poor are employed (Klasen 2004), or the implementation of traditional transfer programs.

Improved Access to Credit for Smallholders. Efforts to improve credit availability for smallholders, e.g. by making land tenure more secure, are likely to raise investment in traditional agriculture significantly, albeit from a very low base. The impact tends to decelerate over time, but

even after 10 years real investment could still exceed the base-run level by almost 50 percent. However, since the contribution of capital to sectoral value added is very small (and is assumed to have no impact on TFP growth), the investment boom only raises output by about 1 percent in the short run and by about 3 percent in the medium run. This supply response is too moderate to induce major adjustments in the rest of the economy. Aggregate investment rises slightly and average economic growth is less than 0.05 percentage points higher than in the base run. Smallholders' real income position improves somewhat as a result of the output expansion, but this does not show up in the rural headcount, and even the poverty gap falls only marginally. Hence, the loosening of smallholders' credit restrictions must be regarded as largely ineffective in the medium term, at least without further complementary measures. In the long term, such a policy is likely to be more beneficial as it allows the build-up of a capital stock and thus progressively raise the contribution of capital to value added.

Investment in Rural Infrastructure. Specific investments in public goods – e.g. the development of more productive crop varieties or the construction of rural roads – might constitute one such complementary measure. However, even if public investments are tailored to smallholders' needs, its impact is constrained by the difficult natural conditions prevailing in the Bolivian highlands.[37] Here we consider two different scenarios: a fairly optimistic one where we assume that smallholder's average output is raised by about 12 percent compared to the base run, and a more pessimistic one where the rise in output is only half that size. In both cases, the expansion of smallholder agriculture comes partly at the expense of modern agriculture so that smallholders realize income gains, whereas agricultural workers experience a less pronounced decline in wages. Although there is a countervailing force in the form of a small price decrease, smallholders benefit to such an extent that fewer of them migrate to urban areas. Together with a small real appreciation, this slightly improves the income position of urban informals.

Despite considerably higher income gains in rural areas, reductions in the urban and rural headcount are roughly equal. The difference between the two regions manifests itself in a significantly higher fall of the rural poverty gap (see Annex 4), which again reveals that many smallholders are far below the poverty line. In addition, inequality within rural areas decreases slightly. As for a comparison between the optimistic and the pessimistic scenario, all the mechanisms described above are more pronounced with stronger productivity effects of public investment. While this does hardly show up in economic growth rates and the poverty incidence, it is clearly reflected in the rural poverty gap, which goes down by more than 1 percentage point in the optimistic scenario as compared to 0.5 percentage points in the pessimistic scenario.

Industrial Policy. While the measures just mentioned aim at augmenting the asset base of poor households, a pro-poor industrial policy instead aims at raising the returns on existing assets, in particular on unskilled labor. One option in this area would be to support the development of modern agriculture. If the government, for instance, granted a 20 percent export subsidy, the sector would become markedly more important, particularly in terms of its share in total exports, which might increase from 15 to 25 percent. The expansion of modern agriculture is fuelled by rural migrants who are attracted by steeply increasing agricultural wages, and by a reallocation of capital. It is thus associated with lower output growth in traditional agriculture and in the capital-intensive sectors. The policy-induced structural change leads to an improvement of the current account, a small real appreciation of the Boliviano, and minor efficiency losses for the economy. With respect to household incomes, the out-migration of smallholders to some extent benefits those who stay in traditional agriculture. The migration effect on smallholders' incomes remains limited because the workforce required in modern agriculture is very small compared to the number of smallholders. Lower production growth in capital-intensive sectors implies lower real incomes for workers and urban informals, which translates into moderately higher urban poverty over the whole simulation period. The rural headcount falls by almost one percentage point in the first period, but the

[37] Since little is known about the likely productivity effects of public investment in Bolivia's highland agriculture, the results presented here should be regarded as very tentative.

deviation from the base run gradually disappears as the gains of agricultural workers become smaller over time.

An alternative option would be to support agriculture-based industrialization rather than primary agricultural activities. Subsidizing the consumer goods industry would entail stronger economy-wide adjustments than subsidizing modern agriculture and, as a consequence, efficiency losses would be higher. Most importantly, the Boliviano would appreciate considerably, and intermediate demand for agricultural raw materials would go up. The backward linkage to agriculture boosts the production of both agricultural sectors, but for modern agriculture this effect is overcompensated by the loss of competitiveness caused by the real appreciation. This implies that smallholders receive higher real incomes, whereas agricultural workers incur minor losses. The real appreciation improves the income situation of urban informals. Non-agricultural workers benefit from the expansion of the consumer goods industry, but as this expansion largely occurs at the expense of other sectors where they mainly work, their overall income position is not improved. Nonetheless, urban poverty declines substantially due to the gains realized by urban informals. The reduction in the rural headcount again tends to disappear over time, in this case because smallholders mainly benefit in the short run.

