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THE ROAD TO PRO-POOR GROWTH IN ZAMBIA: PAST LESSONS AND FUTURE CHALLENGES

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ABSTRACT

Zambia is one of the poorest countries in Sub-Saharan Africa. Almost three-quarters of the population were considered poor at the start of the 1990s, with a vast majority of these people concentrated in rural and remote areas. This extreme poverty arose in spite of Zambia's seemingly promising prospects following independence. To better understand the failure of growth and poverty-reduction this paper first considers the relationship between the structure of growth and Zambia's evolving political economy. A strong urban-bias has shaped the country's growth path leading to a economy both artificially and unsustainably distorted in favor of manufacturing and mining at the expense of rural areas. For agriculture it was the maize-bias of public policies that undermined export and growth potential within this sector.

A series of poverty profiles are developed and compared to the structure of growth during the structural adjustment period. Substantial policy-changes led to rapidly rising poverty, especially in urban areas. The costs of adjustment were particularly pronounced given the *big bang* approach to reform. Concurrent trade liberalization and privatization collapsed the formal sector with persistent macro-economic instability undermining necessary private investment. Middle income urban households were hardest hit, with more-educated workers moving into informal activities and the less-educated migrating to rural areas. Agricultural liberalization prompted changes in the structure of rural production, with a general shift away from maize towards export-crops for medium-scale farmers and more sustainable staples crops for small-scale farmers. While overall rural poverty increased during the 1990s, its depth has declined considerably. Poor market access and low agricultural productivity were key constraints facing small-scale and more remote rural households. The urban core of the economy therefore collapsed under structural adjustment but agriculture and rural areas have continued to grow. Since this growth has occurred at the lowest end of the income distribution, there is some evidence of 'pro-poor' growth in Zambia under structural adjustment despite national stagnation.

Sustained investment and economic growth during recent years suggest a possible change of fortune for Zambia. In light of this renewed growth, the paper uses a dynamic and spatially-disaggregated economy-wide model linked to a household survey to examine the potential for future poverty-reduction. The findings indicate that the current growth path, while positive, will be insufficient to substantially alleviate poverty. The large increases in growth that would be required suggest that finding a more pro-poor growth path should be a priority for public policy. The paper examines alternative growth paths and finds that diversification through an agriculture-led development strategy is likely to prove the most pro-poor. This is particularly pronounced for staples-led growth, although this option is contingent on improving productivity and market access, especially in remoter rural areas. Although agricultural growth is essential for substantial poverty-reduction, the country's large poor urban population necessitates growth in non-agriculture. The findings suggest that returning to a copper-led growth path is not pro-poor and that non-mining urban growth, although undermined by foreign exchange shortages and inadequate private investment, is likely to be preferable for reducing poverty.

THE ROAD TO PRO-POOR GROWTH IN ZAMBIA: PAST LESSONS AND FUTURE CHALLENGES

James Thurlow and Peter Wobst [*]

I. POLITICAL ECONOMY AND GROWTH POVERTY TRENDS

Zambia is one of the poorest countries in Sub-Saharan Africa.[1] However, in the 1960s it was a middle-income country believed to have considerable growth potential. The key to understanding the country's economic history and its failure to develop lies in its natural resource endowments. Zambia is a land-abundant but sparsely-populated country in central Southern Africa. Agricultural potential is high due to considerable variation in rainfall patterns. However, like many other countries in the region, Zambia's economy has been dominated by the discovery, expansion, and eventual decline of the minerals sector. Copper mining in particular has been central to the country's development for almost a century, and the concentration of investment in this sector has generated one of the most urbanized populations in Africa.[2] Despite urbanization, a majority of the population lives in rural areas, which are often isolated from urban centers and rural markets.

The establishment of the mining industry began when large copper deposits were discovered by British colonists during the late 1920s. Prior to this, Zambia was exploited as a source of revenue and labor for the wealthier southern colonies of South Africa and present-day Zimbabwe (Holmes, 2004). The country's rural areas were depopulated and distributed to white farmers, with little supporting investment in infrastructure. Given this economic vacuum, the rapid inflow of foreign investment in

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[1] Zambia is the sixth poorest Sub-Saharan country based on PPP-adjusted GDP per capita (World Bank, 2003a).

[2] The urban share of the population rose rapidly from 17% in 1960 to about 40% in 1980. For two decades this share has remained stable between 39 and 40% (World Bank, 2003a).

copper mining created a domestic migratory system that fostered urbanization, and concentrated economic activity and wealth within urban areas. Non-urban investment was directed towards transporting copper and capital goods between the small Copperbelt region and the southern border. The dominance of mining and urban political power, and the resulting rural-urban divide, still underpins Zambia's development despite changes in the political control of the country. Over the last three decades Zambia has undergone five somewhat distinct policy regimes (World Bank, 2004).

Interventionism and Failed Reform, 1965-1990

The first policy regime began after Zambia gained independence in 1964. The newly-established government opted for what was essentially a market economy. However, mining and urban areas were favored through import substitution financed by growing copper exports (World Bank, 1994). As a result of foreign investment in mining, Gross Domestic Product (GDP) rose rapidly at 5.1% per year during 1964-72 (see Table 1). Few people benefited from this growth however, particularly in rural areas (McCulloch et al., 2000). Accordingly, inequality, which was already high prior to independence, worsened over this decade.[3]

In the early 1970s the government broke from its market-driven policies, opting rather for state-control. The urban-bias was further entrenched in 1972 when the copper mines were nationalized as part of the newly-adopted strategy based on the establishment and expansion of state-owned enterprises. The fast growth of the late 1960s ended when world copper prices fell sharply in the early 1970s. Export earnings were eroded, placing considerable pressure on the current account. The government, believing this negative terms-of-trade shock to be temporary, borrowed heavily to lessen the sharp decline in imported consumer and investment goods. Foreign debt mounted rapidly while GDP growth dropped to 0.5%. Rather than initiate a process of structural adjustment and encourage diversification, the government chose to adopt

[3] The Gini coefficient was 0.48 in 1959 and 0.59 in 1974 (World Bank, 1994).

regulatory policies. Subsidies and fixed consumer prices protected urban consumption, while the mining sector and state-owned manufacturing were favored through import-licensing and foreign exchange allocation. Growth remained unresponsive to this new interventionist strategy. In 1978 the government acknowledged the failure of its policies and implemented the country's first structural adjustment program (SAP). Despite improved macroeconomic stability, political will was undermined and the reform process remained half-hearted (Bigsten and Kayizzi-Mugerwa, 2000). By the mid-1980s subsidies comprised 20% of the fiscal budget, while price controls made many state enterprises unprofitable and in need of cross-subsidization (Osei-Hwedie, 2003; World Bank, 2003b).

Table 1. Macroeconomic Performance and Social Outcomes in Zambia, 1964-72

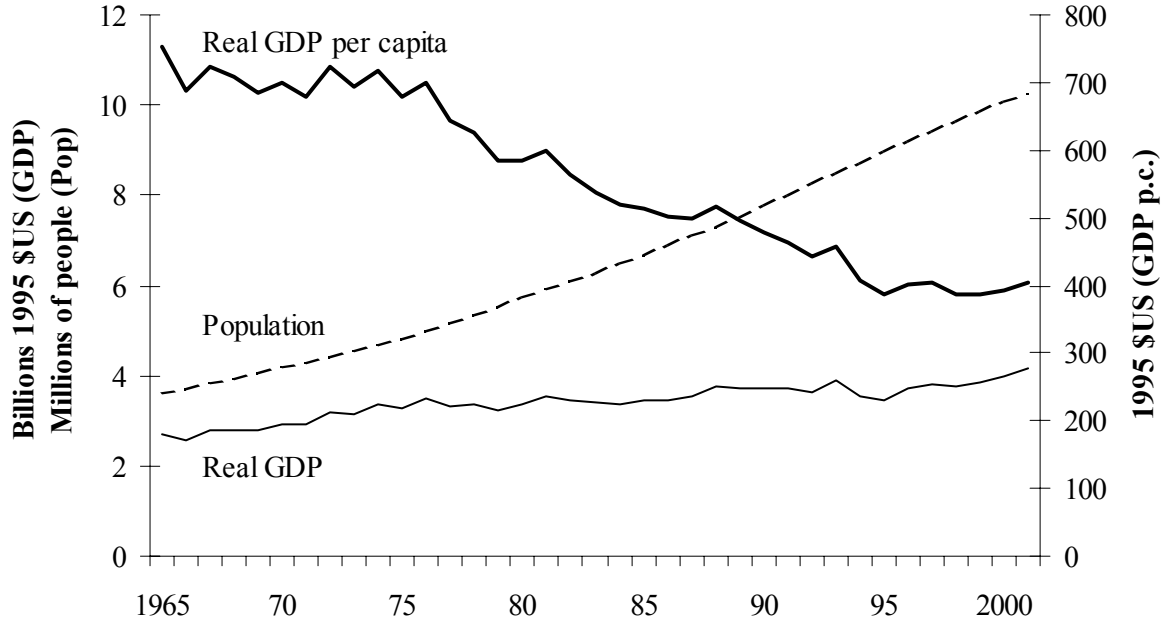
	1964-72 ***market economy***	**1973-84** ***state control***	**1985-90** ***economic transition***	**1991-98** ***structural adjustment***	**1999-02** ***renewed growth***
Macroeconomic Indicators	Average annual percentage change				
GDP (1995 LCU)	5.1	0.5	1.8	0.2	3.7
GDP per capita (1995 LCU)	2.1	-2.6	-1.4	-2.4	1.9
Exports (1995 $US)	3.4	-1.8	-3.4	4.3	6.5
Imports (1995 $US)	8.0	-8.6	2.4	1.3	2.9
Fixed capital formation (1995 LCU)	-	-8.7	-1.0	6.3	11.0
External debt (1995 $US)	-	10.8	14.8	0.9	-6.5
Inflation (deflator)	6.9	11.4	67.8	71.7	23.9
Exchange rate (LCU/$US)	0.0	9.0	69.4	76.2	24.9
Real interest rate*	9.5	-1.1	-25.4	0.9	13.4
Social Indicators	Average value for period				
Life expectancy (years)*	45.8	49.9	49.7	45.8	38.5
Adult literacy (average percent)*	48.7	56.7	65.7	72.7	77.3
Infant mortality (per 1000 births)	111.8	96.3	103.7	111.3	112.0

Source: Own calculations using World Development Indicators (World Bank, 2003a).
* 1964-72 average only covers 1970-71.

Zambia entered a period of economic transition in the mid-1980s when the government attempted a second SAP aimed at correcting price distortions. However, while the program recognized the need for diversification (including into agriculture), it

was again conditioned on the support of the ruling elite. When unrest in the urbanized Copperbelt province threatened mining revenues, which represented the government's main source of income and political support, the government bowed to political and economic pressures by backtracking on reforms. A new set of interventions were announced, signaling a partial return to a command-style economy. Following some positive growth during the mid-1980s the economy entered a recession in 1989. Consequently, a third SAP was negotiated in which prices were decontrolled for all goods except maize and fertilizer. Although the program was far-reaching, it failed to achieve its objectives when the government again backtracked on reforms in order to win urban support in the run-up to the 1991 elections (Bigsten and Kayizzi-Mugerwa, 2000). Maize and fertilizer reforms were halted, and the money supply was expanded to cover civil service wage-increases. Many donors withdrew support due to the government's lack of commitment to economic reform.

Figure 1. Real GDP and Population Growth, 1965-2001



Source: World Development Indicators (World Bank, 2003a).

The post-independence government lost political control of the country in 1991. Over three decades the government had maintained an economy that was heavily reliant on copper. State control of mining revenues and foreign exchange created a powerful ruling elite and oversized civil service who were dependent on the urbanized mining sector for political support.[4] Accordingly, policies favored urban areas. Rural development policies took the form of price controls, which undermined diversification within agriculture and were partially motivated by urban consumption needs. The economy had been stagnating since the early 1970s, with failing copper exports and an unwillingness to diversify being the driving factors. Per capita incomes had fallen almost consistently across the period, leading to high levels of poverty and substantial inequality (see Figure 1 and Table 2). Furthermore, by 1991 falling social spending from fiscal contraction had started to reverse the gains in social outcomes that had been achieved during the first decade after independence.

Structural Adjustment, 1991-1998

The current government won the country's first free elections in 1991 based on a commitment to comprehensive structural adjustment and the promise of more transparent and accountable governance (Bratton and Liatto-Katundu, 1994).[5] However the government inherited an unstable and contracting economy with high poverty and inequality, a collapsing copper-dominated export sector, and massive foreign debt. The fourth SAP, which began immediately after the new government was elected, encompassed (i) macroeconomic stabilization; (ii) public sector reform; (iii) external liberalization; (iv) the privatization of state assets; and (v) agricultural reforms. Although these reforms hoped to stimulate growth and diversify the economy, GDP growth remained stagnant at 0.2% throughout the 1990s.

[4] See Bates and Collier (1993) and Bigsten and Kayizzi-Mugerwa (2000).

[5] The 'current' government refers to the Movement for Democratic Change (MDC) government under the leadership of presidents Chilube (1991-2001) and Mwanawasa (2001-present). The 'previous' government was under Kuanda.

(i) Inflation, which had soared during the final years of the post-independence government, averaged 127% between 1990-93. The exchange rate was depreciating equally rapidly, while real interest rates were large and negative. The government attempted to establish macroeconomic stability and by 1995 inflation had leveled at around 25%, a rate that would be maintained into the next decade. However, despite a more stable macroeconomic environment, sustained investment growth failed to materialize until after 1998. The positive overall investment growth for 1991-98 hides considerable variation caused by political and economic uncertainty.[6] in 2002, following four consecutive years of positive growth, the economy reached a level of real investment last achieved in the mid-1980s. Despite the successfully implemented reforms of the 1990s, full macroeconomic stability has remained elusive (World Bank, 2003b).

(ii) The government introduced a 'cash budget system' in 1993 as part of public sector reform. This limited the government to financing current expenditure out of existing revenues. Although countering past tendencies towards deficit-financing and inflationary monetary expansion, the government's compliance to the new system has been somewhat mixed (Dinh *et al*., 2002). While revenue-raising policy-changes have been largely unsuccessful, the government's expenditure cuts have been substantial (Copestake and Weston, 2000). However, the government failed to overcome its political dependence on urban public sector workers. Rather than reducing the burden of the civil service, the government chose to reduce public investment and social spending. Social spending in particular had been declining throughout the previous two decades leading to deteriorating infant and adult mortality, and a strong urban-bias in education spending. This downward trend continued into the 1990s.

[6] Political uncertainty continued to undermine private investment despite the more stabilized economic environment of the mid-1990s. As evidence of this uncertainty, Chiluba's government banned Kaunda from running for office in 1995, and in 1997 there was an attempted coup d'état. Consequently, donors repeatedly threatened to withdraw financial support.

(iii) External liberalization was achieved through extensive rationalization and lowering of trade protection. By 1996 the government removed all quantitative restrictions and licenses, and reduced the number of applied tariff rates. This made Zambia one of the most open economies in Africa (Rakner et al., 1999), and stands in stark contrast to earlier import-substitution industrialization. A large increase in imports was prevented by the continued depreciation of the exchange rate, which encouraged real export growth. However, inefficient state-owned enterprises did not respond positively to the removal of protection, and formal manufacturing employment fell rapidly (McCulloch et al., 2000).

(iv) Falling formal employment also resulted from the privatization of state assets. In 1990 over three quarters of formal GDP was generated by state-owned enterprises (Chanthunya and Murinde, 1998). Initially the privatization process was slow due to political opposition, but increased donor pressure accelerated the process. By 1997 over 80% of state enterprises had either been dissolved or sold to the private sector (Bigsten and Kayizzi-Mugerwa, 2000). The sale of the main copper mining assets was delayed until mounting donor pressure forced the government to announce its sale in 1996. Despite a long and expensive tendering process, a potential buyer was identified in 2000. However, world copper prices fell 50% during this interim period, thereby jeopardizing the sale and threatening a collapse of the sector (Lofgren *et al.*, 2002). Donor support and improvements in copper prices have subsequently kept the mines operating, but these recent developments suggest that the role of copper as a source of foreign earnings is uncertain and limited (World Bank, 2004).

(v) One of the key components of the recent reform package has been the liberalization of agricultural markets. The previous government favored maize production through pan-territorial pricing, input and output marketing assistance, and food subsidies in urban areas. In 1991 the new government attempted to eliminate food subsidies and reduce state involvement in the maize and fertilizer sectors. Resulting food-price increases were met with considerable opposition in urban areas (Bigsten and Kayizzi-Mugerwa, 2000). Starting in 1992 the country suffered from a series of severe droughts,

which eventually halted the reform process and caused the government to reenter the market. Despite these setbacks the reforms were completed by 1995.

There are two other 'policy-independent' factors that have proven important for Zambia's development: foreign debt and HIV/AIDS (Lofgren *et al.*, 2004). In 1991 Zambia owed more than seven billion dollars in foreign debt. Although 0.8 billion of this was written-off in 1993, the rate of debt forgiveness slowed with the gradual deterioration of the policy environment during the late-1990s. Between 1991 and 2001 Zambia remained one of the most heavily indebted countries in the world.[7] The resulting debt servicing limited social expenditure during a period of fiscal contraction. In 2000 Zambia was classified as one of the Highly Indebted Poor Countries (HIPC) entitling it to a two-thirds debt reduction providing it adheres to the social objectives laid out in its Poverty Reduction Strategy Paper (PRSP) (Bigsten et al., 2001).

One of the core PRSP objectives is addressing the rapidly growing problem of HIV/AIDS. Falling health expenditure under public sector reform prevented the government's engagement with the pandemic. By the end of the 1990s 16% of the adult population were infected, with higher prevalence in urban areas (Republic of Zambia, 2002b). Life expectancy and child mortality indicators worsened as a result (see Table 1). HIV/AIDS has undermined growth and poverty-reduction during the 1990s by lowering labor supply and productivity, raising household health-related expenditures, and increasing the burden of the sick and orphaned.[8] Vulnerability to poverty has heightened through collapsing social capital. Offsetting social interventions in the areas of health and education were prevented by deteriorating government capacity. Increased mortality and morbidity have undoubtedly lowered growth and raised poverty over the last decade, and according to Cheru (2000) remains the most serious threat to future development.

[7] Zambia ranked 8th in 1991 and 9th in 2001 in terms of its ratio of per capita debt to per capita GDP (WDI, 2004).

[8] AIDS orphans in Zambia are estimated to number 650,000 or 6.5% of the population (PRSP, 2002).

Poverty and inequality estimates are only available for the 1990s.[9] Table 2 shows that the overall incidence of poverty in Zambia was high at the start of the decade with a majority of the population falling below the nationally determined poverty line. The initial impact of structural adjustment appears to have been negative, with poverty rising rapidly between 1991-1996. This mirrors the sharp fall in GDP per capita during this period shown in Figure 1. Although there was a subsequent decrease in poverty between 1996-1998, this was relatively small and was unable to reverse the overall upward trend of the 1990s. By contrast there was an overall decline in the depth and severity of poverty during the 1990s. This suggests an improvement in the situation of the country's poorest population.

Table 2. Poverty and Inequality Trends, 1991-1998

	1991	1996	1998
Basic poverty (upper poverty line)			
Incidence (P0)	68.9	79.4	75.4
Depth (P1)	41.7	45.4	40.0
Severity (P2)	30.6	30.7	25.6
Extreme poverty (lower poverty line)			
Incidence (P0)	56.5	65.8	59.8
Depth (P1)	32.4	33.2	27.6
Severity (P2)	23.2	20.8	16.2
Inequality (Gini coefficient)	0.59	0.50	0.49

Source: Own calculations using Priority Survey (1991) and Living Conditions Monitoring Surveys (1996 and 1998).
Note: Poverty for the various years is measured by real adult equivalent expenditure (see Appendix B).

Inequality fell dramatically during the early 1990s, and later stabilized between 1996 and 1998. This is explained by the rising incidence and declining depth and severity of poverty. Thus despite stagnant growth during the structural adjustment period, increasing poverty and declining inequality suggests that substantial structural and distributional changes have been taking place.

[9] Although the most recent household survey is for 2002, this data has not yet been made available.

Renewed Growth, 1999-2002

More recently there is evidence of renewed growth in Zambia. Between 1999-2002 GDP grew at an average rate of 3.4% per year. More importantly this positive growth has been sustained, which stands in stark contrast to the high variability of growth in previous decades. Figure 1 indicates that economic growth has been sufficient to halt the decades-long decline in per capita GDP. However, while the economy has performed well, a number of political developments have been less positive. The reform process slowed considerably towards the end of the decade, especially in the run-up to the 2001 elections, in which the post-1991 government changed leadership. This recent democratic transition has since been marred by allegations of corruption lodged at the outgoing government (Lodge, 2003). Furthermore, the new government has voiced interest in subsidizing agriculture, possibly indicting a return to pre-reform interventionism (McGrath et al., 2002). Therefore two questions are of considerable importance: (i) has recent growth been in spite of or as a result of structural adjustment; and (ii) will the new post-adjustment growth path generate and sustain a broad-based alleviation of poverty?

Subsequent sections in this paper explain the changing structure of growth and poverty, and the role of policies and external factors during the 1990s. However, this first section has described the initial political and economic context in which these policies and outcomes were implemented and achieved. Two policy-biases broadly summarize the policy-induced conditions present in Zambia at the start of structural adjustment. First, over three decades copper mining and Dutch Disease created a strong urban-bias in government policies. The allocation of resources and social spending, and the protection of the civil service benefited the mining sector and politically strong urban population. Rural areas suffered from relative isolation caused by poor infrastructure investment and social spending. Secondly, the government adopted agricultural policies that favored urban areas by supporting maize production and food prices. This maize-bias created a dependence on food subsidies within urban areas and a distorted structure of production within rural areas. This further entrenched a bias

against agricultural exports. As will be seen, the interaction of these policy-biases and the resilience of their political foundations have been critical in determining the impact of structural adjustment on pro-poor growth.

II. GROWTH-ANALYSIS AND POVERTY PROFILES

Protectionist government policies and a long-standing dependence on copper exports created a strong urban-bias and shifted scarce resources away from agriculture towards mining and manufacturing. This distorted initial structure, together with substantial reforms, led to poor economic performance during the 1990s. However, rising poverty paired with falling inequality suggests that there have been substantial structural and distributional changes taking place within the economy over the last decade. In order to understand these changes in more detail this section decomposes growth and examines the evolution of poverty and inequality during the 1990s.

Growth Decomposition, 1985-2001

Although the main focus of this paper is on the two development periods of the 1990s, the composition of growth during the last five-year period of the previous government is also presented. As described in Section I, the second half of the 1980s was characterized by a partial return to a command-style economy, which was followed by an attempt to decontrol prices and liberalize markets. These reforms were driven by domestic political considerations, which were strengthened by donor pressure (Bigsten and Kayizzi-Mugerwa, 2000; Cheru, 2000). Table 3 shows the decomposition of growth with respect to factor accumulation and productivity, economic sectors, and resource demand.

GDP growth during the economic transition of 1985-1990 averaged 1.8% per year, which was slower than population growth. Labor force growth and improvements in education were the driving forces and together explain the strongly positive contribution of human capital (World Bank, 2004). This was offset by declines in physical capital resulting from inadequate investment. The unstable political and economic environment of the late 1980s discouraged both private investment, while severe budget constraints undermined public investment (Mwanawina and Mulungushi, 2002). Accordingly, investment in fixed capital fell by an average 0.9% per year during 1985-1990 from an initially low GDP share of nine percent (Table 3).

Stagnating public investment and poor world market conditions produced sluggish mining sector growth. During this period the mining sector relied heavily on the capital and infrastructure that had been accumulated during the early post-independence period (World Bank, 2004). In contrast to mining, the manufacturing sector grew rapidly during 1985-1990 at an average 7.5% per year. However, this sector's focus on the domestic market did little to alleviate current account pressures resulting from falling real copper exports. Furthermore, manufacturing's low share of GDP of around ten percent meant that its contribution to growth remained low at 0.7% during the late 1980s. Agriculture also grew faster than overall GDP, contributing 0.4% to overall growth. On the demand side, growth was driven by private consumption spending and the stockpiling of inventories during the recession.

Table 3. Growth Decomposition (1985-2001)

	Growth rate			**Contribution to growth**		
	1985-90 ***economic transition***	**1991-98** ***structural adjustment***	**1999-01** ***renewed growth***	**1985-90** ***economic transition***	**1991-98** ***structural adjustment***	**1999-01** ***renewed growth***
GDP at factor cost	1.8	0.2	3.7	1.8	0.2	3.7
Physical capital	-2.1	-1.2	0.5	-0.8	-0.5	0.2
Human capital	3.8	4.9	3.2	2.3	2.7	2.0
Total factor productivity	0.3	-1.9	1.4	0.3	-2.0	1.5
GDP at factor cost	1.8	0.2	3.7	1.8	0.2	3.7
Agriculture	3.0	6.3	3.0	0.4	0.2	0.5
Mining	1.3	-5.2	1.1	0.4	-0.3	0.2
Manufacturing	7.5	0.9	3.5	0.7	0.0	0.4
Services	0.7	2.3	5.2	0.3	0.2	2.6
Resource demand	1.7	0.4	3.0	1.7	0.4	3.0
Domestic demand	3.4	-0.6	2.0	2.1	-0.1	1.5
Government	1.5	-1.5	1.2	0.1	-0.2	0.1
Households	5.8	0.1	0.0	1.4	0.0	0.0
Investment	-0.9	6.0	11.0	0.0	0.2	1.0
Inventories	52.6	-142.4	24.4	0.7	-0.2	0.4
External demand (exports)	-3.4	4.3	6.5	-0.4	0.5	1.5

Source: Authors' calculations based on World Development Indicators (World Bank 2003a) and World Bank (2004).

The Zambian economy was therefore already in a period of decline before structural adjustment begun in 1991. The mining sector was growing slowly with export earnings suffering as a result. Agricultural and manufacturing growth were the main growth sectors, although as discussed in Section I, both were heavily subsidized and consumed a large portion of the government's budget. Therefore pre-reform growth was unsustainable.

During the structural adjustment period of 1991-1998 the government removed the trade protection that had shielded the manufacturing sector from foreign competition. The result was a substantial decline in manufacturing production. This contraction was exacerbated by a collapse of the mining sector, whose foreign earnings financed imported intermediates and investment goods for the heavily-subsidized state-owned enterprises. Erratic investment during the first half of the 1990s could not keep pace with the depreciation of mining capital stock (McCulloch *et al*., 2000). Although investment grew after the mid-1990s, the fall in world copper prices caused a continuous decline of mining exports at an average rate of 3.5% per year. Despite low profitability in the mining sector, the government continued to subsidize state-owned mines to the detriment of other sectors.[10] By contrast, and in spite of a severe drought in 1992, agriculture grew strongly on average and contributed the most to economic growth. However, this was insufficient to offset the overall stagnation of the economy, which grew at a mere 0.2% per year.

Much of the stagnation of GDP occurred during the first half of the 1990s.[11] Inflation averaged nearly a hundred percent for most of the late-1980s and early-1990s but was reduced and stabilized after 1995. Real interest rates, which were large and negative during the early 1990s, switched to positive rates in response to lower inflation rates during the mid-1990s. Although investment growth was highly erratic during this period, it did average six percent per year, thus reversing some of the decline of the late-

[10] According to Bigsten and Kayizzi-Mugerwa (2000) the copper mines were costing the government one million dollars per day by 1998. This put considerable pressure on the budget and undermined the credibility of reforms.

[11] See Figures A.1 and A.2 in Appendix A.

1980s. The real effective exchange rate appreciated sharply at the end of the 1980s, reducing export competitiveness and foreign earnings, and increasing foreign debt. However, macro-stabilization and more transparent foreign exchange management caused the exchange rate to gradually depreciate throughout most of the 1990s (McCulloch et al., 2000). This depreciation, together with an improving terms-of-trade, caused a resurgence of exports during 1991-1995. Agricultural exports became more important during this period, offsetting falling mining exports.

Export growth maintained slightly positive real growth in total resource demand. However, *domestic* demand declined during 1991-1998, despite high investment growth, which had a low initial share of GDP. Government demand contracted during the 1990s, largely as a result of fiscal-restraint within broader macro-stabilization policies. However, high government expenditure on state-owned enterprises and public administration (especially the public wage bill) ensured that government demand remained over 20% of GDP. Real household consumption remained constant during the 1990s, increasing at an average of only 0.1% per year. This small increase in consumption was outweighed by population growth, leading to falling aggregate per capita consumption and raising poverty.

A resurgence of exports generated approximately half of the renewed growth experienced during 1999-2001. Overall, exports grew at an annual rate of 6.5%, with a vast majority of this coming from the mining sector. Although agricultural exports have continued to grow, they declined in relative importance, possibly as a result of an appreciating real exchange rate and adverse weather conditions. Manufacturing also experienced a recovery, with an average annual growth rate of 3.5%. This sector has benefited from the recent and sustained increase in investment, which accounts for the remaining half of economic growth. While the manufacturing and other non-mining industries' share in total GDP increased slightly, their contribution to total export earnings has been more significant. Despite improvements in the industrial sectors, it has been services that have contributed the most to GDP growth in recent years. However, while there has been some growth in informal trade, it has not been the

private sector that has been the driving force. Rather it has been public sector services that have been the main contributor. Real wages remain substantially higher in the public sector, and civil service reform has been largely unsuccessful (Duncan *et al*. 2003). Consequently, the service sector grew while the bulk of the service economy stagnated or declined.

Investment has been the fastest growing component of domestic demand in recent years. However, it's translation into physical capital growth has been more modest. Although physical capital's contribution to GDP became positive during 1999-2001, it remained low at 0.2 percentage points. By contrast, the most significant change since 1998 has been the high positive growth of total factor productivity (TFP). TFP had previously been falling due to a reliance of imported technological change, and declining manufactured imports caused by the contraction of copper earnings (World Bank, 2004). However, in more recent years this trend has been reversed, possibly through renewed growth in imports and private sector investment.

The decomposition of Zambia's economic structure and growth leading up to the 1990s clearly reflects the urban-bias identified in the previous section. Revenues from the dominant mining sector were being used to cross-subsidize inefficient state-owned enterprises, creating a large civil service and public sector that was dependent on urban-based state-owned industries. Furthermore, these industries, which accounted for around three-quarters of GDP in 1991, crowded-out private investment (McCulloch *et al*., 2000). However, falling world prices in the 1980s created a downward spiral in which declining export earnings reduced the ability of the government to import investment goods and maintain the level of public investment. This undermined productivity within the import- and investment-intensive mining and manufacturing sectors, which further reduced exports and increased the need for cross-subsidization. During structural adjustment, the government was forced to contract public expenditures in an attempt to control inflation and limit foreign borrowing. Growth in private investment and physical capital remained low during the 1990s, reflecting the significant political and economic uncertainty of this period. Exports rebounded

slightly as the overvalued exchange rate corrected itself, relieving some of the bias against non-mining exports. Agriculture in particular responded positively, as the maize-bias was removed and the sector diversified. Macro-economic stabilization encouraged sustained and positive private sector investment, which eventually raised productivity and economic growth. It therefore appears that structural adjustment has fostered renewed and more diversified growth. The remaining sections of this paper are concerned with how structural adjustment and the new emerging growth path affected poverty and inequality.

Inequality and Poverty Profiles, 1991-1998

National poverty and inequality measures from Section I suggested that significant distributional changes took place during 1991-1998. Despite obvious interest in the growth period of 1999-2002, the recently completed household survey is not yet available. Therefore this section is confined to an assessment of how poverty and inequality evolved during the structural adjustment period.

Table 4 shows the incidence and severity of poverty across a number of dimensions.[12] Poverty was already high in 1991, with 68.9% of the population falling below the nationally-defined poverty line. Rural poverty was much higher than urban poverty. Around 88% of the rural population in 1991 was poor, accounting for approximately 70% of the country's poor population. By contrast, 46% of the urban population was poor. High and severe rural poverty reflects the long-standing urban-bias of government policies and the prolonged neglect of rural areas. National poverty rose during the 1990s, but the experiences of rural and urban areas were markedly different. While urban areas experience sharp increases in the incidence of poverty, especially during 1991-1996, poverty in the rural areas fell slightly, despite a small initial rise. Trends in the severity of poverty are even more divergent. The severity of

[12] The incidence of poverty is measured by the poverty headcount (P0), which is the percentage of the population falling below the poverty line (see Appendix B). The headcount index attaches the same weight to all people regardless of how far from the poverty line they are. The severity of poverty is measured by the squared poverty gap (P2), which attaches a greater weight to those people falling further below the poverty line.

urban poverty rose during the 1990s, while it fell dramatically in rural areas. These trends offset each other to produce relatively stable but rising poverty at the national level.

Table 4. Poverty Profile (1991, 1996, 1998) (Upper Poverty Line)

	Population share	Headcount poverty (P0)			Squared poverty gap (P2)		
	1991	1991	1996	1998	1991	1996	1998
National	100.0	68.9	79.4	75.4	30.6	30.7	25.6
Rural[1]	54.6	88.0	90.1	85.6	47.9	40.3	33.3
Small-scale	48.0	89.8	91.2	86.4	50.1	41.5	33.7
Medium-scale	2.7	81.6	77.6	80.3	36.0	27.1	27.7
Non-farm	3.7	70.9	83.4	80.9	29.7	31.9	32.2
Urban[2]	45.4	46.0	61.2	58.3	9.7	14.2	12.7
Low-cost	24.0	53.1	66.3	64.3	11.4	16.2	14.9
Medium-cost	14.9	39.5	47.4	50.1	8.1	8.5	8.3
High-cost	6.5	34.6	39.9	33.0	6.9	6.4	4.8
Province							
Central	9.1	69.8	84.1	78.9	25.9	31.5	29.3
Copperbelt	15.0	55.5	70.8	67.0	12.1	18.0	18.2
Eastern	12.8	84.3	89.0	82.7	46.4	42.4	29.2
Luapula	9.5	83.9	88.4	85.4	39.8	34.5	31.4
Lusaka	16.1	31.0	51.3	54.4	6.6	11.7	12.5
Northern	12.6	83.6	90.8	85.0	41.6	41.8	31.3
North-Western	5.2	77.8	89.0	76.0	36.2	35.8	24.9
Southern	11.9	78.4	86.1	78.4	40.9	35.3	29.5
Western	7.8	84.5	89.2	90.3	46.6	44.3	37.5
Gender of household head							
Male	85.7	67.9	78.9	74.9	29.2	29.7	24.7
Female	14.3	74.9	81.6	77.2	38.4	34.7	29.2

Source: Own calculations using Priority Survey (1991) and Living Conditions Monitoring Surveys (1996 and 1998).

[1] A rural large-scale category is also included in the surveys but only represents 0.2% of the total 1991 population. It is excluded from the table since its small sample size makes its estimates unreliable.

[2] The urban population share is larger in the 1991 survey than that reported in the World Development Indicators (World Bank, 2003).

The overall decline in rural poverty has been driven by falling poverty amongst the small-scale farm population, and to a lesser extent, amongst medium-scale farm

households.[13] The severity of poverty has fallen for both household groups, although it is small-scale farmers that mainly drive overall rural trends. By contrast, poverty amongst non-farm rural households has risen dramatically by ten percentage points during 1991-1998, with the severity of poverty also rising, albeit much more slowly. Therefore there appears to be two trends taking place within rural areas during the structural adjustment period. Farm households, especially small-scale, appeared to be better off at the end of the decade than they were in 1991, while the reverse is true for non-farm households.[14] The increase in poverty within urban areas is driven by increased poverty amongst households in low and medium-cost areas, although it was only in the former that the severity of poverty increased substantially.[15] High-cost households experienced an initial increase in poverty, but an overall decline for the 1990s with some improvement in their severity of poverty.

Provincial poverty trends are largely determined by the degree of urbanization within each province. The more urbanized Lusaka, Copperbelt and Central provinces experienced sharp increases in poverty, while the more rural provinces experienced only slight increases or decreases.[16] The only exception is the Western province, which, despite being largely rural and already the poorest province in 1991, experienced a consistent increase in the incidence of poverty throughout the 1991-1998 period. However, the severity of poverty did fall in the Western province during the structural adjustment period as in all other rural provinces.