Transfer Programs. Transfer payments constitute the most direct means of enhancing the real income position of the poor. Here we assume that the government expands existing transfer programs so that gross incomes of the poor household groups are raised every year by roughly five percent compared to the base run. Thus these programs assume that it is possible to target such an enhancement of transfers to the poor, but that among the poor, the transfers are distributed in line with the receipts of transfers in 1999, i.e. no further improvement in targeting is assumed. As shown above, transfer and social expenditures are not particularly well-targeted, that is the effects could be more beneficial to the poor than shown here through better targeting (see also World Bank 2004a). Whether the impact of such programs goes beyond the direct beneficiaries largely depends on how the government finances the outlays. If it substitutes transfer payments for consumption expenditures, economy-wide repercussions are negligible and average growth is not affected. The only significant change is the fall in consumption expenditures itself, which leads to somewhat lower real incomes for public employees. As a consequence of the transfers that mainly benefit smallholders and urban informals, both urban and rural poverty falls markedly. The evolution of inequality appears to be less favorable. While the nation-wide Gini coefficient falls somewhat as the income change is stronger in rural than in urban areas, urban inequality remains constant and rural inequality even widens. These surprising regional results can be explained by the fact that the transfers tend to reach richer rather than poorer segments of the smallholders and urban informals.

Financing transfer programs through cuts in investment spending has a much stronger impact on the economy as it lowers aggregate investment and saving ratios by over one percentage point and thereby leads to reduced economic growth. The investment slowdown is most strongly felt in the construction sector, which implies that factor incomes of workers and urban informals decline. For urban informals, the decline is cushioned by a restructuring of final demand towards private consumption. The shift in final demand equally raises smallholders' factor incomes so that they enjoy direct and indirect benefits. Overall, the secondary effects via the fall in investment fully offset the transfer-induced urban poverty reduction, whereas rural poverty alleviation remains sizeable.

As transfer programs have the biggest impact on reducing rural poverty, the combination with a natural gas project might yield a favorable scenario. We show such a combined scenario in Table 10 and it indeed is able to deliver higher growth and lower poverty in urban and rural areas. If such a policy package was also combined with labor market and tax reform as well as improvements in the targeting of transfers among the poor, the poverty impact could be substantial and conceivably allow the government to reach its PRSP targets also in rural areas.

To summarize the findings from the policy simulations, a few points are worth noting. Regarding an explanation of the impact of shocks and policies on pro-poor growth in the past, the following conclusions are warranted. First, one can nicely see how the evolution of poverty and growth in urban areas has varied with foreign capital inflows. Rural development has been more dependent on climatic conditions, and the lack of private and public capital. The failure to implement labor market reforms appears to have held back growth and urban poverty reduction. A deregulation of the urban labor market would also have had a positive if limited impact on rural incomes by providing an incentive for additional rural-urban migration.[38]

Looking forward, one can draw conclusions about the policy options for pro-poor growth as well as the constraints of Bolivia's economy that the model analysis has served to highlight. Turning to the former issue, the main conclusion to be drawn from the model analysis is that, currently, the opportunities for achieving pro-poor growth are much better in urban than in rural areas. Given the available policy choices, Bolivia could clearly exceed the targets for urban poverty reduction set in the revised PRSP. Rural poverty reduction, by contrast, risks falling short of the targets due to a combination of recurrent external shocks and limited policy options. In particular, the implementation of gas projects is likely to bypass rural areas and significantly increase inequality. Improvements in access to credit and rural infrastructure have a positive but fairly small effect on poverty (particularly on the poverty gap). Only a coordinated policy package involving the gas project, labor market and tax reforms, and targeted transfer programs and interventions would allow Bolivia to achieve higher pro-poor growth and allow significant poverty reduction, also in rural areas.

Turning to the latter issue, the analysis has clearly shown up significant structural weaknesses of Bolivia's economy that also need to be addressed in order to accelerate pro-poor growth. A critical weakness is Bolivia's low domestic savings rate, which is contributes to Bolivia's reliance on foreign capital inflows, the high degree of dollarisation, its high foreign debt, its vulnerability to external shocks, and its inability to manage its external trade and monetary environment to support pro-poor growth. A related second weakness is Bolivia's high dependence on natural resources which have few linkages to the poor, but can have significant anti-poor effects. Third, Bolivia' economy exhibits such a great degree of dualism that well-managed policies to generate higher growth do not reach the poor in rural areas or have little impact on their poverty. Lastly, Bolivia's high initial inequality militates against success in poverty reduction, particularly in rural areas. While the policy packages discussed above can help with pro-poor growth, only success in tackling these four deep-seated issues will enable Bolivia to enter a sustainable path towards higher growth and poverty reduction.

d) Institutions, Political Economy, and Pro-poor Growth

This section will discuss selected institutional aspects of policy-making in Bolivia as they relate to pro-poor growth. We will focus particularly on an assessment of institutional weaknesses, then discuss the impact of decentralization on policy-making, and lastly consider the PRSP and National Dialogue process and its impact on policy-making for pro-poor growth.