In 1991 a higher share of the population within female-head households fell below the poverty line than within male-headed households. However, during the 1990s this gap narrowed as poverty within male-headed households rose more rapidly

[13] *Small-scale* households have less than five hectares of land and five dairy cattle; *medium-scale* households have a maximum of 20 hectares of land, 20 dairy cattle, and 50 beef cattle; *large-scale* are all other farm households. *Non-farm* households are non-agricultural and have none of the above assets.

[14] Section III explores the role of migration and shifting population shares.

[15] Urban households were stratified according to the type of housing of in the area, determined by housing standards defined by local government councils. These comprised low, medium and high cost housing areas.

[16] See Figure A.4 for the location of Zambian provinces.

than in female-headed households. By 1998 the incidence of poverty within these two household groups was relatively similar. The changing incidence amongst male and female-headed households appears to mirror the rural-urban divide. Female-headed households are mostly situated in rural areas being mainly engaged in agriculture with relatively little involvement in wage-earning jobs in manufacturing and industries.

Table 5 shows the changes in inequality across the 1990s. Inequality, as measured by the Gini coefficient, was the same in 1991 as it was in 1974 and higher than at the time of independence in 1964. However, the combination of a high poverty line, rising poverty headcount, and falling severity of poverty suggest that inequality must have declined during the structural adjustment period. This is confirmed by the falling Gini coefficient and Theil mean log deviation measure between 1991-1998. Falling inequality is more pronounced in rural areas, which dominates the national measure. Urban inequality is falling despite rising poverty in low-cost areas and falling poverty in high-cost areas. This suggests that these inequality trends are dominated by changes taking place in the tail-ends of the distribution. This is also reflected in the changing severity of poverty in Table 4, and in the larger changes in the Theil measure, both of which are more sensitive to changes taking place within the tails.

Table 5. National, Rural and Urban Inequality Measures (1991, 1996, 1998)

	Gini coefficient			Theil mean log deviation		
	1991	**1996**	**1998**	**1991**	**1996**	**1998**
National	0.59	0.50	0.49	0.78	0.46	0.42
Rural	0.62	0.48	0.48	0.85	0.40	0.41
Urban	0.47	0.44	0.43	0.40	0.34	0.32

Source: Own calculations using Priority Survey (1991) and Living Conditions Monitoring Surveys (1996 and 1998).

The poverty and inequality estimates suggest that different groups within the population have had very different experiences during the structural adjustment period. Urban poverty has risen while rural poverty has fallen. Within urban areas the rise in poverty is concentrated within low-cost areas. Small and medium-scale rural households have seen dramatic declines in poverty, while non-farm rural households

suffered considerably during the 1990s. These rural-urban trends have dominated provincial and gender-based poverty outcomes.

Pro-Poor Growth, 1991-1998

So far this section has reviewed the growth path of Zambia over the last two decades and identified the key changes in poverty and inequality taking place during the 1990s. The remainder of this section uses three methods to determine whether growth during the structural adjustment period was 'pro-poor'.[17] These include (i) poverty decompositions; (ii) growth-poverty and inequality-poverty elasticities; and (iii) growth incidence curves. Section III then links policies to these pro-poor growth outcomes.

The national poverty decomposition for 1991-1998, shown in Table 6, suggests that declining growth was the main contributing factor to the rising incidence of poverty, while the effect of falling inequality (from Table 5) on distribution played a dampening role. This dominant growth-effect is consistent across the 1990s, and accounts for most of the increasing poverty-incidence during 1991-1996 and its fall during 1996-1998. However, while improved inequality lowered poverty early in the decade, it exacerbated it in later years by pulling more of the non-poor over the poverty line.

The dominance of the growth-effect on the national incidence of poverty does not extend to the severity of poverty. Amongst the poorest households, improvements in inequality have proven more important in reducing severe poverty. This distribution-effect reduced severe poverty throughout the 1990s. Therefore under the *relative* definition of pro-poor growth (McCulloch *et al*., 2000), the positive distribution-effect indicates that the 1990s have been a period of pro-poor growth, especially for those

[17] There are two definitions of 'pro-poor growth'. Under the *absolute* definition growth can only be 'pro-poor' if the poor experience an absolute increase in real per capita consumption (Ravallion, 2004). Under the *relative* definition, pro-poor growth exists if there is a positive distribution-effect on changing poverty (McCulloch *et al*., 2000). By this definition growth can be 'pro-poor' if the poor are worse-off in absolute terms but better-off in relative terms (i.e., real per capita consumption falls for all households but falls faster for the non-poor).

people suffering from severe poverty. However, poverty rose during 1991-1998 despite the positive distribution-effect, thus challenging the appropriateness of this definition.

Table 6. Poverty Decompositions (1991, 1996, 1998) (Upper Poverty Line)

	Headcount poverty (P0)			Squared poverty gap (P2)		
	1991-98	1991-96	1996-98	1991-98	1991-96	1996-98
National						
Overall change	6.4	10.3	-3.8	-5.0	0.0	-5.0
Growth	5.9	9.8	-4.4	4.0	7.0	-3.5
Distribution	-0.4	-0.5	0.8	-9.8	-8.2	-1.3
Residual	0.9	1.0	-0.2	0.8	1.2	-0.1
Rural						
Overall change	-2.4	2.0	-4.3	-14.6	-7.7	-6.9
Growth	-3.3	1.3	-5.1	-4.5	1.4	-7.2
Distribution	1.8	0.8	1.0	-9.1	-9.5	0.4
Residual	-0.9	0.0	-0.2	-1.1	0.3	-0.2
Urban						
Overall change	12.3	15.1	-2.9	3.0	4.5	-1.5
Growth	15.2	16.8	-1.9	5.6	6.4	-0.8
Distribution	-3.8	-2.2	-1.1	-2.2	-1.6	-0.8
Residual	0.9	0.5	0.2	-0.4	-0.2	0.0

Source: Own calculations using Priority Survey (1991) and Living Conditions Monitoring Surveys (1996 and 1998).

The decomposition of changes in poverty-incidence within rural areas indicates that the growth-effect outweighed the distribution-effect throughout the 1990s. More importantly however is the negative effect that reduced inequality had on the poverty headcount - by pulling more of the non-poor across the poverty line.[18] However, this perverse distribution-effect was offset by a positive growth-effect leading to an overall decline in poverty during 1991-1998. As would be expected for measures more sensitive to the tail-ends of the distribution, the distributional effect of falling inequality was to lower the overall severity of poverty during the structural adjustment period. However, 1991-1998 comprises two distinct periods. Severe poverty declined in both periods, although during 1991-1996 this decline was dominated by the distribution-

[18] This seemingly perverse effect, in which reducing inequality raises poverty, is somewhat to be expected given rural areas' initial combination of very high poverty and inequality.

effect while during 1996-1998 it was the growth-effect that dominated. By contrast, in urban areas the growth-effect always dominated the distribution-effect, while improvements in urban inequality reduced both the incidence and severity of poverty.

Table 7 shows the poverty-growth and poverty-inequality elasticities for the structural adjustment period. Increasing growth by one percent reduces the incidence of poverty by 0.5% in 1991. There was little change in this elasticity across the 1990s. By contrast, adjusting inequality has a small effect on the incidence of poverty.[19] In 1996 and 1998 the poverty-inequality elasticity indicates that reducing inequality would be detrimental to poverty. Again, this is because reducing inequality is achieved by pulling the non-poor over the poverty line.

Table 7. Growth- and Inequality-Poverty Elasticities (1991, 1996, 1998) (Upper Poverty Line)

	Poverty-growth elasticities			Poverty-inequality elasticities		
	1991	1996	1998	1991	1996	1998
Headcount poverty (P0)	-0.5	-0.4	-0.5	0.0	-0.1	-0.1
Poverty gap (P1)	-0.7	-0.8	-0.9	1.1	0.6	0.8
Squared poverty gap (P2)	-0.7	-1.0	-1.1	2.1	1.3	1.6

Source: Own calculations using Priority Survey (1991) and Living Conditions Monitoring Surveys (1996 and 1998).

The greater the weight attached to poverty amongst the poorest of the population, the greater the influence of both growth and inequality in reducing that poverty. The elasticities on the poverty gap and squared poverty gap are larger than on the poverty headcount for both growth and inequality. Furthermore, the ability of growth to reduce deeper and more severe poverty increased over the 1990s. The reverse appears to be true for inequality, whose elasticities have generally declined across the period. The relative magnitudes of these two sets of elasticities are consistent across the period, and suggest that improving inequality is better at reducing the

[19] These elasticities are measured at the margin and are therefore strictly applicable only for small changes in growth and inequality.

severity of poverty, while stimulating growth is better at reducing the incidence of poverty.

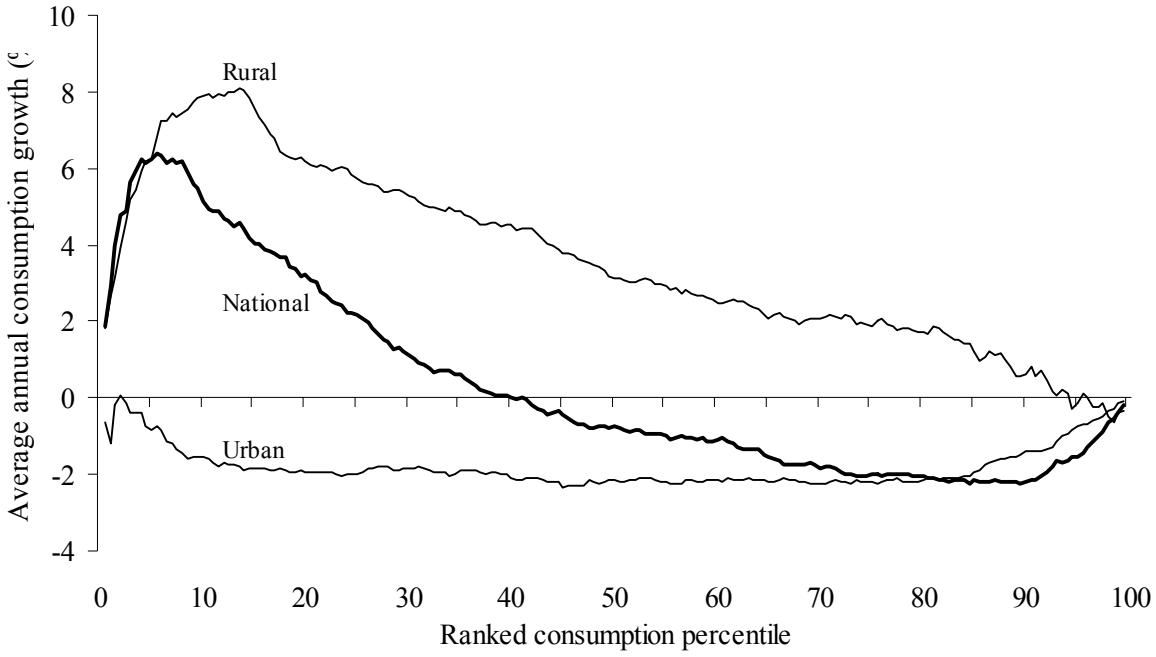
Figure 2 shows the growth incidence curve (GIC) for 1991-1998. A GIC reflects average annual real consumption growth for each percentile of the population ranked according to per capita consumption. Mean consumption growth for the population as a whole was only slightly positive during the structural adjustment period. However, this aggregate figure hides the considerable differences between the upper and lower ends of the population. The poorest of the population (on the left-hand side of the figure) experienced positive annual growth in consumption during the period, while the highest 60% of the population experienced average declines in consumption. This curve reflects the changes in poverty and inequality discussed earlier in this section. Rural poverty declined during structural adjustment, with the severity falling substantially. These declines in rural poverty dominate the rising consumption levels at the lower end of the national GIC. Furthermore, falling rural inequality can be seen in the progressiveness of the rural growth incidence curve. By contrast, urban per capita consumption growth was consistently negative for all of the urban population, with only low and high consumption households performing better than the average. Changes in these two tails offset each other leading to only small changes in inequality within urban areas. The GIC clearly shows that using aggregate measures of growth as an indication of pro-poor growth hides much of the variation in experiences of different population groups.

Table 8 shows the pro-poor growth rates derived from the GICs (Ravallion and Chen, 2003). Based on the *absolute* definition, the pro-poor growth rate is the average annual growth rate of real per capita consumption for each percentile of the population falling below the poverty line.[20] Zambia experienced pro-poor growth of 1.1% per year during 1991-1998. This growth was driven by rural areas which outweighed declines in urban areas. Furthermore, pro-poor growth during the first half of the decade was

[20] This is the mean of consumption growth of the poor, as opposed to the growth of mean consumption of the poor.

negative, a trend that was reversed in later years. This reversal occurred in both rural and urban areas.

Figure 2. National, Rural and Urban Growth Incidence Curves (1991-1998)



Source: Own calculations using Priority Survey (1991) and Living Conditions Monitoring Surveys (1996 and 1998).
Note: The national growth incidence curve is not strictly decomposable into rural and urban curves due to changes in rural and urban population shares (see Section III). Lowest end of the distribution for both years is truncated (see Appendix B).

Following the rural-urban divide, the pro-poor growth rates of the predominantly rural provinces were positive, while growth rates in the more urbanized Copperbelt, Central and Lusaka provinces were negative. Much of the negative pro-poor growth in both the urban and rural provinces occurred during the first half of the decade. There was particularly strong pro-poor growth during 1996-1998 in the Eastern and Northern provinces, although all rural provinces, with the exception of Luapula province, experienced strong pro-poor growth. Figure A.3 in the Appendix shows the GICs for the nine provinces during 1991-1998. The curves for all three of the urbanized provinces fall below zero, while those of the Eastern and Northern provinces lie above

the national GIC. These curves indicate that over and above the rural-urban divide, there have also been significant provincial/spatial differences in pro-poor growth.

Table 8. Pro-Poor Growth Rates (1991-1998) (Upper and Lower Poverty Lines)

	Average annual pro-poor growth rate (%)[1]		
	1991-98	**1991-96**	**1996-98**
National	1.1	-1.1	2.2
Rural	4.0	1.3	2.7
Urban	-1.8	-2.7	0.9
Central	-2.3	-2.4	0.4
Copperbelt	-3.5	-3.3	-0.1
Eastern	5.7	0.0	5.6
Luapula	2.4	1.5	0.9
Lusaka	-4.2	-3.8	-0.5
Northern	4.1	-0.2	4.2
North-Western	2.6	-1.7	4.4
Southern	1.3	-1.2	2.5
Western	1.1	-1.2	2.3

Source: Own calculations using Priority Survey (1991) and Living Conditions Monitoring Surveys (1996 and 1998).
Note: Pro-poor growth rates are not strictly decomposable across sub-periods due to changes in rural and urban population shares (see Section III). Lower end of the distribution are dropped for both years (see Appendix B).

The structure and decomposition of growth leading up to and including the structural adjustment period reflect the way in which mining and the urban-bias of government policies had distorted the economy. Almost all export earnings in 1991 were generated by copper and used to finance import-intensive public investment and the civil service. Public investment remained critical since state-enterprises effectively crowded-out private investment, and were unable to efficiently displace imported investment goods. Poor competitiveness and inadequate investment meant that productivity growth was low and often negative during the two decades prior to 1991. This distorted structure and poor economic performance lead to high and severe poverty in 1991. Furthermore, the strong urban-bias was reflected in the exceptionally high rural poverty rates.

Structural adjustment during 1991-1998 had a profound effect on the Zambian economy. Macro-stabilization did not immediately encourage private investment, and the manufacturing and mining sectors declined dramatically under economic instability, trade liberalization, and privatization. Correction of the over-valued real exchange rate and the removal of the bias against agricultural exports meant that agriculture and agricultural exports grew rapidly, and to some extent replaced declining mining exports. Urban poverty rose rapidly during this period, especially within low-cost areas. Rural agricultural households' poverty fell in line with the fast growth in the agricultural sector. Rural non-farm households experienced rising poverty. In both regions there was a decline in inequality, although in rural areas this had the effect of pulling more households below the poverty line. Positive pro-poor growth later in the decade outweighed earlier negative growth, ultimately leading to pro-poor growth across the structural adjustment period. This high pro-poor growth was driven by a rapid rise in per capita consumption at the lower end of the distribution. These findings suggests that it was only the urban-based core that collapsed under structural adjustment and pulled down aggregate GDP growth to only 0.2% per year. This aggregate measure conceals the agricultural growth that was taking place in rural areas, and the fact that increased poverty was largely concentrated within main urban centers. Agriculture responded positively during the adjustment period to the removal of past policy-biases.

There is evidence of renewed growth in recent years, although no recent estimates of poverty are currently available. However, the resurgence of mining and public sector growth raises concerns over trade-offs between agriculture-led rural growth and urban-based industrial growth, and with the role of government policies in addressing such trade-offs. Sections IV and V consider the future prospects for accelerating pro-poor growth in Zambia and the trade-offs between alternative development paths. However, in an attempt to better understand the factors that have influenced poor people's participation in the growth process, the next section investigates in more detail the role of policies in generating the pro-poor outcomes of the 1990s.

III. FACTORS AFFECTING THE PARTICIPATION OF THE POOR

Zambia recently underwent a substantial shift in its growth path and this changing pattern of growth has impacted differently on different areas and groups within the country. The challenge is to identify the role played by policies, external factors, and initial conditions in generating these outcomes. This task is complicated by the scale of the structural adjustment program and the series of external shocks that disrupted the economy during the 1990s. As described in Section II, Zambia's economy was generally in recession during the first half of the decade, with signs of growth only beginning to emerge after 1998. Therefore, in attempting to identify which policies and initial conditions contributed or constrained pro-poor growth, it is difficult to separate reform-based policies, which were aimed at correcting past distortions and avoiding crisis, from other policies which are more directly aimed at and typically associated with generating growth and poverty-reduction. In many respects this section can only explain why certain households coped better than others under structural adjustment.

Structural reforms and external shocks have dominated more forward-looking policies in shaping the economic environment and poverty outcomes of the 1990s. These broad-based structural reforms, which form the focus of this section, included macro-stabilization, trade liberalization, privatization, public sector reform, and agricultural liberalization. As outlined in Section I, these reforms were in direct response to the long-standing policies that were adopted soon after independence and which had, by beginning of the 1990s, produced a pronounced division between rural and urban areas. The poverty profiles of the previous section revealed that rural and urban areas have had markedly different experiences over the last decade, thus suggesting that this division is the dominant 'initial condition' on which the outcomes of the reforms have largely been determined. This section follows the rural/urban distinction by first assessing the macro, structural, and labor market policies that largely affected urban areas, before turning to a review of agricultural reforms and their impact on rural development. Zambia's political economy is considered throughout. Although

past policies effectively limited the linkages between rural and urban areas, the effects of key inter-regional linkages that have emerged during reform are also considered.

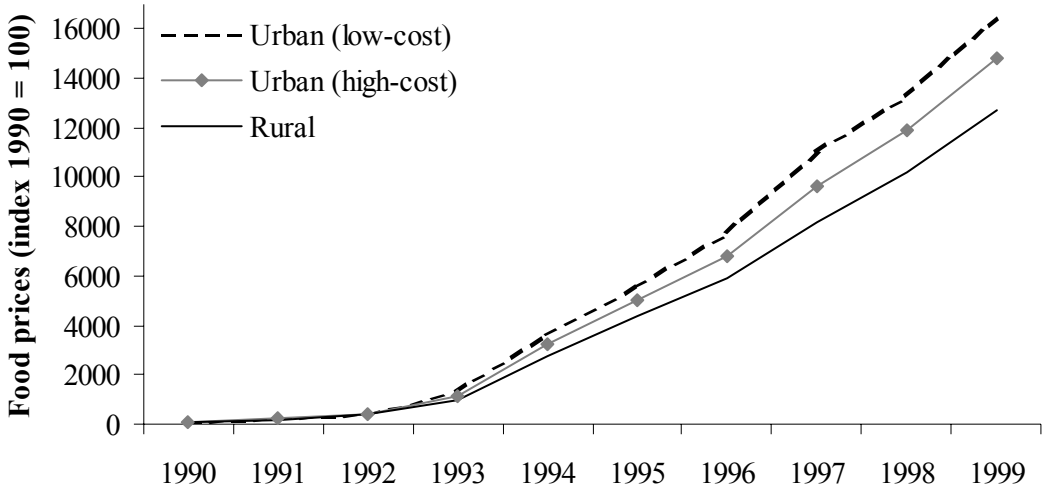
Macroeconomic Policies and Stabilization

In response to declining revenues throughout the 1980s the government adopted expansionary monetary policy to cover public sector wages and the losses accruing from state enterprises. Accordingly the inflation rate rose rapidly towards the end of the decade and into the early 1990s, where it reached a maximum of 180% in 1993 (see Table 1). Despite increases in the money supply, the government continued running a large deficit, while persistent shortfalls on the current account escalated foreign debt. The new government acknowledged this untenable situation and immediately implemented a comprehensive stabilization program in 1991. Credit and reserve ceilings were removed, and efforts were made to liberalize foreign exchange markets (McCulloch *et al.*, 2000). The latter was an important reform since the previous system of import licensing and exchange rationing generated substantial rent-seeking and a concentration of economic power within state-owned urban-based industries (Bigsten and Kiwizzi-Mugerwa, 2000). Furthermore, government control of scarce foreign exchange constrained import-intensive private sector investment, which, when coupled with high inflation, contributed to deteriorating capital stocks and stagnant economic growth (World Bank, 2004).

Despite its stated commitment to the stabilization package, the new government backtracked on reforms in 1992 when it raised public sector wages and permitted large unbudgeted transfers to unprofitable state enterprises (McCulloch *et al*., 2000). To restore reform the government decontrolled interest rates and issued Treasury Bills late in 1992, and introduced a 'cash budget' system in 1993, under which expenditures were limited to available funds (Dinh *et al.*, 2002). The impact of these macroeconomic policies were twofold. First, the inflation rate fell dramatically to less than a third of its 1993 level. Second, rapidly falling inflation led to positive real interest rates and a depreciated real exchange rate, which further curtailed private investment. Despite the

government's eventual success at stabilizing the economy, urban consumer prices rose rapidly during the early 1990s. Increasing food prices were further exacerbated by limited domestic supply due to severe droughts in 1992 and 1995, and by the removal of urban food subsidies. The latter had been in place since the 1980s and together with other agricultural subsidies had become a substantial drain on the fiscal budget.

Figure 3. Urban and Rural Food Prices (1990-99)



Source: CSO (1999b)
Note: Urban includes Livingstone, Lusaka (urban), Kabwe (urban), and all Copperbelt towns; Rural includes other small towns and all rural areas; Food includes food, beverages, and tobacco. Urban (low) refers to low income urban areas, whereas Urban (high) refers to high income areas.

The previous section identified a substantial increase in urban poverty during 1991-1996, which later stabilized by 1998. This outcome was partly driven by the initial rise and subsequent leveling-off of food prices during this period. However, while inflation lowered real incomes and consumption for all urban households, its effect was more pronounced on low and medium-cost urban areas. These urban households have higher food shares in their consumption basket, while at the same time consume larger shares of domestically produced commodities. This is confirmed in Figure 3, which shows that low-income metropolitan households experienced a much larger rise in marketed food prices during the early 1990s relative to other households. Furthermore, Table 9 shows that purchased food accounted for a larger share of their

total expenditure.[21] Within rural areas, non-farm households experienced the greatest rise in poverty due in part to the lower share of own produced food in their consumption bundle relative to other rural households. Therefore, participation in the market economy, which is usually associated with economic development, made these households more vulnerable to macro-economic instability and later, the greatest beneficiaries of the successful macroeconomic policies.[22]

Table 9. Household Consumption Shares by Location and Economic Stratum (1998)

Household category	Share of total household expenditures (percentage)				
	Food expenditures			Non-food expenditures	Total expenditures
	Produced	Purchased	Total food		
Rural	53.8	20.7	74.5	25.5	100.0
Small-scale	56.2	20.9	77.1	22.9	100.0
Medium-scale	46.8	16.5	63.3	36.7	100.0
Large-scale	54.3	4.0	58.3	41.7	100.0
Non-farm	33.8	32.9	66.6	33.4	100.0
Urban	8.5	38.7	47.2	52.8	100.0
Low-cost	9.4	41.8	51.2	48.8	100.0
Medium-cost	9.3	37.9	47.2	52.8	100.0
High-cost	5.6	31.8	37.4	62.6	100.0
All households	30.0	30.2	60.2	39.8	100.0

Source: Own calculations using Living Conditions Monitoring Survey (1998).
Note: produced includes own produced food and food received but not paid for; purchased includes food purchased for cash.

Although macroeconomic policies directly affected the poor through consumer prices, and indirectly through the supply of credit and investment funds, the main drivers of instability during the 1990s were external shocks. Zambia suffered from a series of droughts that undermined agricultural production throughout the decade, and

[21] The data on household consumption shares are taken from the 1998 survey since the 1991 survey imputed household own consumption and is not considered equally reliable (see McCulloch *et al.*, 2000). However, while the composition of food expenditures is likely to have changed over the 1990s, especially given agricultural reforms, it is unlikely that the share of food in total expenditures will have changed greatly.

[22] Urban households benefited more from inflation-targeting macro-policies than rural households since, while all households suffered from contractionary fiscal and monetary policies, market-integrated urban households are likely to have benefited more from the resulting stable market prices.

world copper prices fluctuated considerably along a negative long-run trend (Lofgren *et al*., 2002). The resulting volatility in the exchange rate and production created an environment prone to crisis and ill-suited to investment. This lack of private sector participation and investment greatly jeopardized the success of structural reforms.

Structural Reforms, Labor Markets and Migration

The structure of the Zambian economy reflects both the inward-industrialization strategy adopted during the 1970s, and the persistent urban-bias of government policies. Originally copper revenues had been at least partly directed towards pro-poor spending, leading to significant gains in social outcomes (Bigsten and Kiwizzi-Mugerwa, 2000).[23] However, the government redirected public funds to nationalizing and establishing state enterprises. Substantial trade protection was also granted to these enterprises. Rather than achieving international competitiveness, many state-controlled industries remained inefficient and in need of cross-subsidization (Rakner *et al*., 1999). When revenues started declining during the 1980s the government initially chose to reduce social spending, including rural infrastructure, and then later reduced investment in its own industries (World Bank, 2004). Despite declining investment, by 1991 over three-quarters of monetary GDP was being generated by parastatals. It was in this context that structural reforms were implemented, including comprehensive trade liberalization and privatization.

The previous government invested heavily in capital-intensive manufacturing, which was further encouraged through high tariffs and an overvalued exchange rate (McCulloch *et al*., 2000). Table 10 indicates that formal sector manufacturing employment grew slowly over the 1980s and accounted for less than 15% of total paid employment in 1991. Furthermore, the manufacturing sector remained relatively small in terms of its contribution to GDP. Therefore poor competitiveness and labor-intensity meant that public investment in manufacturing generated relatively low returns, with few opportunities for generating employment and poverty-reduction. However, despite

[23] See Table 2 in Section I.

its drain on the fiscal budget, the sector represented an important source of income for many households, especially within larger urban centers. In 1991, for example, households employed in manufacturing constituted around 15% of the total population in the more urbanized Lusaka and Copperbelt Provinces.[24] These sectors also have strong linkages with the rest of the economy, thus indirectly contributing to total employment (Evans *et al.*, 2004).

Table 10. Formal Employment by Sector (1986-2000)

Sector	Average share of total formal employment (percentage)			Average annual growth rate (percentage)		
	1986-90	1991-96	1996-98	1986-90	1991-96	1996-98
Agriculture	14.9	14.9	12.5	0.2	-2.4	-3.2
Mining	12.1	10.9	8.3	0.1	-4.8	-7.3
Manufacturing	14.2	12.2	9.9	0.1	-7.6	0.2
Food	4.9	3.9	1.4	0.0	-9.7	-3.8
Textiles/clothing	2.5	2.0	0.7	0.3	-10.2	-4.5
Metal/mineral	2.2	1.9	0.8	-0.7	-6.8	0.5
Other	4.6	4.4	2.1	0.5	-4.8	2.4
Energy	1.3	1.2	1.1	2.8	-6.5	3.7
Construction	7.1	4.0	3.0	-3.2	-12.3	3.1
Trade	8.8	6.9	10.6	-3.3	6.9	2.8
Transport	6.8	9.0	9.7	13.3	-5.3	5.4
Financial services	6.0	7.4	7.3	1.4	2.9	-4.3
Public services	28.8	33.4	37.6	1.5	1.7	1.3
Total	100.0	100.0	100.0	0.8	-2.0	-0.1

Source: CSO (2002) for broad sectors; various sources cited in Szirmai et al. (2002) for within-manufacturing.
Note: Only includes workers paid a wage and working for establishments listed in the CSO list of formal establishments. Results are consistent with those in the 1991 PS and 1998 LCMS surveys.

Beyond trade liberalization, the new government embarked on a program of privatization. Initially there was considerable opposition, which stalled the privatization process throughout the early 1990s. However, increased donor pressure forced the government to accelerate the process such that by 1997 over three-quarters of state enterprises had been sold or discontinued (Bigsten and Kiwizzi-Mugerwa, 2000). The government did however maintain control of the state copper mines until the beginning

[24] See Table A.1 in Appendix A.

of the current decade. The impact of privatization on the structure of employment was pronounced. Table 11 shows how in 1991 the distribution of parastatal employment was relatively even across sectors, reflecting the government's involvement in almost all sectors of the economy. However, by 1998 the size of the parastatal sector had declined rapidly from 16 to four percent of total employment. Furthermore, after 1998 a majority of the remaining state enterprises were in the mining and transport sectors, both of which have subsequently moved closer to being privatized (Republic of Zambia, 2002a).

Table 11. Employment Shares by Sector and Employment Status (1991 and 1998)

Sector	Share of total employment for 1991 (1998)											
	Self-employed		Govern-ment		Parastatal		Private sector		Other		All workers	
Across sectors												
Agriculture	80	(77)	6	(5)	6	(0)	18	(14)	77	(45)	48	(55)
Mining	0	(0)	0	(0)	19	(47)	1	(7)	0	(0)	3	(3)
Manufacturing	3	(3)	3	(1)	15	(9)	17	(18)	3	(3)	7	(5)
Trade services	9	(14)	1	(2)	6	(3)	9	(14)	4	(7)	7	(11)
Public services	1	(0)	62	(77)	7	(4)	6	(6)	2	(7)	12	(10)
Other sectors	4	(3)	24	(13)	44	(33)	46	(39)	12	(34)	19	(11)
All sectors	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)
Within sectors												
Agriculture	87	(93)	2	(1)	2	(0)	4	(3)	3	(2)	100	(100)
Mining	4	(4)	4	(2)	84	(64)	6	(28)	0	(0)	100	(100)
Manufacturing	28	(44)	8	(3)	34	(7)	27	(43)	0	(1)	100	(100)
Trade services	68	(78)	2	(2)	13	(1)	13	(15)	1	(1)	100	(100)
Public services	4	(3)	78	(84)	10	(1)	6	(8)	0	(1)	100	(100)
Other sectors	13	(21)	20	(13)	37	(12)	27	(43)	1	(7)	100	(100)
All sectors	53	(67)	16	(11)	16	(4)	11	(13)	2	(2)	100	(100)

Source: Own calculations using Living Conditions Monitoring Survey (1998).
Note: Other sectors include energy, construction, transport, communication, hotels and tourism, and private services.

Coupled with falling trade barriers, many of the newly privatized industries were unable to compete in unprotected markets. Furthermore, the unstable macroeconomic climate and the uncertainty surrounding the government's commitment to reforms made the newly liberalized markets unattractive for private sector investment (Rakner *et al.*, 1999). Many industries either collapsed or shed labor in an effort to reduce excess

capacity and reestablish efficiency (Mulikita, 2002). The previous section showed how the incidence and severity of poverty rose rapidly during 1991-1996 across urban households and continued to rise within the less-remote and more urbanized provinces. A substantial part of this increase in poverty was due to rising unemployment. Formal manufacturing employment declined at an average annual rate of 5.9% during 1991-1998. The largest decline was experienced in the food and textiles sectors, which have traditionally been more lower-skilled labor-intensive. Furthermore, in response to falling formal employment, Table 11 suggests that while many of those manufacturing workers who were previously employed in state enterprises moved into the private sector, an equally large number of workers became self-employed in the informal sector.

Although most low-skilled labor moved back into agriculture, there is some evidence that higher-skilled workers moved into rural and urban trade (hence the rising skill-intensity of the trade sector). Table 12 shows how the skill composition of industrial employment changed dramatically during 1991-1998. Manufacturing in particular saw a decline in its lower-skill labor-intensity, suggesting that is was mainly lower-skilled workers that were retrenched during the structural adjustment period. Agriculture provided an alternative source of employment for urban workers who lacked primary education. Alternatively, employment in the trade sector absorbed primary educated labor, although rising unemployment rates indicates that the informal sector is approaching saturation (CSO, 2002). Rising unemployment within urban areas was concentrated amongst those lower-skilled workers who did not migrate back to rural areas. However, while primary educated labor largely avoided migration, the lower returns in the informal trade sector contributed to their rising poverty. High-cost urban households by contrast benefited during the adjustment period. Although their incidence of poverty rose slightly between 1991 and 1996, it fell between 1996 and 1998. This is partly explained by the rising demand for higher skilled workers across almost all sectors of the economy and the protection of the civil service.

Table 12. Employment Shares by Sector and Education Level (1991 and 1998)

Sector	Share of total employment by education attainment for 1991 (1998)									
	None		Primary		Secondary		Tertiary		All	
Across sectors										
Agriculture	71	(82)	47	(56)	11	(17)	10	(8)	48	(55)
Mining	1	(0)	5	(3)	4	(7)	0	(5)	3	(3)
Manufacturing	5	(2)	8	(6)	9	(10)	8	(6)	7	(5)
Trade services	5	(6)	8	(14)	8	(16)	9	(8)	7	(11)
Public services	4	(1)	10	(5)	32	(26)	48	(54)	12	(10)
Other sectors	12	(5)	20	(12)	33	(21)	22	(16)	19	(12)
All sectors	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)
Within sectors										
Agriculture	48	(45)	47	(49)	3	(4)	0	(1)	100	(100)
Mining	13	(4)	67	(52)	18	(29)	0	(12)	100	(100)
Manufacturing	23	(14)	53	(53)	18	(23)	4	(8)	100	(100)
Trade services	22	(16)	56	(60)	16	(18)	4	(5)	100	(100)
Public services	10	(4)	38	(26)	36	(31)	14	(37)	100	(100)
Other sectors	20	(14)	50	(51)	24	(23)	4	(10)	100	(100)
All sectors	32	(30)	48	(49)	14	(13)	3	(7)	100	(100)

Source: Own calculations from Priority Survey (1991) and Living Conditions Monitoring Surveys (1996 and 1998).
Notes: None includes no education and grades 1 through 6; Primary includes grades 7 through 11; Secondary includes grade 12; and Tertiary includes all college and university levels.

Changes in poverty were decomposed for different households groups into within- and between-group effects. The results suggest that changes in different household populations have dominated poverty-changes within each group.[25] This is particularly true for the extremely poor, where migration into low-cost urban and rural non-farm groups outweighed the declines in poverty experienced within agricultural households. Poverty changes were also decomposed across provinces. The negative contribution of inter-provincial migration suggests that intra-provincial adjustment was the driving force behind overall poverty changes.[26] In support of these results, the recent population census (CSO, 2003) suggests that these trends are likely to reflect the rising poverty within the Copperbelt province and substantial migration out of urban areas.

[25] See Table A.2 in Appendix A.

[26] See Table A.3 in Appendix A.

Migration over the last decade is perhaps the greatest indicator of change in Zambia. The population census finds that for the first time in three decades the share of the urban population has declined, from 40% in 1990 to 36% in 2000 (CSO, 2003). Table 13 considers migration between 1991 and 1998 in more detail. The household surveys suggest that migration has been even more pronounced. The urban share of the population fell from 46% in 1991 to 38% in 1998. Beyond movements between urban and rural areas, there were also substantial shifts across household groups within these areas. The most notable changes have been the rapid decline of the medium-cost urban population (from 15 to five percent), and the rise in rural small-scale farm households (from 48 to 55%).