(i) Governance weaknesses and their link to poverty and inequality

Based on the most comprehensive source of governance indicators (Kaufman et al. 2003), Table 11 shows the evolution of composite indicators of governance in the Bolivian case. The indicators are scaled so that they have a mean of 0 and a standard deviation of 1 for all countries included in the sample. The first group summarizes indicators of the political process, civil and political rights. The political instability indicator measures the likelihood of government overthrow or destabilization, the third cluster summarizes measures of public service provision, competence and quality of the bureaucracy and the last one summarizes the incidence of market-unfriendly policies.

[38] There are indications that the model underestimates the response of migration to changes in wage differentials. Additional empirical research is needed to see whether the modeling of migration assumes the right amount of adjustment compared to actual migration patterns in Bolivia.

It is notable that in all four governance measures Bolivia exhibits a downward trend in the last few years, ending up close to or below the average for all countries.[39] This is particularly the case for government effectiveness and regulatory quality. As most of these measures are based on survey-based evidence, it appears that the trust in the policy-making apparatus and the state bureaucracy has weakened already well before the recent protests over tax reform and gas exports.

More detailed investigations of the role of institutions in Bolivia by Kaufman et al (2002) yield further important insights. In particular, business surveys reveal that corruption and the lack of the rule of law stand out as particular constraints in Bolivia, while issues of macro management and financing are not seen as a problem at all. Corruption, bribery, and a weak judiciary are also named as significant barriers preventing sales growth. This suggests that the structural reforms of the 1990s were having positive effects in their areas of focus but did not tackle the more deep-seated problems of corruption and a weak judiciary. As far as causes of corruption and low government effectiveness is concerned the results suggest that lack of transparency and voice of citizens appear to be the most important reasons, according to surveys of public officials. Also here, much work remains to be done.

These institutional weaknesses not only retard economic growth by preventing effective policy-making (Rodrik, 2003), but they also are implicated in sustaining high inequality. A study by Chong and Gradstein (2004) show that indicators of institutional weakness are strongly associated with inequality in Latin America. The causality is bi-directional with the causal link from inequality to institutions being somewhat stronger than the reverse one. The discussion suggests that also here there are two sets of policy issues emerging. On the one hand, there is clear need to tackle the institutional weaknesses in Bolivia, particularly corruption, lack of a reliable judiciary, and lack of transparency and voice in the public sector. On the other hand, it is clear that such reforms will be more difficult in an environment of high inequality that sustains these institutional problems, which provides a further case to address these inequalities.

Table 11: Trends in Governance Indicators over Time

	1996	1998	2000	2002
Voice and Accountability	0.10	0.35	0.23	0.01
Political Stability	-0.28	0.00	-0.42	-0.20
Government Effectiveness	-0.49	-0.09	-0.35	-0.53
Regulatory Quality	0.66	0.90	0.65	-0.11

Source: Kaufmann et al (2003).

(ii) Decentralization and pro-poor growth

Bolivia embarked in 1994–1996 on an ambitious decentralization program, which transferred a large share of resources and associated responsibilities to Bolivia's municipalities. Municipalities were assigned responsibilities for investment expenditures in the social sectors and infrastructure. In addition to funds from the central government, they were granted, as an outcome of the National Dialogue Law, the entire amount of HIPC II debt relief for investments at the local level (targeted to communities with higher rates of unsatisfied basic needs) and they have spent most of these funds, as reported above, on social sector investments and most recently also on infrastructure. In addition, an intermediate (centrally appointed) layer of government (prefectures) was introduced and also given considerable spending and implementation authorities.

[39] Somewhat ironically, the deterioration is least apparent in the political stability measure, given that the government was indeed forced out of office by popular protests in 2003.

In view of the governance problems cited above, such decentralization could be of help to address the problems of lack of transparency and voice as decisions and implementation are brought closer to the people affected. This was also supported by popular oversight mechanisms. At the same time, it is unclear whether such an ambitious decentralization program can tackle the problems of low government effectiveness and corruption. Clearly, it can be only one avenue of governance reforms and other items (including judicial reform and improvements in voice and transparency throughout the public sector) remain of importance.

In addition, decentralization in its current form appears to be plagued by a number of problems. First, the roles of municipalities versus prefectures are not clarified and lead to cumbersome coordination and oversight problems. Secondly, the institutional capacity of smaller municipalities is too weak to undertake many of tasks they are being charged with. Third, revenue generation at the municipal level remained low, with the municipalities depending on average for 80% of their resources on the central government (World Bank 2004a). Moreover, they have no control over the public sector wage bill for the services under their control (e.g. health and education). This has effectively softened the budget constraint and led in some municipalities to the build-up of considerable debt. The planning and oversight systems are not working well due to weak institutional capacity and lead to very slow and cumbersome implementation of investment projects.