The changing population distributions at the provincial level reveals that the rapid decline in urban medium-cost households has occurred mainly within the Lusaka and Copperbelt provinces. The population census, which offers a detailed assessment of migration, suggests that urban migrants have more often moved into rural areas that are in close proximity to their original urban centers (CSO, 2003).[27] As such, total provincial level population shares have changed little, while within-province distributions have changed considerably. This is confirmed by the household surveys. Table 13 suggests that most of the medium-cost urban households in the Copperbelt province moved back into rural areas and became small-scale farmers or non-farm households. By contrast, medium-cost households within Lusaka have tended to remain within urban areas but moved into lower-cost areas. This supports the earlier assertion that lower-skilled, possibly mining-related workers, moved into agriculture, while higher-skilled workers remained in urban areas but shifted to lower-paid largely-informal employment. The remoter provinces saw the largest declines in urban and non-farm household populations, and the largest increases in rural small-scale farm households, possibly reflecting the return to subsistence agriculture (McCulloch et al., 2000).

[27] This is reflected in the high migratory movements of people between districts within provinces.

Table 14 shows how households' sources of income have changed during 1991-1998. Focusing on urban areas, there has been a decline in the importance of agriculture. Although it cannot be verified, this possibly indicates that it was urban households that were already indirectly engaged in some form of agricultural production that returned to rural areas. By contrast there was a rise in the importance of paid employment as a source of income for urban households, suggesting that those households that avoided migration to rural areas had some form of wage income. Overall however, and with the exception of agricultural incomes, there was little change in the structure of households' incomes over the decade.

Structural reforms clearly led to unemployment and migration, and changed the required skill-intensity of many sectors. However, some authors have argued that it was the failure of the Public Sector Reform Program (PSRP) that posed the greatest obstacle to growth (see Rakner *et al*., 1999). Launched in 1993, the PSRP attempted to reduce the inefficiency and financial burden of the excessive civil service. Table 10 shows how employment in the public services sector accounted for around one-third of total formal employment. Furthermore, with the exception of the largely state-controlled energy and transport sectors, the growth in civil service employment rose rapidly relative to other sectors of the economy. Under the PSRP, the government was supposed to reduce employment by 25% by 1996, while improving capacity by raising real wages to attract better public employees (Rakner *et al*., 1999). Although over 15,000 employees were initially retrenched, these workers did not have contracts and as such were not entitled to severance packages. The high cost of retrenching civil servants partly explains why few further retrenchments have taken place over the 1990s.[28] Table 10 indicates that the size of the civil service has in fact risen over the 1990s, and Table 12 shows that skill-intensity of the public sector has risen

[28] Under the prevailing system civil servants are entitled to ten years severance pay. The budget constraint faced by the government supports the assertion that high costs might have hindered public sector reform. This retrenchment policy created an incentive to retrench lower-paid workers since the ten-year severance pay is lower. Furthermore, it was lower-skilled workers that had more casual contracts and so were not entitled to severance pay.

Table 13. Population Distribution by Province and Stratum (1991 and 1998)

Region	Households' share of total population (%)												
	Rural						Urban						
	Small-scale		Medium-scale		Non-farm		Low-cost		Medium-cost		High-cost		All
	1991	1998	1991	1998	1991	1998	1991	1998	1991	1998	1991	1998	91/98
Central	53.5	52.7	4.2	6.6	3.2	6.5	21.0	24.1	10.5	2.9	7.2	6.8	100.0
Copperbelt	4.4	16.9	0.3	0.5	0.6	5.1	54.2	55.8	28.9	11.7	11.6	9.9	100.0
Eastern	77.7	85.5	2.9	3.0	1.2	2.2	8.2	6.0	3.0	2.6	7.0	0.5	100.0
Luapula	63.8	81.1	0.6	0.5	7.5	4.5	15.7	10.5	7.2	3.2	5.2	0.1	100.0
Lusaka	5.9	11.9	1.6	0.7	5.7	4.2	46.3	64.6	33.1	7.9	7.3	10.6	100.0
Northern	70.1	78.3	3.6	1.5	4.3	4.5	11.3	13.5	7.3	1.4	3.4	0.7	100.0
North-Western	63.7	81.3	1.0	1.3	6.7	4.0	8.5	11.3	10.1	1.8	9.9	0.3	100.0
Southern	64.6	65.3	7.4	6.2	2.4	9.5	13.5	8.3	8.1	5.8	2.5	4.6	100.0
Western	72.9	84.6	1.9	1.5	4.1	3.4	8.4	7.1	10.4	2.5	2.3	1.0	100.0
Zambia	47.5	54.9	2.6	2.4	3.6	5.0	24.5	27.4	15.1	5.3	6.4	4.9	100.0

Source: Own calculations using Living Conditions Monitoring Survey (1998).
Note: Shares might not sum to 100% due to the exclusion of large-scale households, who represent a very low share of total population.

Table 14. Household Income by Source of Income (1991 and 1998)

Income sources	Share of households' total income (%)											
	Rural						Urban					
	Small-scale		Medium-scale		Non-farm		Low-cost		Medium-cost		High-cost	
	1991	1998	1991	1998	1991	1998	1991	1998	1991	1998	1991	1998
Food crops	77.6	40.9	75.2	18.7	17.9	5.5	7.9	2.8	19.1	2.8	9.9	1.2
Non-food crops	2.5	5.9	4.3	60.2	0.3	0.3	0.0	0.1	0.0	0.1	0.1	0.1
Livestock	3.8	6.2	8.7	4.0	0.4	2.7	0.1	0.8	0.1	1.1	0.2	0.6
Non-farm business	1.5	24.2	1.2	11.1	2.1	49.0	46.6	41.4	17.9	23.5	40.1	29.1
Paid wages	12.7	11.0	9.6	3.1	76.4	30.2	31.5	40.9	53.9	58.7	39.5	55.2
Other sources	1.9	11.9	1.0	2.9	2.9	12.3	13.8	14.0	9.0	13.8	10.3	13.9
Total income	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Own calculations using Living Conditions Monitoring Survey (1998).
Note: Food income includes the value of home produced and consumed crops.

considerably.[29] The inability or unwillingness of the government to reduce the size of the civil service has been compounded by rising public sector wages (Dinh *et al*., 2002). The failure of the public sector to implement institutional reforms has constrained its ability to switch expenditures from government consumption towards social spending and investment.

In summary, the growing burden and inefficiency of the public sector forced the government to implement a series of reforms that had considerable implications for the structure of the economy and the incidence of poverty. Although necessary for achieving long-run growth, the short-run impact of structural reforms was severely negative for most urban households. Lower-skilled households were more severely disrupted by the rise in unemployment and changing pattern of employment. Urban households in high-cost areas appear to have coped better during the recession due to their higher educational endowments and the relative protection of higher-skilled public sector employment. These households are likely to have benefited later from the more skill-intensive formal sector growth that emerged after the worst of the structural adjustment had passed.[30] Households with lower levels of education were forced to adjust to the new economic environment, either by shifting into lower paid informal sectors or by moving into rural areas. In rural areas these migrant households have added to the population of non-farm households, with poverty in this group rising accordingly.

The macro and structural policies of the 1990s cannot easily be classified as being either pro-poor or pro-growth. These reforms were immediate responses to pending crisis, and do not necessarily represent a long-run development strategy on behalf of the government (Rakner *et al*., 1999). The recent resurgence of sustained investment (Table 3) and private sector participation does suggest that such reforms

[29] The rising skill-intensity of the public sector is likely to be more a result of the retrenching of lower-skilled workers than the hiring of higher skilled-workers. See Footnote 11 for the bias caused by severance policies.

[30] Since the bulk of manufacturing growth occurred towards the end of the last decade it does not appear in the available survey data (see Table 3).

were a prerequisite for economic growth. Given the falling per capita incomes of the last two decades, it is likely that such reforms were also a prerequisite for poverty-reduction. However, the changing technologies and factor demands of the restructured urban industrial economy suggests that poorer urban households, with their low educational assets, are unlikely to participate immediately in newly emerging and more capital-intensive urban growth. However, despite low-skilled labor being the primary casualty of structural adjustment, it does not necessarily follow that future investment in education will necessarily translate into employment and improved livelihoods. The prevailing lack of employment opportunities for poor urban households is most apparent in the migration of many households back into rural economy.

Agricultural Reforms and Rural Development

The long-standing urban-bias, embodied in past policies, shifted resources away from agriculture and into mining, manufacturing and the public sector. Furthermore, agricultural policies limited diversification *within* agriculture. In order to ensure low food prices for urban areas, and under the premise of maintaining food security, the past government heavily subsidized maize production and research. Producer and consumer prices were centrally determined and uniformly applied across the country. Farmers were further encouraged to grow maize through marketing support and the public provision of fertilizer and other inputs. Despite the potential diversity afforded to Zambia by its agro-ecological climate, the effect of policy-induced distortions shifted production away from areas of comparative advantage. Accordingly agriculture's export potential was undermined, and farmers grew maize in areas that were not always best-suited to this drought-susceptible crop. By 1991 many farmers had become near mono-culturists (Saasa, 2003), while the cost of the subsidies amounted to 13.7% of the government budget in 1990 (McCulloch *et al.*, 2000).

One of the most important distinctions within rural areas is between remote and less-remote households (Kahkonen and Leathers, 1999). Since the economy focused on the copper mines of the Copperbelt and the industries of Lusaka, the main investment in

transport infrastructure was concentrated along the narrow road and rail corridors between these two areas and Zambia's borders with its neighboring countries.[31] Although there was some initial investment in rural infrastructure during the early post-independence years, the reallocation of funds towards urban areas led to the deterioration of existing roads in more remote rural areas (World Bank, 2004). Most households in these isolated areas are subsistence farmers and are more prone to poverty.[32] Table 15 shows how poverty is greater amongst households further removed from the main transport routes and urban centers. However, as a result of the previous government's maize-biased policies, and in spite of their isolation, more remote households still produced and sold maize, albeit to a lesser extent than less-remote households (Zulu *et al.*, 2000).

Table 15. Poverty Headcounts Across Remote and Less-Remote Areas (1998)

Area	Population	Poverty headcount	
		Lower poverty line	Upper poverty line
Main urban centers	3,716,626	36.8	57.9
Less-remote rural areas	710,674	68.9	84.2
Remote rural areas	5,677,235	73.3	85.5
Zambia	10,104,535	59.6	75.2

Source: Own calculations using Living Conditions Monitoring Survey (1998).
Note: Main urban centers include the major cities of Lusaka, Ndola, and Kitwe, and areas within provincial and district capitals; Less-remote rural areas include areas within 50 kilometers of the major cities, and along the southern and northern lines if rail; and Remote rural areas include all other areas.

Section II identified a slight increase in rural farm poverty during 1991-1996 followed by a decline until 1998. Throughout this period there was a significant drop in the depth and severity of poverty, although this might be a result of problems with the survey (see Appendix B). This trend held for small and medium-scale farm households but not for non-farm rural households. Amongst the latter households there was a greater increase in poverty during 1991-1996 and then a smaller subsequent decrease. Furthermore, the depth of poverty rose for non-farm households, with the bulk of the

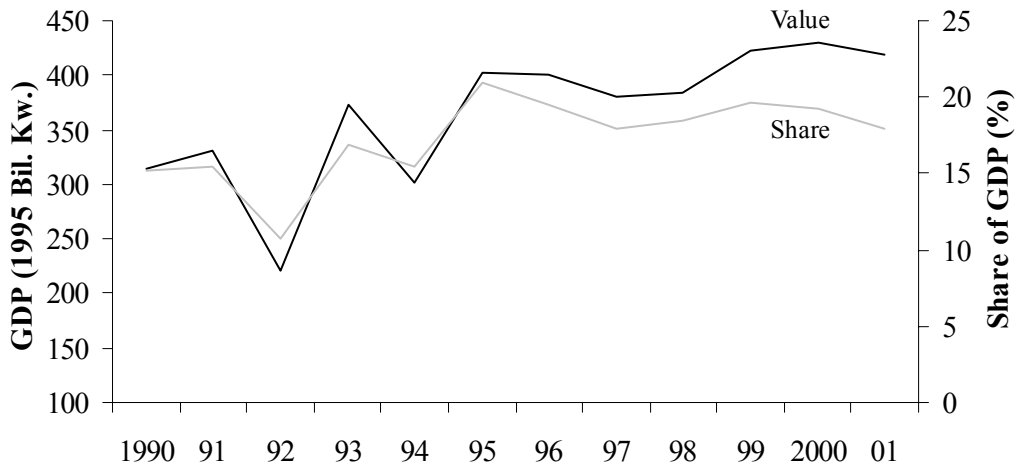
[31] See Figure A3.1 in Appendix A.

[32] See Figures A.5 and A.6 in Appendix A.

increase occurring earlier in the decade. Since these two household groups had different experiences during the 1990s, this section first identifies those factors that are likely to have influenced poverty amongst small and medium-scale farm households, before discussing non-farm households.

Agriculture has been one of the faster growing sectors of the economy and its overall contribution to GDP has risen accordingly (Figure 4). This positive trend in agriculture as a whole is also confirmed by national crop production data, which shows a slight upward trend over the decade (Figure 5). However, there has been considerable volatility in agricultural growth driven largely by high variations in rainfall. Crop production was negatively affected by the severe droughts of 1992 and 1995. This vulnerability to fluctuations in rainfall has made rural farm households prone to periods of famine and severe poverty. The two droughts of the early half of the decade explain much of the increase in poverty that occurred between 1991 and 1996.

Figure 4. Agriculture Value Added and Contribution to GDP (1990-2001)

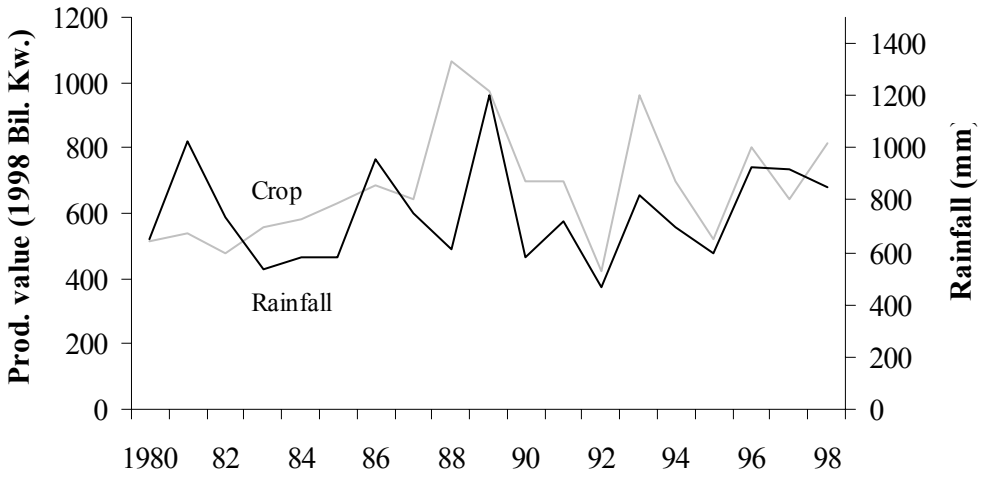


Source: World Development Indicators (World Bank, 2003a).

Apart from changes in the level of crop production over the last decade, there has also been substantial changes in its composition. Much of this has been driven by the agricultural policies that were implemented by the new government in 1991. The most significant of these reforms was the government's withdrawal from the maize

market (Smale and Jayne, 2002). Figure 6 shows the changing levels of production for the main staple crops. Maize production fell dramatically both in absolute terms and relative to other crops. Non-maize staple crops have performed well over the decade, with substantial increases in millet, groundnuts, and cassava. However, despite its declining importance maize has remained one of the dominant staple crops in Zambia.[33]

Figure 5. Rainfall and the Value of Crop Production (1980-1998)



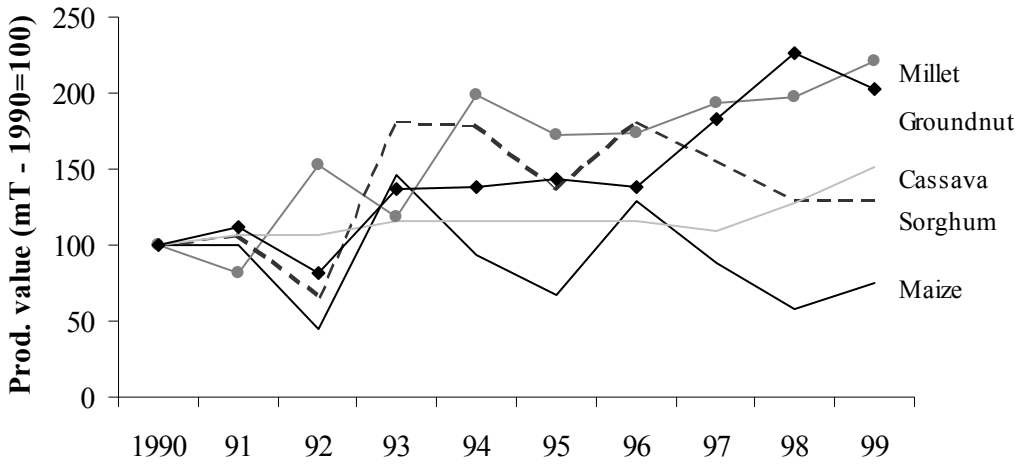
Source: Zulu et al. (2000).

As suggested earlier, the government's pan-territorial support of maize was unsustainable. Maize is a more drought-susceptible crop than other staple crops such as millet and cassava (World Bank, 2004). This can be seen in Figure 6 in which maize is seen to be the worst affected crop during the 1992 and 1995 droughts. As such, those households more reliant on maize were affected more severely than other households. These maize-growing households were concentrated closer to the urban areas and lines of rail, where access to government provided inputs and marketing support were higher (McCulloch *et al.*, 2000). This partly explains why the less-remote provinces experienced sharper increases in poverty during the first half of the 1990s. Other more remote provinces, which faired better during the drought periods, include the more

[33] Table A.4 in Appendix A shows that, with the exception of cassava, much the growth in non-maize crops has been from initially low levels of production.

cassava-dependent Northern and Luapula provinces (Zulu *et al.*, 2000). These areas responded to agricultural liberalization by shifting production away from maize towards areas of greater comparative advantage, with crop prices responding according (Haggblade and Zulu, 2003).[34]

Figure 6. Production of Main Staples Crops (1990-1999)



Source: Food and Agriculture Organization (FAOSTAT, 2004).

Although less remote households initially suffered more than others following the droughts and the removal of maize subsidies, these households have maintained their production of maize to a greater extent than in other areas. Zulu *et al*. (2000) show that farm households in the Copperbelt and Lusaka provinces have experienced growth in maize production during the latter half of the decade, with only slight declines in maize prices.[35] This continuation with maize production, despite the loss of the state subsidies, indicates the importance of being within close proximity to large maize-demanding urban markets. In fact market proximity generally plays an important role in shaping how households interact within the formal rural economy, and as such, whether individual households have participated in the recent agricultural growth (Kahkonen and Leathers, 1999). Table 16 shows how households that are further

[34] See Figures A.7 in Appendix A.

[35] See Figures A.8 in Appendix A.

removed from food markets tend to be more reliant on subsistence production and are more prone to poverty. Market access is also likely to influence production choices through the availability of inputs such as fertilizer and high-yield seeds (Deininger and Olinto, 2000). However, the lack of improved inputs within rural areas is also due to a lack of available credit, a problem that exists throughout much of Zambia. This in turn is a result of the failure of reforms to generate incentives for the private sector to replace the state in newly liberalized markets, especially within more remote areas (Saasa, 2003).

Table 16. Average Household Distance to Markets by Province (1998)

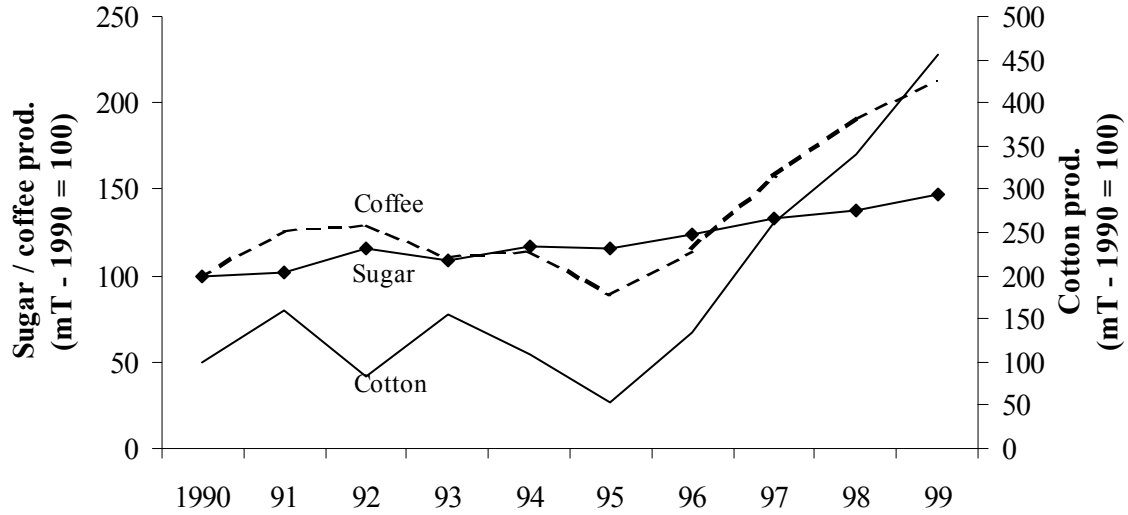
Region	Distance to market (km)[1]	Share of total consumption expenditure			Poverty headcount	Squared poverty gap
		Subsistence production	Maize	Non-maize staples		
Central	17.6	31.6	10.0	8.1	63.2	19.7
Copperbelt	3.9	8.5	1.8	6.8	48.8	10.1
Eastern	20.0	42.1	17.5	10.4	66.1	18.6
Luapula	18.6	31.6	1.9	18.4	66.1	18.6
Lusaka	4.2	4.9	1.5	5.5	35.2	6.6
Northern	25.0	45.0	4.1	24.3	72.1	20.1
North-western	19.7	44.6	9.7	25.3	62.3	14.9
Southern	16.4	37.1	12.9	3.7	65.2	19.6
Western	23.0	39.0	18.2	15.9	79.2	25.8
National	14.8	24.9	6.9	10.0	75.4	25.6

Source: Own calculations from 1998 LCMS (CSO, 1999a).
1. Average distance from household to food and input markets.

Market access and geographic location has also determined whether rural households have been able to participate in the recent rise in cash crop production (Kahkonen and Leathers, 1999). Figure 7 shows three of Zambia's best performing cash crops over the last decade. Although not shown, horticulture and floriculture has also grown rapidly (World Bank,. 2004). These cash crops have been stimulated through foreign demand, and have responded positively to the removal of the bias against agriculture (World Bank, 2004). The partial correction of the overvalued exchange rate and the involvement of the private sector in these crops, often through foreign investment, provided new areas of diversification and improved livelihoods for

cash-crop-growing households. However, market access considerations have limited these opportunities to specific areas within the country. For example, while smallholders are the largest producers of raw cotton, most of these farmers are concentrated within the Chipata district within the Eastern province. Furthermore, over and above the limitations imposed by its high capital demands, the production of horticulture has only benefited those rural households close to Lusaka airport (World Bank, 2004). Finally, sugar production is concentrated within the Mazabuka district in the Southern province. Each of these cash crop areas have better access to input and output markets, primarily through closer proximity to the main transport routes.[36] Furthermore, these areas along the main transport corridors already appear to have experienced greater declines in poverty even prior to 1998.[37]

Figure 7. Production of Selected Cash Crops (1990-1999)



Source: Food and Agriculture Organization (FAOSTAT, 2004).
Note: Figure does not show floricultural production which has been one of the fastest growing cash crops in recent years (World Bank, 2004).

Participation in cash crop production is limited more by market access considerations than are staples crops. Access to domestic input and foreign output

[36] See Figure A3.1 in Appendix A.

[37] See Figures A.5 and A.6 in Appendix A.

markets for cash crops requires logistical and extension support. In the case of cotton, this support is already being provided by the private sector through well functioning out-grower schemes for raw materials (Saasa, 2003). The large cotton company in the Eastern province provides the necessary inputs at the beginning of the planting season, with the commitment from farmers that the cotton will be sold to the company at harvest. This system bypasses the shortage of credit that constrains farm households elsewhere in the country. These new opportunities to engage in cash crop production have improved livelihoods and reduced poverty within less remote areas of the country. This is seen in the rural cotton-producing Chipata district, where the poverty headcount is lower than the rural average. However, the largest gains from cash crop expansion began during the second half of the 1990s and as such have not been adequately captured in the available surveys.

The changing pattern of agricultural production has affected the income sources that rural households depend on. Table 14 shows how food production, which was previously supported by maize subsidies, declined in importance between 1991 and 1998. This falling income share is the result of crop diversification and the lower monetary value of these alternative crops. By contrast, all other sources of income have either maintained their share or grown in importance. This growth is especially true for income from non-farm businesses. By contrast, medium-scale farm households have become substantially more reliant on non-food crop income. This supports the assertion that it is mainly these households that have participated in the growth of cash crops during the 1990s.[38] Non-farm households by contrast have experienced a declining share of agricultural income, and have experienced declines in incomes from paid employment. Rather these households have become more reliant on non-farm businesses. This shift into self-employment coincides with an influx of urban migrants, which together might explain the rising poverty amongst these households.

[38] Although a general finding, the particularly high share of non-food crops is driven by changes taking place within the Eastern province.

The performance of agriculture has been the fundamental determinant of poverty for a majority of the country's households over the last decade. More than two-thirds of the population lives in rural areas, with most of these households engaged in some form of crop production. Although reforms have led to promising signs of agricultural growth in recent years, the persistence of poverty suggests that there remain significant constraints to poor households' participation in this growth process. As identified above, one of the key constraints is market access created by poor rural infrastructure such that around 40% of agricultural households are still engaged solely in subsistence agriculture. However, apart from inadequate market access, low productivity is the second major constraint to agriculture-led growth and poverty-reduction. Low productivity in Zambia more often supercedes poor market access as many rural households are unable to produce a marketable surplus.

There are two main arguments explaining low productivity amongst Zambian agricultural households. The first suggests that farm households face a land constraint. Zulu *et al.* (2000) find that crop incomes are highly correlated with land size, and that this correlation is present in all districts. From this they conclude that farm size rather than district-specific infrastructure and market access is important in determining poverty, and as such, that land shortages are the most important constraint to expanding agricultural output and incomes. However, despite the observed correlation between farm size and crop value, it does not necessarily follow that land availability acts as the key *constraint* to agricultural growth. Despite a gradual rise over the last three decades, land densities remain low, justifying the general observation that land is relatively abundant in Zambia.[39] In spite of land abundance, land tenure policies are important for smallholders. Under the previous government land allocation was centrally controlled and tenure was restricted to a few large-scale and commercial farmers (Saasa, 2003). More recently there have been attempts to decentralize the land tenure system, with control moving to local governments and customary leaders. While this process should

[39] The abundance of land does not necessarily imply the availability of land suitable for agriculture. Land degradation and poor soil quality is a serious concern in many areas of Zambia (Saasa, 2003).

in principal give smallholder farmers better access to land, the implementation of the new system has not been completed. Most land allocation decisions are still made by central government and many smallholders do not own the land on which they work. As a result smallholders lack the key asset needed for acquiring private credit, a situation made worse by the removal of state input support schemes.

Other studies have identified labor shortages during the planting season as the main constraint to agricultural growth, a situation made worse by the limited availability of productive farm capital, and the lack of credit, inputs and extension support (Deininger and Olinto, 2002; Haggblade and Tembo, 2003).[40] Poor labor supply can been attributed to migration out of rural areas and the worsening HIV/AIDS pandemic (Garbus, 2003). The importance of relieving the labor constraint can be seen in the successes of new conservation farming techniques (Haggblade and Tembo, 2003) and by productivity-enhancing input support schemes (World Bank, 2004). Many households have responded to labor shortages by hiring labor during the planting season (Saasa, 2003). Although selling labor provides an alternative source of income, it has also created rural poverty traps. Crop failure has forced households to sell labor, thereby worsening their own labor constraint, reducing crop incomes, and further necessitating off-farm employment. By typically supporting output rather than input markets, the new government has focused on households already producing for markets, rather than stimulating productivity and enabling poorer subsistence-focused households to participate in agricultural markets.

In summary, agriculture has been the main factor driving poverty-changes in Zambia over the 1990s. Structural reforms incurred adjustment costs as rural farm households lost access to inputs and output support and shifted production away from maize. However, unlike the urban-based industrial sectors, agriculture has continued growing during the reform period. Furthermore, the removal of the anti-agricultural-

[40] In the case of appropriate extension services there is the example of successful conservation farming in Zambia. This technology spreads the labor demands of land preparation and crop tending across the year, thereby lessening peak-season bottlenecks and improving natural resource management (Haggblade and Tembo, 2003).

export bias and the improved investment environment have stimulated cash crop exports and production. However, two constraints have limited poor households' participation in this new agricultural growth. First, poor market access has limited the ability of smallholders to produce cash crops, leading to a concentration of cash crop production within specific areas of the country. Inaccessible remote rural markets have also limited marketed non-cash-crop production. Secondly, low productivity limits the ability of farmers to respond to the new opportunities arising from structural reforms (UNDP, 2003). This is a result of a labor constraint that is worsened by poor farm capital and low-value inputs, and entrenched by inadequate access to credit. The latter is an economy-wide constraint resulting from the private sectors' inability or unwillingness to replace previous state involvement (Kahkonen and Leathers, 1999).[41] Agricultural reforms during the 1990s have generally been pro-growth in as far as they have helped stimulate diversification away from maize production, and pro-poor in that they have created new opportunities for small and medium-scale farmers.

Pro-Poor Government Spending

Social indicators have been falling in Zambia over the last decades. While part of the failure of social outcomes is driven by falling GDP per capita and rising poverty, the changing level and allocation of government spending has contributed to these developments. Pro-poor spending in this section covers government spending on (i) rural infrastructure, (ii) health, and (iii) education. As discussed above, government expenditure was originally allocated towards improving social outcomes. However, fiscal constraints during the 1980s reduced public spending. The improvements in social indicators achieved during the early post-independence years were reversed, with mortality and other health-related indicators worsening dramatically. During the reforms of the early 1990s the government failed to implement policies designed to raise the level and effectiveness of pro-poor spending.

[41] Kahkonen and Leathers (1999) provide an assessment of the institutional and supply-chain barriers preventing the private sector from replacing the public sector following liberalization of the agricultural marketing system.

Rural infrastructure in particular has suffered from macro-stabilization policies. During structural adjustment the government adopted a "cash budget" system, under which expenditures were limited to available revenues (Dinh *et al*., 2002). Although this system lowered and stabilized inflation, it hampered the allocation of public expenditure. Under the cash-budget system, the government invariably announced budget allocations just prior to disbursement, creating an incentive to cover those expenditures requiring short planning periods (Dinh *et al*., 2002; World Bank, 2003b). Furthermore funds were directed towards general public services with higher public sector employment, and away from economic services such as infrastructure. Short-term funding pressures therefore replaced longer-term development expenditure, with rural infrastructure and other social expenditures suffering as a result.

The importance of rural infrastructure in determining the participation of poor households in agricultural growth has already been identified. In 1998, only 18% of rural households were within five kilometers of input markets, and few remote households had access to education and health facilities. Therefore missing and deteriorating infrastructure, especially in remoter rural areas remains a major constraint to achieving pro-poor growth (Republic of Zambia, 2002). In addressing this problem the government has faced two competing needs (World Bank, 2004). First, long-term neglect of road maintenance has created a pressing need for repairs to both less-remote paved and more remote feeder roads. Despite new policies, at the end of the 1990s around 30% of the paved road network was still in need of repairs and maintenance. Such poor conditions have undermined less-remote rural households' access to markets, especially for cash crop producing households for whom access to formal urban and foreign markets is most important (Lofgren *et* al., 2004). Second, beyond the deterioration of the existing road network, the government has acknowledged the need to extend the network into more remote rural areas. The long-standing bias towards urban areas and the paved roads that connect them created an inadequate road system in remoter areas, which has undoubtedly contributed to the relative isolation of many rural households and their dependence on subsistence agriculture. Although government

policies have proposed building new feeder roads, to date there has been little success in implementing such policies (World Bank, 2004). The country's poorest households continue to be neglected and their opportunities for engaging in marketed agriculture remain limited (Kahkonen and Leathers, 1999).

Health concerns in Zambia include tuberculosis, malaria, and diarrhea. However, these illnesses are dominated by the onslaught of HIV/AIDS. The most recent health survey estimates adult prevalence at 15.6% (CSO, 2002), while other sources suggest rates as high as 21.5% (CIA, 2004).[42] Existing evidence finds that prevalence is substantially higher in urban areas, and that young women are the most affected by the pandemic (CSO, 2002). Furthermore, the number of AIDS orphans has risen substantially over the 1990s. These children have either been cared for by extended families, or have joined the growing number of street-children in Zambia's main urban centers, with poverty rising in both cases (World Bank, 2001). The government's response to the pandemic has been limited. Donor-funded non-government organizations have implemented most treatment and prevention programs (UCSF, 2003). Furthermore, while government health expenditure as a share of total expenditure has risen in line with donor demands, it has fallen in real terms during the 1990s due to high inflation (World Bank, 2003b).

Although high urban prevalence has contributed to the rise in poverty, the poverty and inequality trends identified in Section II are unlikely to have captured the entire impact of AIDS since the main escalation of the pandemic took place during the second half of the 1990s. Despite the suggestion by UNAIDS (2003) that the infection rates have leveled off in recent years, the magnitude of the pandemic remains a major concern for human capital accumulation and labor productivity in Zambia. While it is difficult to empirically determine the direct and indirect impacts of AIDS on poverty and inequality, the individual and economy-wide burden associated with losses in

[42] See Table A.5 in Appendix A.

worker productivity, falling labor force participation, and rising health expenditures are widely acknowledged (UNDP, 2003).

In urban areas, the rising health costs and falling labor productivity increases the tendency of industries to adopt more capital-intensive technologies. In rural areas, AIDS worsens the labor shortage (Nweke *et al*., 2004) and diverts family members away from schooling and employment towards care-giving (World Bank, 2004). Longer-term livelihoods are negatively affected as households sell assets to cover rising health and burial costs. The provision of both education and health services have also been undermined due to high prevalence amongst teachers and health providers. School enrolment rates have fallen as children are withdrawn from schooling to aid with farming and care-giving (UCSF, 2003). As such, the impact of AIDS is likely to severely undermine growth and poverty-reduction.

Haacker (2002a; 2002b) discusses various approaches used to assess the impact of AIDS on economic growth for a number of Southern African countries. Within an open-economy model and in the case of Zambia, Haacker (2002b) finds a medium-term decline in output per capita of 5.8% and a long-term decline in GDP per capita of 1.8%. Increasing mortality and changes in total factor productivity are identified as the most significant driving factors. Lofgren *et al*. (2004) employ a dynamic economy-wide model to determine the effect of AIDS on Zambia's growth path to 2015. Building on a more detailed background study of AIDS in Zambia (World Bank, 2004), the authors' find that the pandemic reduces annual GDP growth by one percentage point, with higher population growth diluting aggregate poverty effects. However, the ultimate economic impact of AIDS will depend on the government's political will (Scott, 2000). Lofgren *et al*. (2004) find that, despite gains from higher growth, the financing of treatment places a burden on the budget that may prove unbearable without external support. In this regard the government faces a trade-off between addressing the immediate need for AIDS treatment, and finding an adequate link between the political processes under the PRSP and HIPC agendas.

Education spending has also deteriorated in real terms over the last decade, such that even urban schools lack basic resources (Rakner *et al*., 1999). As a result, primary school enrolment rates fell from 83 to 72% during the 1990s, and secondary school enrolment has remained stagnant. This decline was particularly pronounced in rural areas where enrolment rates fell by ten percentage points to 60%. Education facilities in rural areas have been undermined by the government's long-standing bias towards urban areas. However, over and above inadequate public investment, school enrolment has also fallen due to the increased burden of education costs on parents, with children being withdrawn from school as a result (World Bank, 2003b).

As discussed above, educational endowments were important during structural reforms, particularly for urban households. Rather than helping workers engage in new job opportunities, education was most important in protecting workers from formal sector job-losses resulting from structural reforms. In recent years there is evidence of renewed manufacturing growth, and the rising skill-intensity of production suggests that educated labor is more likely to benefit. However, the general absence of formal employment opportunities, possibly due to a lack of private sector investment, suggests that education is not the binding constraint to improved urban livelihoods. In rural areas it is likely that literacy and basic education will play an important role in determining the sustained adoption of extension services and new production technologies (Saasa, 2003).