It appears that the process of decentralization has proceeded too quickly and overtaxed the capacity of the developing municipal authorities. This has led to capacity constraints, delays in spending, complaints of poor and intransparent governance at the municipal level, and left the central government with little ability to direct public policy towards priority sectors (World Bank 2004a). While many local investment projects which, if successfully executed, were found to have had a significant positive impact on health outcomes and water access (Newman et al. 2002), the cumbersome procedures, large overheads, and poor capacity have led to very slow implementation. The capacity constraints might also explain the focus on social sector spending and infrastructure, at the expense of efforts to promote productive sectors. Programs to promote productive sectors (such as credit programs, cluster initiatives, subsidy programs) tend to be much harder to implement than the expansion of health and education programs and the construction of physical infrastructure. This surely contributed to the considerable improvement in social indicators over the past few years, but did little to reduce income poverty. This focus on social sectors at the expense of promoting productive sectors has become one of the main criticisms that have been voiced in the current round of the National Dialogue centered on the revision of the PRSP.

As shown above, it has also, at least initially, led to an anti-poor spending pattern on infrastructure. As far as the outcome of the decentralization process on poverty is concerned, there is little reliable data to date. Viana Sarabia (2004) undertakes an econometric analysis (ordered logit) of the impact of three indicators of decentralization on a non-income measure of poverty, the so-called NBI (Unmet basic needs). She finds that municipalities with lower levels of unmet basic needs have a larger resource envelope per capita to spend, confirming that decentralization did not equate per capita spending (or target them to the poorest areas). In addition, the most important determinant of the degree of unmet basic needs is the share of own resources spent by a municipality. Given that this share is particularly large in richer municipalities, the analysis supports the notion that a decentralization process that largely depends on central government transfers for the poorest communities will not have a significant impact on poverty outcomes and might in fact exacerbate existing inequalities. More recently, the situation appears to have improved somewhat through the better targeting of HIPCII resources to communities and through a greater focus on productive sectors (which mainly means infrastructure). In fact, some poor communities have received much more funds and are having difficulties in spending it productively (World Bank 2004a).

While decentralization might be a way to improve governance and can also enhance pro-poor spending, it can generate new problems of capacity constraints, poor fiscal control and oversight, and failure to tackle income poverty issues. If capacity constraints or other institutional weaknesses are correlated with income poverty of a municipality, it can even exacerbate existing inequalities

unless ways are found to assist poorer and smaller municipalities. Alternatively, it is important to keep options open for pro-poor interventions that are directed and supported from the central government.

(iii) PRSP and national dialogue

Bolivia was among the first to complete an Interim PRSP and a full PRSP in 2000 and thus to enjoy HIPC debt relief. The PRSP was the culmination of a systematic National Dialogue Process, which was written into a law in 2001 as a permanent institution to take the PRSP process forward. At the time, Bolivia's PRSP has been widely lauded for both its content and process.

But soon after completion of the process, serious disappointment with the process and the outcome emerged, and the PRSP began to be considered a 'dead' document by most stakeholders (ISS 2003a, 2003b). Apart from the well-known problems with PRSPs elsewhere (overambitious targets, 'laundry lists' with little prioritization, unclear relation to the government macro and fiscal strategy, too focused on trying to please donors in order to get HIPC funds), there appear to have been particular problems associated with the National Dialogue and the creation of the PRSP. Among the problems encountered in the process, according to an analysis undertaken by the Institute of Social Studies, was that the Interim PRSP was never fully discussed, and that there was a significant disconnect between the National Dialogue, which was open, transparent, and had significant non-governmental participation, and the writing of the PSRP that was then relegated to a group of consultants who drafted a strategy that was only partly based on the outcomes of the dialogue but more influenced by inputs from the donor community and the desire to please the international community to get HIPC funds (ISS 2003a, 2003b). This sharply reduced the popular ownership of the final strategy, which in addition became largely obsolete when the macroeconomic conditions departed sharply from the rosy projections and plans included in the PRSP. As such, the PRSP had little impact beyond the decision in the National Dialogue Law to transfer all HIPC resources to the municipalities, which strengthened social sector investments at those levels.

Regarding the content of the strategy, there appears to have been considerable unease over the almost exclusive focus on social sector spending as the route out of poverty, the neglect to discuss macro issues and consider alternatives to the current economic model guiding Bolivia's economy, the overoptimistic macroeconomic projections, the unsustainable associated expenditure plans, and the neglect to focus on strengthening the productive sectors as a means to achieve sustainable poverty reduction.