The World Bank (2003b) identifies the cash-budget system as being the main cause behind deteriorating health and education during the structural adjustment period. Beyond the shortening of the planning horizon, which severely undermined rural investment, the volatility and unpredictability of the system have prevented effective government planning. In addition there is a lack of transparency and considerable wastage within the system. Benefit incidence analysis also suggests that expenditure during the 1990s was not necessarily the most efficient at addressing poverty (World Bank, 2001). While primary school expenditure has been pro-poor, secondary and tertiary level expenditures have not been. Furthermore, health expenditures have

benefited the middle of the income distribution, with spending on hospitals benefiting largely the non-poor.

The poor performance of public spending is a combined result of both inefficient and falling real expenditure, as well as poor public management and lacking financial accountability. The centralization of public functions also undermined public investment and services, especially in rural areas (Crook and Manor, 2001). Measures of governance reveal high corruption and poor policy effectiveness in Zambia. Trends suggest that while governance improved towards the end of the structural adjustment period, the country has performed poorly in more recent years (Kaufman *et al*., 2004). These trends apply to the effectiveness of government policy, the quality of regulation practices, control of corruption, and political stability.[43] The initial improvement in many of these dimensions of governance contributed to or reflected the improved economic and political environment that promoted higher investment and growth towards the end of the 1990s.

Gender Disparities and Pro-Poor Growth

Gender differentials have not proven central to understanding the drivers of pro-poor growth during the structural adjustment period. However, men and women have faced very different experiences over the last decade. As seen in Table 3, the poverty gap between male and female-headed households narrowed during the 1990s, such that the incidence of poverty was similar in both household groups by 1998. However this narrowing of the gap did not come about through reductions in poverty. Rather, poverty amongst male-headed households rose to match that of female-headed households. Accordingly, Zambia's rank in the Gender-Related Development Index (GDI) in 2001 remained high at 133, due to poor indicators for female-to-male school enrolment ratios, education achievements, literacy rates, and earned incomes (UNDP, 2003).

The gap in primary school enrolment rates between males and females has increased during the 1990s from two to almost seven percent in 2002 (UNDP, 2003).

[43] See Table A.6 in Appendix A.

Despite slightly better performance during the first schooling years, female drop-out rates in the final grades of primary school remain higher than for males, indicating that females are more likely to be drawn out of school. This trend is likely to have increased in recent years due to greater HIV/AIDS-related care-giving needs. The educational bias against females is higher at higher educational levels. The ratios of females to males with primary, secondary, and tertiary education severely decline from 0.93 to 0.80 and 0.46 respectively. Consequently, the literacy rate of young females (15-24 years) has declined by almost 6 percentage points since 1990. This imposes a serious bias against women's economic competitiveness, especially within the formal sector (UNDP, 2003).

Despite an educational disadvantage the female share of the total labor force was nearly 50% in 1998. However, the share of women employed in (low-productivity) agriculture is much higher than for men, especially for food crop sectors (Fontana, 2002). The agricultural sector is largely non-monetary with low imputed wages and limited actual wage earnings. Therefore the wage-gap between similarly-qualified men and women makes women's cost-of-living-adjusted earned income around half the earned income of men. However, the disadvantages in education and formal income earnings at the start of the 1990s seem to have 'protected' women during structural adjustment. Men were the worst affected by the collapse of the mining and manufacturing sectors, since they dominated formal non-agricultural employment during the pre-adjustment period. As a result male poverty rates rose faster than female poverty rates during the 1990s.

Apart from earning less, the economic and social burden placed on women in Zambia has been aggravated by high workloads. Women, especially with low education, not only work more hours in market activities than do their male counterparts, but they also spend considerably more time on domestic activities (Fontana, 2002). The extra hours spent on families' well-being compromises women's productivity in market activities and their ability to generate higher incomes. Finally, women are the worst affected by HIV/AIDS (UCSF, 2003), especially within the most

productive 15-24 age cohort. While a large share of women are directly affected by the disease, an even larger portion carry the main burden of care-giving, which further compromises their productivity in market activities, their ability to generate higher incomes, and their potential flexibility to react to economic changes. Therefore while women appeared to have suffered less from structural adjustment, their vulnerability and lack of human capital will make it difficult to participate in the growth process, particularly in the more skill-demanding urban formal sector.

Summary

Section II identified considerable divergence between the experiences of rural and urban households during the structural adjustment period. This section has linked specific structural adjustment policies to the poverty outcomes experienced by different population groups.

Rapidly rising urban poverty was driven by escalating formal sector unemployment, which suffered under concurrent privatization and trade liberalization. Persistent macroeconomic instability and political uncertainty removed the incentive for private investment to replace the withdrawing public sector. Contractionary fiscal policy, under the auspices of macro-stabilization, protected the civil service to the detriment of real social spending. Educational achievements and health deteriorated, especially in the context of poor initial conditions and rising HIV/AIDS. Rural poverty by contrast fell during the 1990s. This was a result of the long-standing urban-bias, which, while having limited the ability of rural areas to benefit from past growth, effectively shielded a large portion of the rural population from the collapse of the urban economy.

Despite relative isolation, there have been substantial changes in agricultural production and rural livelihoods as a result of structural adjustment. Perhaps the most important change was the substantial increase in the number of small-scale farmers as urban households migrated back into rural areas. Some migrating urban households, especially lower-educated households, undoubtedly carried their assets (and higher

incomes) back into rural areas thereby reducing aggregate rural poverty. However, the growth and diversification that took place within agriculture during the 1990s suggests that migration can only explain part of the decline in small and medium-scale poverty. The removal of the maize-bias caused staples production to shift towards more drought-resilient food crops. This diversification towards areas of better comparative advantage caused poverty to decline, especially in the northern provinces. The greatest declines in the depth of poverty occurred in those areas where there has been foreign-investment in exportable cash-crops. However, cash-crop growth has benefited relatively few and mainly medium-scale households. Extending the benefits from both staples and cash-crop growth is constrained by poor market access and low farm productivity. Despite agriculture's strong performance, recently renewed mining export growth raises concerns about a possible trade-off between copper-led growth and pro-poor agricultural growth. However, regardless of a resurgence of the mining sector, diversification away from copper remains essential since past dependence on copper has proven unsustainable for growth and inadequate for broad-based poverty reduction.

IV. TRADE-OFFS BETWEEN GROWTH AND PRO-POOR GROWTH

Over the last three decades there has been conflict between Zambia's adopted growth path and broad-based poverty-reduction. Copper mining dominated post-independence industrial policy, which, despite promoting growth in the medium-term, proved in the long-run to be an unsustainable source of growth. The resulting urban-bias of public investment benefited urban households with relatively few spillovers into rural areas. Agricultural policies were geared towards food security and maintaining low food prices in urban areas. Although many farmers shifted to subsidized maize production, there were relatively few opportunities or incentives for transforming maize production into self-sustaining growth. Rural areas became isolated from the urban-based growth process and the urban-rural poverty-gap widened. As the copper-led growth path faltered during the mid-1980s, the government opted to reduce pro-poor spending to maintain the civil service and state-enterprises. Unsustainable growth and falling per capita incomes, especially in rural areas, suggests that the adoption of a pro-growth inward-oriented copper-led strategy was not ultimately pro-poor. Growth remained sector and region-specific, and did not offer long-run opportunities for the poor to participate in the growth process.

The current government recognized the need for reform. Structural adjustment during the 1990s removed some of the distortions caused by the long-standing urban and maize biases. The artificial profitability of protected state-enterprises, financed by copper exports, meant that privatization and trade liberalization undermined the formal non-agricultural economy and promoted reverse migration into rural areas. While urban poverty rose, the rural economy continued to grow despite adjustment costs during the initial shift away from maize production. In the short-term structural adjustment was neither pro-poor nor pro-growth for urban areas. However, Zambia has recently experienced a period of renewed growth suggesting that longer-term sustainable growth necessitated the structural reforms and diversification of the 1990s. As discussed in Section II, investment was sufficiently positive during 1999-2001 to overcome previously falling capital stocks and total factor productivity. More importantly,

investment and GDP growth were sustained for the first time since the early 1980s. This section uses a computable general equilibrium (CGE) model to assess (i) the impact of the current growth path on poverty reduction; and (ii) trade-offs between alternative pro-growth and pro-poor strategies.[44]

Poverty-Reduction under the Current Growth Path, 2001-2015

Following recent growth trends, Zambia is assumed to grow at four percent per year during 2001-2015.[45] The *current growth path* assumes that world copper prices continue falling and investments in copper mining are slow but forthcoming.[46] Population growth, labor market developments, and sector productivities incorporate the impact of HIV/AIDS (IMF, 2003), while ten-year trends in crop yields determine crop-specific productivity growth (World Bank, 2004).

Table 17. Growth Decomposition for Simulations

	Contribution to average annual GDP growth rate (%)				
	1999-01 ***renewed growth***	**2001-15** ***current growth path***	**2001-15** ***copper-led growth***	**2001-15** ***agriculture-led growth***	**2001-15** ***non-agric-led growth***
GDP at factor cost	3.7	4.0	5.0	5.0	5.0
Physical capital	0.2	1.2	2.2	1.4	1.4
Human capital	2.0	0.8	0.8	0.8	0.8
Total factor productivity	1.5	2.0	2.0	2.8	2.8
GDP at factor cost	3.7	4.0	5.0	5.0	5.0
Agriculture	0.5	1.2	0.7	2.3	1.0
Mining	0.2	0.2	1.2	0.1	0.1
Manufacturing	0.4	0.8	0.6	0.7	0.8
Services	2.6	1.8	2.4	1.9	3.0

Source: Zambia CGE-micro model results.

[44] This section uses a spatially disaggregated CGE model based on a highly disaggregated social accounting matrix (SAM) that features provincial production and factor markets, a national commodity market, and a large number of provincially representative households. The latter were derived from the 1998 household survey, which forms the basis of the 'micro-simulation' model.

[45] The detailed characteristics of the current growth path can be found in Lofgren *et al*. (2004) and in World Bank (2004), and is primarily based on projections from the World Bank's Revised Minimum Standards Model (RMSM).

[46] World copper prices and domestic output fall at two percent and one percent per year respectively. This corresponds to the 'average-case' scenario identified in Lofgren *et al*. (2004).

Decomposing growth under the *current growth path* indicates that higher investment accelerates the accumulation of capital and raises total factor productivity, whose contributions to GDP growth are higher during 2001-2015 than during the late 1990s (see Table 17). By contrast, human capital's contribution to growth declines as labor force growth slows in response to HIV/AIDS. The resurgence of the mining and services sectors experienced during the *renewed growth* period eventually levels-off, and agriculture and manufacturing accelerate slightly. There is a gradual shift in the sectoral composition of new investment leading to higher capital-intensification in non-mining sectors. This is particularly true in the case of agriculture, where intensification and diversification arise through strong growth in exportable cash-crops brought about by a partial correction of the real exchange rate (see Table A.8). The sectoral distortions from past policy-biases are gradually removed and the country moves along a more balanced growth path.

Table 18. Poverty Changes for Simulations (Upper Poverty Line)

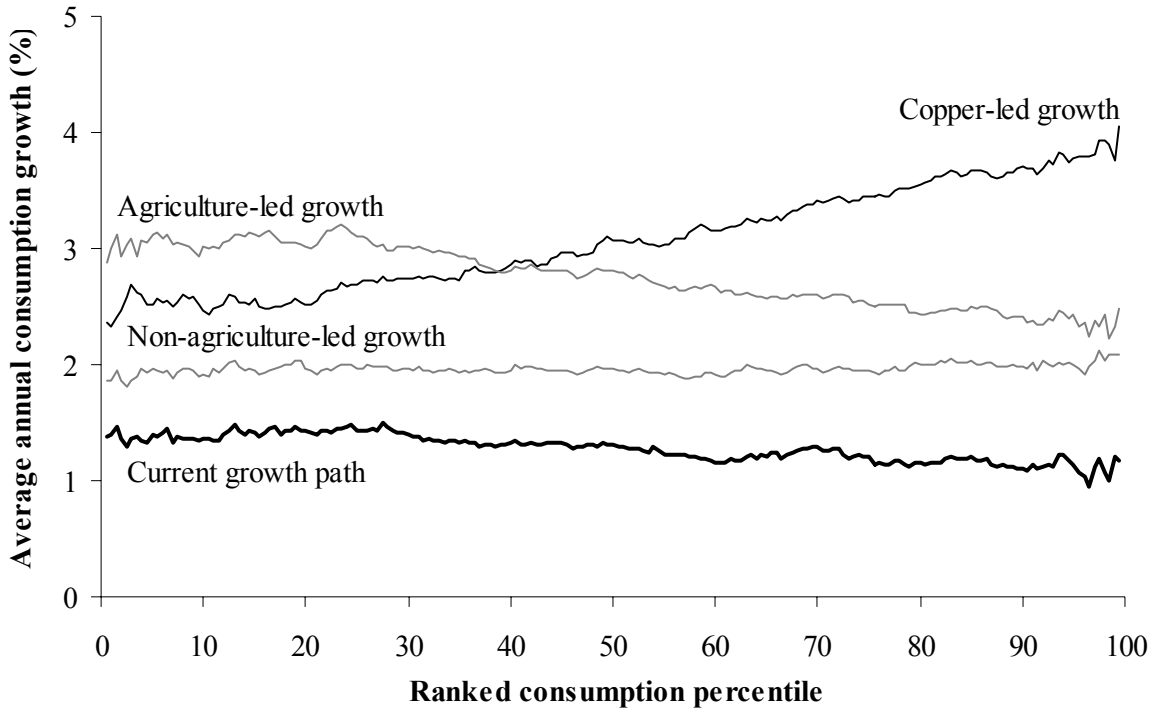
	Initial poverty in 2001[1]	Final poverty rate in 2015			
		current growth path	*copper-led growth*	*agriculture -led growth*	*non-agric-led growth*
Headcount (P0)	75.4	68.3	56.6	59.4	63.9
Rural	85.6	78.4	74.7	68.1	76.4
Small-scale	86.4	79.0	76.5	68.1	77.2
Medium-scale	80.3	69.5	63.3	56.3	65.2
Urban	58.3	51.4	26.5	45.0	42.9
Squared poverty gap (P2)	25.6	20.4	15.9	15.1	18.3
Rural	33.3	26.5	23.0	19.2	24.7
Small-scale	33.7	26.6	23.7	18.7	24.9
Medium-scale	27.7	21.1	18.6	15.5	19.6
Urban	12.6	10.2	4.0	8.2	7.7

Source: Zambia CGE-micro model results.

1. The initial poverty rates in 2001 are the same as those in 1998 (see Table 4) since the 2002 household survey containing information on poverty and distribution was not available.

Poverty is reduced due to balanced growth and rising per capita GDP.[47] Both the incidence and depth of poverty fall, with the largest declines taking place within urban areas and amongst medium-scale farm households (see Table 18). Medium-scale households benefit from the rapid growth in exportable cash-crops given the importance of this income source for these households (see Table 14). Urban poverty-reduction is more evenly distributed due to equally fast growth in both the formal manufacturing and more-informal service sectors. The latter is driven by rising demand and backward linkages from primary and secondary sector growth.

Figure 8. Growth Incidence Curves for Simulations (2001-2015)



Source: Zambia CGE-micro model results.

The national GIC under the *current growth path* is relatively flat, although faster agricultural growth suggests a slight positive bias towards the lower end of the

[47] Population growth is two percent per year, implying GDP per capita growth rate of two percent during 2001-2015.

distribution. This is evident in the pro-poor growth rates for rural and urban areas. The national pro-poor growth rate is 1.3% per year and is driven by strong growth in rural areas. Despite differences in poverty reduction across rural and urban areas, the variation across provinces is less pronounced (Figure A.9). The only exceptions are the Copperbelt, Eastern and Western provinces. Strong growth in cash-crops generates high pro-poor growth in the cotton-dominated rural areas of Eastern province.[48] By contrast, poverty in Western province, one of the poorest and most isolated provinces, declines by a mere three percent during 2001-2015. Pro-poor growth is lowest in the more-urbanized Copperbelt province due to a slowdown in the mining sector.

Trade-Offs Between Alternative Growth Paths

The *current growth path* described the likely relationship between growth and poverty reduction over the coming one and a half decades. However the growth path ultimately adopted will be determined by government policies and external factors. As already eluded to above, there is concern over a possible trade-off between mining and rural development. The rising share of agriculture in GDP that was experienced throughout the 1990s has declined in recent years in line with renewed mining production. The difference in distributional gains between diversification into agriculture and a return to copper mining is therefore of considerable importance. Furthermore, in recent years there has been increased growth amongst the manufacturing and services sectors, and the current growth path described above suggests that this should reduce urban poverty. In response to these three alternative growth paths, this section compares the impacts of (i) copper-led growth; (ii) agriculture-led growth; and (iii) non-agriculture-led growth in formal sectors other than mining.

(i) The *copper-led growth* scenario considers a more optimistic projection for the Zambian mining sector. World demand strengthens and copper prices rebound from

[48] Pro-poor growth amongst the other provinces growing exportable cash-crops (Southern, Central and Lusaka) is diluted by the slowdown in these provinces' urban economies, which are larger than in the Eastern Province.

their current gradual decline. Perhaps more importantly given the recently failed privatization attempt, it is assumed that the investment required to recapitalize and extend current mining operations becomes available. According to a detailed mining sector study conducted by the World Bank (2004), both world prices and mining output under this 'best-case' scenario would increase at five percent per year during 2001-2015.[49]

The improved terms-of-trade from rising world copper prices facilitates an increase in imports, which is only partially offset by an appreciating real exchange rate.50 The appreciation undermines the competitiveness of non-mining exports, particularly for more tradable cash-crop and manufactured exports. Despite displacing domestic production, cheaper imports benefit import-intensive investment leading to a more rapid accumulation of physical capital. GDP growth accelerates from four percent under the *current growth path* to five percent under *copper-led growth*. There is considerable change in the sectoral structure of growth. Mining's contribution to GDP increases considerably, effectively crowding-out other sectors. Agriculture suffers as cash-crop exports decline, and import competition undermines urban demand for domestic goods. Slower manufacturing growth reduces forward-linkages to food processing. Mining and agriculture's shares of GDP ultimately return to their pre-structural adjustment levels.[51]

Higher economic growth raises the rate of pro-poor growth to 2.9% per year. However, distributional changes under *copper-led growth* are substantially different than under the *current growth path*. The incidence and depth of poverty declines

[49] Alternative mining scenarios and their impact on Zambia are described in detail in Lofgren *et al*. (2004).