The revised draft PRSP tabled by UDAPE in late 2003 already included some changes in focus and put the development of micro, small and medium-sized enterprises at the heart of the poverty reduction strategy. This development was supposed to be promoted through a combination of a land policy focusing on titling and increased security of tenure, national productive clusters promoting the supply chains for 14 products through joint public-private initiatives (cadenas productivas, see Box 4), and through efforts to promote local economic development. While this focus on productive sectors addressed one central complaint about the original PRSP, there continued to be disappointment that the revised strategy did not consider alternative economic models of development, did not include more radical land redistribution programs, and was not far-reaching enough in focusing on poverty reduction through strengthening productive sectors (including public support for productive sectors that go far beyond the cadenas productivas approach). As a result, this draft is by now also seen as insufficient as the debate has now moved to the constitutional assembly where the questions of the use of natural resources, the economic model, and the land distribution are likely to figure prominently.

These (necessarily cursory) discussions of institutional issues in policy-making appear to suggest the following conclusions for pro-poor policy-making. First, in a situation of poor and deteriorating governance, it is critical to address public sector governance issues as a first priority. A decentralization program can be of help in some aspects, but it is particularly risky to embark on

major new initiatives that further impair the management capacity of the public sector. The Bolivian government appeared to have pushed institutional changes to policy-making at a speed that eventually weakened its ability to implement effective policies. Second, decentralization need not improve governance nor does it necessarily improve the poverty focus of public expenditures. It merits consideration whether the central government should consider the build-up of a centrally managed approach to promoting equity and assisting with pro-poor growth. In addition, it appears that decentralization of the expenditure side without the necessary abilities to raise revenues can undermine the success of a decentralization effort. Third, regarding pro-poor policy-making, it is very risky and ultimately counter-productive to establish a participatory process of pro-poor policy-making and then strictly limit the agenda to certain priority actions. This is particularly risky if there is significant mistrust of the government, which is grounded on long-standing inequalities and social and political exclusion. If a process is to be participatory, all aspects of economic policy-making must be openly discussed even if this can lengthen the process and pose risks for the outcome. The Bolivian case seems to suggest that the route taken here has now led to a very polarized political debate that poses even greater risks for political and economic stability than an early discussion of all aspects of economic policy-making (see also ISS 2003).

Box 4:
Cadenas Productivas

The idea was to promote the supply chain through coordinated public and private actions for the following 14 products: poultry, bananas, cows, Brazil nuts, leather, timber, oil products, palm heart, quinoa, textile and cotton, wheat, grapes, (wines and liquors) and tourism (Sucre-Potosi-Uyuni salt lake circuit). These were selected as they already made up a significant share of GDP, generated some 400,000 jobs, were often activities undertaken by small farmers or entrepreneurs, and took place in many parts of the country. It was intended to strengthen the supply chain by developing capacities to refine these products within the country, and by improving national and particularly international sales opportunities. The plan was to generate public-private partnerships that would develop coordinated plans to achieve these goals. Specific measures would include technical and technological assistance, support services for production, help with market access, and productive infrastructure. The preparation of this strategy would involve three steps (strategic vision, strategic plan of coordinated actions, and a conclusion of a public-private pact as part of the 2003 National Dialogue). Initial documents set aside public funds from municipal and departmental budgets as well as HIPC funds to support these investments. With the shift of the debate to the constitutional assembly, the future of this approach to support productive sectors is uncertain.

Sources: Ministerio de la Presidencia (2003); (UDAPE 2003a).

Chapter 4: Possible Trade-Offs between Growth and Poverty Reduction

Based on the assessments from the CGE model, we can not only assess the impact of individual policies on pro-poor growth, but also consider possible trade-offs and complementarities. When it comes to choosing a policy package for pro-poor growth from the available options, it is important to know whether particular measures promise to create win-win situations in that they help achieve growth and distributional objectives at the same time, or whether there are trade-offs involved.

In the area of macroeconomic policy, higher yearly devaluations of the Boliviano risk to fail on both accounts as a result of adverse balance sheet effects. A tightening of monetary policy, by contrast, may bring about the real devaluations that are regularly required to adjust to external shocks at a negligible short-run cost for the poor.

Among the two structural reforms considered here, a deregulation of the urban labor market carries the potential to make growth considerably more pro-poor by removing a substantial part of the existing wedge between formal and informal wages. Such a measure would, however, meet with strong resistance from formal workers, who arguably are much better organized than the diverse group of people working in the informal sector. This difficult political situation is probably the key

factor behind the fact that profound labor market reforms have not yet been initiated. Also, it would not do enough to reduce rural poverty.

Similar pressure from powerful interest groups – in this case mainly from public employees – stands in the way of a comprehensive tax reform. Provided that this pressure can be overcome, the introduction of a revenue-neutral tax reform may improve efficiency and reduce poverty. A pure income tax increase, by contrast, is unlikely to serve these objectives. If income taxes are set at moderate rates as assumed above, they are likely to be only mildly progressive and may even raise poverty. And with substantially higher tax rates, the efficiency losses may well turn out to be intolerable.

In the development of Bolivia's gas sector, there appears to be a trade-off between growth on the one hand and the participation of the poor – in particular the rural poor – in the growth process on the other hand. Given the prospect that nation-wide poverty might decrease only moderately as a result of the resource boom, and that rural poverty might even increase, the rationale behind the recent social unrest becomes obvious. The trade-off is, however, hard to avoid as the gas sector is highly capital intensive, generates little employment, and uses limited national inputs. To what extent growth and poverty objectives can be reconciled depends on how the government allocates the additional revenues it receives. While an increase in public savings might cushion the trade-off, more specific pro-poor measures are likely to be required in order to make the impact of the gas projects socially acceptable.

Given that rural poverty constitutes the most severe problem, measures targeted at augmenting the asset base of smallholders suggest themselves as possible win-win options. It has to be taken into account, however, that natural conditions in the highlands are not very favorable, and that the growth process would have to start from very low initial capital endowments. This implies that the medium-run supply response, and thus the impact on rural poverty, will probably remain limited.

With respect to pro-poor industrial policies, the key question is whether favorable poverty outcomes can be achieved at low efficiency losses. Our simulation results indicate that efficiency losses may be kept at moderate levels, but that neither a strategy based on export-oriented agriculture nor a strategy based on agricultural processing are likely to bring about lasting improvements for the rural poor.

Transfer programs targeted towards the poor can in principle alleviate poverty without compromising growth objectives, but the precondition for this to happen – a more or less complete financing of the programs out of other current expenditures – appears to be very demanding. If investment spending has to bear the lion's share of the costs, the economic losses can become considerable.

In the coming years, the gas receipts may provide a way out of this trade-off by loosening the budget constraint of the Bolivian government. If gas revenues are used instead of public investment funds to finance transfers, the combination of the gas projects and the transfer programs produces a clear win-win situation, with higher growth and a marked alleviation of rural and urban poverty. The only major drawback of this policy option is that both the gas projects and the transfer programs lead to a significant increase in rural inequality, raising the rural Gini coefficient by almost three percentage points in the second half of the simulation period. This is driven by the (model) assumption that the transfer programs are targeted in the same way as existing programs. If targeting were to be improved, this rise in inequality could be significantly reduced.

One way to summarize the trade-off is to examine the combined scenarios in Table 10. The optimal pro-growth scenario combines a gas projects (with constant government consumption) labor market and revenue-neutral tax reform. Growth is boosted to nearly 6% per year. But the poverty impact is only moderate and entirely focused on urban areas; inequality and rural poverty are expected to increase. At the other extreme, we have a pure transfer program which, if coming at the expense of public investment reduces growth but also reduces rural and urban poverty, as well as reducing

overall inequality. To achieve high rates of pro-poor growth given current constraints, the combination of both policy scenarios is likely to be best for sustainable poverty reduction in urban and rural areas, with an added focus on improving the targeting of the transfer program.

While the discussed trade-offs give some impression about the short- to medium-term trade-offs of particular policies, such model-based evidence is unable to capture the insights from the large literature on the longer-term impact of initial inequality on subsequent growth (summarized in Klasen, 2004). The transmission channels of this literature, such as the impact lower inequality has on political and social stability as well as on the ability of the poor to invest in human capital, cannot be easily captured in a CGE-model. Apart from these model-based assessments, it is therefore also important to consider more fundamentally the trade-offs involved between a narrow growth agenda that is largely guided by policies informed by the Washington Consensus and its associated political economy and economic risks. It appears that given Bolivia's unfavorable initial conditions as well as its history of high inequality and large social and ethnic tensions, a technocratic focus on liberalization and macro stability might not deliver benefits in terms of poverty and inequality reduction quickly enough to prevent serious setbacks as have been experienced in Bolivia in recent years. Also, it will likely do too little to better integrate the poor into the growth process. Going further down that route and hoping that the possible high growth associated with natural gas and commercial agriculture exports will deliver enough benefits to maintain social stability are likely to prove elusive and might provoke populist backlashes with serious consequences for growth and poverty reduction. Instead it appears necessary to confront the issues of deep-seated inequalities in resources, opportunities, and power more directly rather than hoping than one can grow out of them. Some of these questions will be taken up below.

Chapter 5: Recommendations for Policy-Making

Bolivia is now facing a serious economic and political situation. It is in a state of serious political and social unrest, economic conditions are not favorable (although they have stabilized recently), and there are loud demands for more spending, more redistribution, and a total abandonment of the current economic policy stance. In this situation, it is not easy to come up with a policy framework that will successfully steer Bolivia to a path of significant pro-poor growth.

In this chapter we will start from a combination of incremental policies that all could serve to improve the overall slow record of poverty reduction in Bolivia. We will then move towards asking whether a more radical reform of economic policy-making is needed, both in terms of content as well as process. We will begin by summarizing some of the conclusions from our model-based assessments.

The main general conclusion to be drawn from the foregoing model-based analysis is that in Bolivia the opportunities for achieving pro-poor growth differ enormously between urban and rural areas. This has been true for the 1990s, where until the outbreak of the recent crisis urban households have benefited disproportionately from foreign investment led growth. And it is also true with respect to future prospects, which are less favorable for rural households due to several factors. To support our argument, we reorder in Table 12 the main policy experiments from Table 10 according to whether the impact is mainly on urban or rural households. First, the rural economy will inevitably have to cope with recurrent disruptions caused by external shocks. Second, difficult natural conditions in combination with very low initial capital endowments will limit the impact of efforts to increase the asset base of poor farmers. Nonetheless, investments in public goods such as rural infrastructure or agricultural research should be taken into consideration as they could at least entail some productivity improvements.[40] If it turns out that significant productivity gains can be expected, measures aimed at improving smallholders' access to credit such as increased tenure security or additional micro-credit initiatives (including tackling issues of non-traditional forms of guarantees),

[40] Unfortunately, evaluations of the impact of public investments in Bolivia are lacking. Hence, their productivity effects can only be guessed, and priority areas for public investment can hardly be identified.

might also have a positive pay-off in that they help realize complementary private investment. Also, community-driven investments in irrigation, improved seed varieties, and modern inputs should remain firmly on the agenda.

Third, the modern, dynamic segment of the agricultural sector is too small to absorb a sizeable part of the poor rural workforce so that a pro-poor industrial policy based on modern agriculture does not appear to be promising. Finally, the development of the gas sector will largely bypass the rural economy, and will even raise rural poverty via the economy-wide repercussions it entails. As the recent protests have shown forcefully, such an uneven distribution of benefits will meet strong resistance. This does of course not imply that Bolivia should forego the gains to be expected from the gas exports, but rather that rural households should be able to share in the gains to an extent that more than compensates the expected losses to them. To achieve this, direct transfers constitute the only realistic option as only direct transfers can raise incomes significantly in the short to medium run. Such transfers should, however, be targeted very carefully. By simply expanding existing transfer programs, as assumed in the simulation reported above, the government will miss most of the poorest households. As a further caveat, the financing of transfers that are large enough to accomplish a significant poverty reduction is only sustainable as long as the gas boom endures. All in all, given current constraints, it is thus likely that the prospects of fostering rural development will to a large extent rely on dynamic growth of the urban economy, which would indirectly raise rural incomes via increased rural-urban migration, higher intermediate demand for agricultural raw materials, and higher consumption demand for food. In this context, the dynamic development, in terms of population growth, economic growth, and poverty reduction, of small and medium-sized towns in Bolivia could provide one avenue for providing employment and income-earning opportunities for the rural poor. Supporting such growth centers through infrastructure investments and support for decentralized industrial activities might be one option to consider.

Table 12: Shocks, Policies and Pro-Poor Growth in Rural and Urban Areas

Shock/Policy	Average Growth (%)[a]	Rural Headcount[a]	Urban Headcount[a]
Main Effect on Rural Households			
El Niño	-0.3	1.3	0.8
Terms-of-Trade Shock	0.0	0.5	0.2
Investment in Rural Infrastructure	0.1	-0.4	-0.3
Improved Access to Credit for Smallholders	0.0	0.0	-0.1
Industrial Policy (modern agriculture)	0.0	-0.1	0.7
Transfer Program	0.0	-2.3	-1.0
Main Effect on Urban Households			
Gas Projects	0.6	1.0	-2.8
Labor Market Reform	0.3	0.0	-1.5
Tax Reform	0.3	-0.4	-1.9
Gas Projects + Labor Market Reform + Tax Reform	1.1	0.2	-5.4
Declining Capital Inflows	-0.3	0.5	1.4

[a]Percentage points deviation from base run.

Source: Based on Table 10.

Several options can be pursued to raise urban growth and to alleviate urban poverty. Despite limited linkages to the rest of the economy, the development of the gas sector will benefit urban areas. The positive effect will be the stronger the more the gas projects boost domestic investment. Beside the funds earmarked for pro-poor spending, a substantial part of the gas revenues should thus be used to

prop up public savings. The difficult task for the government then is to withstand pressures and keep public consumption under control.

In addition, the two big remaining structural reforms, a deregulation of the urban labor market and an income tax reform, would both have a significantly positive impact on growth and poverty and should thus be initiated. The main problem with these reforms is that the potential losers – non-agricultural workers and employees, respectively – can effectively lobby against them. Perhaps it will become somewhat easier to overcome their resistance if the structural reforms are carried out in combination with the gas projects as all urban household groups stand to benefit from the latter. If this were further combined with transfer programs aimed at the rural poor, it might be possible to generate a politically and economically feasible policy package for pro-poor growth.

Beyond the model-based simulations, there are further policy options to consider. As mentioned above, there is great need to switch to a tax regime that is more progressive than the current system and could also go beyond the revenue neutral system that is proposed in the model. On the expenditure side, there is considerable scope for increasing the poverty focus of public expenditures. In health and education sectors, this can be achieved by requiring larger co-payments from the better-off and ensuring better access and utilization of higher education and higher order health facilities for the poor. In order to free up resources, reforms of the pension system must proceed in a way that limits government spending on this program that has little poverty impact. Expenditure reform should also include a greater poverty focus of decentralized public expenditures. This can either be ensured through greater equity in inter-governmental transfers, with a particular emphasis on increasing the resource envelope of poorer municipalities (using formulas that are not only based on population), or through additional central government programs in these areas.

In line with the demands made from many sides, it is important to overcome the disconnect between social sector performance and economic performance. While the social sector improvements are impressive and need to be sustained as important achievements in their own right, their impact on income poverty will largely materialize in the longer term and will require complementary measures to support the productive sectors. Consequently, public expenditures should not only focus on social sectors (important as they are for reaching the MDGs), but include rising expenditures for measures to strengthen production among the poor. The planned efforts to strengthen the *cadenas productivas* appear to be a step in the right direction. In addition, municipalities should be encouraged to experiment with various ways of strengthening their productive sectors through infrastructure, credit, and subsidy programs. This is particularly important as neither the national nor the international experience suggest clear best-practice models. Based on evaluations of successes and failures, better-managed programs should then be mainstreamed across the country.

Success on such ventures will greatly depend on the ability to overcome institutional weaknesses within the public sector. In particular, control of corruption and low government effectiveness should be the primary focus of public sector reform efforts. This will require greater transparency and voice in all tiers of government. Decentralization can support such a process but only if the current defects of the process are fixed. They include unclear roles for municipalities versus prefectures, capacity constraints in the poorer and smaller municipalities, too little central oversight and fiscal control, too little ability to affect pro-poor spending and implementation at the local level.

But the analysis has also shown that there are a range of basic constraints that need to be addressed if Bolivia is to succeed in developing and implementing a pro-poor growth agenda. A first critical constraint is the low domestic savings rate which leads to dependence on foreign capital, leads to foreign debt, and contributes to the vulnerability of the economy to external shocks against which it cannot act due to the high degree of dollarization. Here a combination of policy measures ought to be considered. First, at the international level the question should be re-opened whether debt relief in the case of Bolivia was deep enough. After several years of low growth, the foreign debt burden

is high, putting pressure on the fiscal side and sharply curtailing any room for devaluations to improve the competitiveness of Bolivia's economy. Second, measures to raise the domestic savings should be strengthened. They should include both institutional strengthening of the financial sector, particularly the availability of reliable savings institutions also in small towns and rural areas, policies to shield savings from the risks of inflation (through index-linked products and possibly a complete indexation of the economy), and policies to promote public savings (through limiting obligations on the pension system, savings proceeds from the gas project, and further debt relief or an increasing share of grant aid). Third, measures to reduce dollarization should be pursued more vigorously to increase the ability of the monetary authorities to engage in pro-poor monetary policies. Given the by now long record of low inflation, it should be in the interest of the government to begin pushing back the dollarization of its economy. This could be done via a set of incentives such as the recently passed financial transactions tax which is only levied on $-denominated transactions, differential reserve requirements for $ versus Boliviano denominated assets, and a push to popularize inflation-indexed securities as the main form of issuing government debt. Once dollarization has been reduced, a much more active management of the exchange rate would become possible to ensure international competitiveness and also address distributional issues. To maintain this flexibility, controls on capital inflows might be needed to ensure that they do not destabilize the currency and financial markets. Should natural gas exports increase to the level envisaged, management of the exchange rate through sterilization policies would be critical to limit Dutch disease effects.

Secondly, it appears urgently necessary to confront some of the more deep-seated inequalities in Bolivia's economy. As part of the on-going discussions in the National Dialogue as well as in the Constitutional Assembly, a national plan for the redistribution of assets should be considered. Elements of such a plan could include greater attention to land redistribution (in addition to titling) from public lands, market and subsidy-based land reforms using land taxes to increase the land brought to the market. In addition, such a strategy could include a mechanism that would transfer part of the benefits from natural resources directly to the poor to ensure their direct access to the proceeds from these assets. The use of demand-side transfers such as those pioneered in Mexico (Progresa and Oportunidad) or Brazil (bolsa escolar) might be a good way to proceed. Third, it appears that much of Bolivia's current social and political turmoil stems from the fact that its indigenous population was largely excluded from the political process. Measures to increase their voice and power through quotas and other mechanisms might be considered to involve them more directly in policy-making.

Given Bolivia's history and its current problems, achieving sustained high rates of pro-poor growth will be very difficult unless these deep-seated inequalities are addressed.

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