[50] Higher copper export prices increase the value of exports. Additional foreign earnings allow Zambia to raise imports, which increase sufficiently to maintain the fixed current account balance. Accordingly, the real exchange rate appreciates to make imports relatively cheaper for importers, thereby undermining exports in sectors that didn't benefit from higher world prices (in this case all non-mining export sectors). Households employed in non-mining sectors suffer, while households with high import-intensive consumption patterns benefit from cheaper imports.

[51] Evidence of this potential trade-off between mining and agriculture has already been seen during the recent growth period (1999-2001) where mining growth displaced agriculture (see Table 3).

dramatically in urban areas, especially amongst households living in high and medium-cost areas. Although rural farm households benefit from backward linkages arising from urban consumption growth, poverty reduction remains relatively slight indicating that rural households are less likely to participate in the growth process. The GIC under *copper-led growth* is strongly upward sloping indicating that the rate of pro-poor growth under this scenario is highly sensitive to the definition of the poverty line. As was the case during the decades leading up to the 1990s, the country's poorest households are effectively isolated from urban-based growth due to mining's weak backward-linkages into rural areas and the higher import-intensity of higher-income urban consumers. The spatial distribution of growth is highly unequal, with the urbanized Copperbelt and Lusaka provinces being the largest beneficiaries of mining sector growth (Figure A.10).

(ii) An alternative growth path is the continued diversification into agriculture that began during the structural adjustment period. Since Section III identified low farm productivity as a major constraint, the agriculture-led growth scenario considers the distributional impact of increasing agricultural productivity. To maintain comparability, TFP growth is increased evenly across all agricultural sectors to match the aggregate GDP growth rate achieve under the copper-led growth scenario. This translates into an annual agricultural TFP growth rate of 4.4% compared to 2.2% under the current growth path.[52]

Higher farm productivity benefits rural households through higher home-produced consumption and increased incomes from cash-crops and domestically traded staples. The incidence and depth of rural poverty declines. Urban households benefit from lower food prices leading to falling urban poverty, albeit not to the same extent as in rural areas. *Agriculture-led growth* generates the same growth rate and pro-poor growth rate as *copper-led growth*. However, the downward sloping growth incidence curve indicates that poverty reduction through agricultural growth is strongly biased in

[52] According to FAOSTAT (2004), doubling Zambian agricultural TFP growth is roughly equivalent to matching the average agricultural TFP growth rates achieved by Kenya and Ethiopia during the 1990s.

favor of the country's poorest population, making the pro-poor growth rate less sensitive to the definition of the poverty line. Accelerated agricultural growth changes the structure of the Zambian economy. Agricultural production and exports becoming substantially more important. This is primarily at the expense of the more urbanized service sectors, which have lower demand in and fewer forward linkages to the rural economy. Pro-poor growth in the Lusaka and Copperbelt provinces is therefore lower relative to other provinces (Figure A.11).

(iii) The rapid rise and high incidence of urban poverty during the 1990s indicates that rural development cannot be the government's only priority. The long-standing political bias towards urban areas, as well as the need to alleviate urban poverty, suggests that a *non-agriculture-led growth* path should be considered. Similar to the *agriculture-led growth* scenario, TFP growth under this scenario is increased across non-mining secondary sectors and tourism such that aggregate GDP matches the five percent growth rate achieved under the *copper-led growth* path.[53] This non-agricultural growth scenario does not represent a return to state-subsidized industrial expansion. Publicly-financed non-agricultural growth has failed in the past and is therefore not considered. Rather it is assumed that improved productivity comes about through other means, such as increased competition from liberalization or private sector investment. Unlike in the past, manufacturing cannot rely on copper-financed imported investment and intermediate goods. Perhaps more positively, non-agricultural exports in this scenario are not hampered by a copper-laden overvalued real exchange rate.

Non-agricultural growth increases employment opportunities for urban households thereby reducing urban poverty. However, poverty declines more for medium-cost than low-cost households because the latter are better endowed with higher-skilled labor for which demand is highest. This conforms to the findings of Section III which identified the importance of education in determining urban

[53] The scenarios simulates the effect of increased growth within formal non-agricultural sectors. These include manufacturing, energy, construction, and tourism. Financial, trade and transport services are assumed to be driven either by informal activity or by backward linkages from other sectors and are therefore not *directly* affected.

employment opportunities during the structural adjustment period. Therefore the participation of the urban poor depends on the demand generated for lower-skilled labor and on the levels of human capital that these households command. Rural areas benefit from backward linkages from urban growth, although the declines in rural poverty are substantially lower than under the agriculture-led growth scenario. Accordingly, there is convergence in pro-poor growth rates across provinces (Figure A.12).

The growth incidence curve for non-agriculture-led growth is flat, but lower than the agriculture-led growth curve across the entire population. The reason for the weaker poverty-reduction lies in the high skill and capital-intensity of manufacturing and formal sector services. Under the copper-led growth path investment was encouraged through increased copper-financed imports. However, the poor export-orientation of the previously protected manufacturing sectors implies that foreign exchange for imported investment and intermediate goods is likely to be a significant constraint. Therefore despite improvements in macroeconomic stability and over and above labor market constraints, the success of a non-agriculture-led growth path will hinge on its ability to generate foreign earnings. Since the new government has opted for a more market-driven economy, public policy will be limited to creating an enabling environment that is conducive to private investment. However, fiscal restraint is likely to conflict with social spending and rural investment creating a trade-off between manufacturing growth and more pro-poor growth.

This section has examined three broad avenues of growth in terms of their ability to generate pro-poor growth. Although returning to a copper-based development strategy does generate higher economic growth, it undermines agriculture and effectively isolates the rural population from the growth process. Poverty reduction is therefore strongly biased in favor of urban areas. The sector's past performance and the volatility of world commodity markets also raises concerns over the long-term sustainability of mining-led growth. While this paper has considered how an upswing in world copper markets might benefit growth and poverty-reduction, other research has shown how reliance on mining during a sudden downswing could generate an economic

crisis in Zambia with substantial increases in urban poverty (Lofgren et al., 2002). Mining prospects will ultimately be determined by world market conditions and private investment rather than by direct public policy. However, Zambia should be cautious when trading-off longer term pro-poor growth from economic diversification for short-run growth from windfall gains in the mining sector.

While diversification is essential for long-term growth, severe poverty in both rural and urban areas makes identifying the most appropriate avenue for diversification more difficult. Non-agricultural growth addresses urban poverty but requires a complex policy environment that encourages private foreign investment in labor-intensive export sectors. Such efforts will be constrained by prevailing inefficiencies within existing enterprises, the lack of appropriately skilled labor, and Zambia's landlocked position. Efforts to attract investment are undermined by the government's flagging commitment to further reforms, especially towards the end of the last decade, as well as political and economic uncertainty in neighboring countries. Furthermore, establishing industries with strong backward linkages into rural areas will determine if the benefits from manufacturing growth are to extend into rural areas. By contrast, agricultural growth strongly benefits the poorest of Zambia's households, but does not directly address poverty in urban areas. Beyond the ability of government and rural households to raise agricultural productivity, rural development under the *agriculture-led growth* path is contingent on functioning markets, which might not exist in remoter rural areas. Establishing market opportunities, especially in foreign markets for cash-crops, will ultimately determine the ability of agriculture to generate pro-poor growth. While the ultimate growth path adopted by Zambia is likely to be a combination of the above three alternatives, the findings have identified the danger of returning to an overemphasis on urban-based growth.

V. ACCELERATING PRO-POOR GROWTH

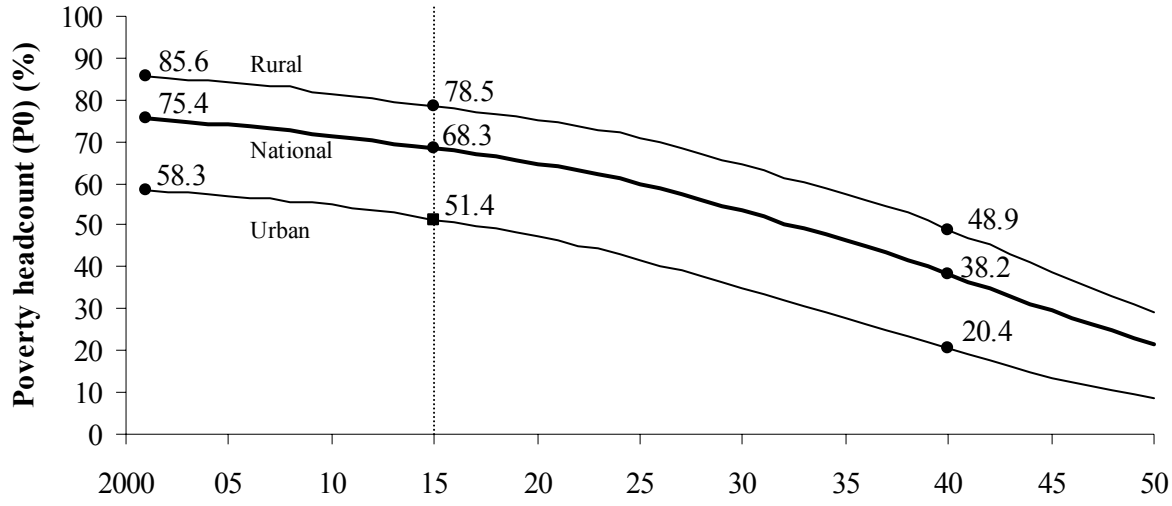
Poverty In Zambia should fall along its current growth path. However, the ability of the poor to participate in the growth process remains limited. The unwinding of Dutch Disease, which distorted the pattern of production and undermined non-mining exports, should encourage agricultural production and benefit rural households. However, agriculture's response to the changing economic environment is contingent on overcoming low productivity and weak market access. Urban poverty should also decline, albeit to a lesser extent than in rural areas. Urban growth and employment opportunities are constrained by low skills and inadequate private investment. Therefore, the ability of rural areas to cope with urban migration will also prove important for achieving pro-poor growth.

Poverty reduction will remain gradual. For instance, under the current growth path the meeting of the Millennium Development Goal (MDG) of halving poverty will not be achieved until 2040 (Figure 9). Growth-poverty decompositions indicated that poverty-reduction has previously been dominated by growth rather than distributional shifts (Table 7). Growth-poverty elasticities estimate that a growth rate between 7.1 and 8.7% would be needed to halve poverty by 2015.[54] The CGE micro-model finds that an annual growth rate of 8.8% would be required to meet the MDG.[55] Accelerating pro-poor growth should therefore be the main priority for public policy. Previous sections examined the structural trade-offs between agriculture and non-agriculture-led growth and diversification, and identified a long-standing divide between rural and urban areas. The incidence of poverty suggests that accelerating pro-poor growth in Zambia will require policies that address both rural and urban areas.

[54] Since growth-poverty elasticities assume that the distribution of growth remains constant, the differences in the required growth rates depend on which survey's distribution is chosen for the projection. These estimates assume population growth of two percent.

[55] The similarity between the growth estimate from 1998 growth-poverty elasticity (8.7) and the CGE model (8.8) is to be expected given that the latter is based on this survey. However, growth elasticities assume a constant distribution, while the CGE accounts for changes in the between-group distribution (see Agenor *et al*., 2003).

Figure 9. Long-Term Poverty Reduction under the Current Growth Path (2001-2050)



Source: Zambia CGE-micro model results.

Addressing Rural Poverty

Two-thirds of Zambia's poor live in rural areas, with a majority living on small-scale farms. Section IV found that agriculture-led growth offers the greatest potential for increasing the participation of the poor in the growth process. However, according to Section III, the growth of cash-crops during the structural adjustment period mainly benefited medium-scale households in specific areas of the country. Furthermore, these crops are relatively capital-intensive and require intuitional structures that connect rural producers to urban and foreign markets. Staples crops by contrast are grown in different forms throughout the country and directly influence poverty and food security. However, both staples and cash-crops are constrained by low productivity and poor market access. This section considers the distributional impact of staples and cash-crop-led growth, and the importance of market access in generating growth opportunities.

The *staples-led growth* scenario is similar to the *agriculture-led scenario* of Section IV except that increased productivity is concentrated in the staples sectors.[56] Despite increased production being more evenly distributed across rural households and provinces (Figure A.13), the expansion of staples actually leads to an slight increase in rural poverty compared to the broader agriculture-led scenario (Figures 8 and 10).[57] This is because rapidly rising staples production floods the local markets leading to declines in prices. While lower food prices benefit urban and rural non-farm households, they have a negative effect on those small- and medium-scale households who are reliant on staple-crop income. Despite addressing more immediate needs for improved food security, increasing staples production without expanding domestic or foreign markets does not necessarily translate into sustainable long-run poverty-reduction for rural households.

The accessibility of domestic and international markets for rural producers will determine the degree to which the fall in domestic staples prices can be cushioned. A second staples scenario considers the impact of combining *staples-led growth* with improved *market access*.[58] Lowering the transaction costs faced by rural staples producers does not translate into a significant additional increase in GDP growth. However, there is an increase in the level of real consumption for almost all households. There is also a shift in the distribution of the gains from growth (Figure 10). Poorer small-scale households in the more remote province benefit the most from improved market access. The results suggest that market constraints must be considered when attempting to reduce poverty through agriculture-led growth. In terms of foreign

[56] Similar to Section IV, TFP growth is increased in the staples sectors to match the five percent aggregate GDP growth rate achieved under the *copper-led growth* path. The same is true for the cash-crop sectors under the *cash-crop-led growth* scenario. Staples crops include maize, sorghum, millet, groundnuts, wheat, vegetables, rice and soybeans. Cash-crops include sugar, cotton, tobacco, and coffee.

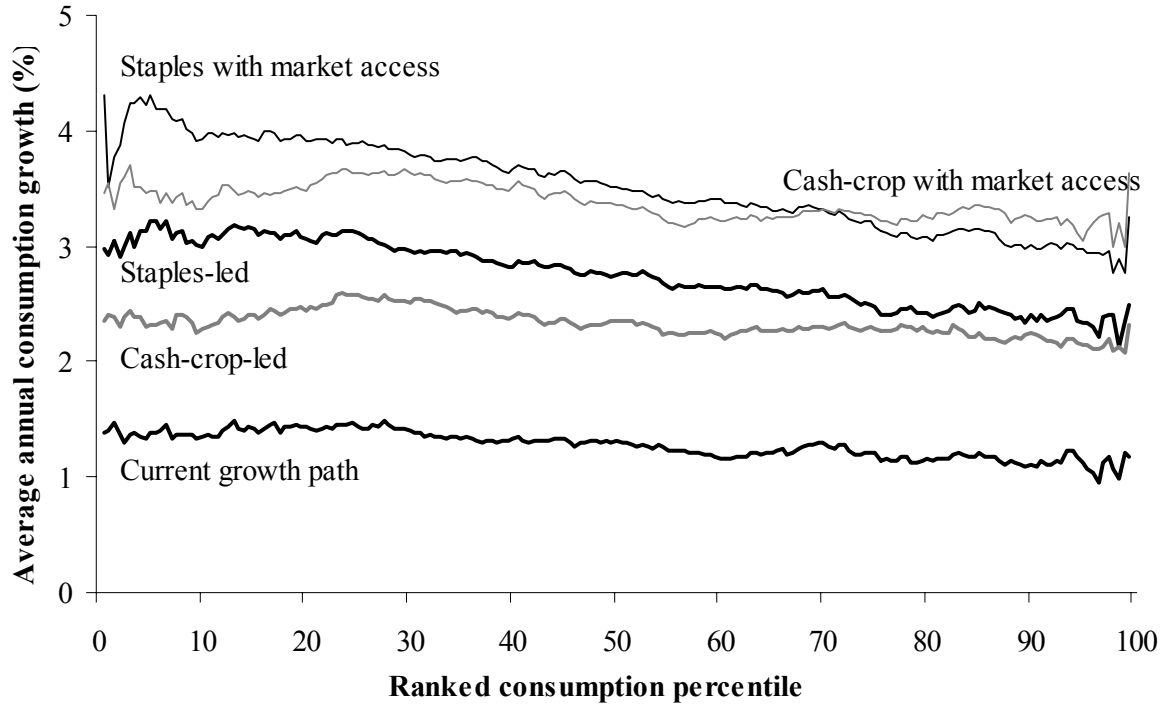
[57] Tables A.7 to A.12 contain detailed model results.

[58] Market-access is improved by halving the province-specific transactions costs facing rural producers. The market-access simulations do not incorporate financing considerations. Lofgren *et al*. (2004) examine in detail the interaction between improved market access and the financing of various government road schemes. While the costs of public investment do offset the gains from reduced transaction costs, the results still indicate pro-poor outcomes.

markets, there is potential for Zambia to become a net-exporter of food crops given demand in the region (Diao *e*t al., 2003).

A staples-led growth path is primarily constrained by low farm productivity, which in turn is driven by inadequate capital and inputs, and severe labor shortages during planting season. Evidence from the successful cassava production in the northern provinces suggest that improved farming techniques can help alleviate peak season bottlenecks (Haggblade and Tembo, 2003). Therefore if basic food security is to be achieved then government expenditure on agriculture should be expanded to provide regionally-appropriate extension services to rural households. However, longer-term staples growth will require sustained public investment in agricultural research and private investment in farm capital. The former depends on the government's commitment to agricultural liberalization and diversification, while the latter hinges on the provision of microfinance.

Figure 10. Growth Incidence Curves for Simulations (2001-2015)



Source: Zambia CGE-micro model results.

The *cash-crop-led growth* scenario considers the impact of concentrating agricultural growth in the cash-crop sectors. Although poverty declines, the reduction is substantially lower compared to the broader *agriculture-led growth* scenario (Figures 8 and 10). The reason for the lower pro-poor growth is fourfold. First, rural and urban households have low consumption shares of cash-crops and therefore do not benefit from lower prices in domestic markets. Secondly, since medium-scale farm households are more intensive cash-crop producers they are the greatest beneficiaries. This can be seen in the flatter growth incidence curve, particularly at the low end of the distribution, and the concentration of growth across provinces (Figure A.14). Thirdly, cash-crop production is more capital and input intensive, thus creating backward demand into urban areas, and making it more difficult for farmers to engage in these crops (World Bank, 2004). Finally, increased foreign earnings from cash-crop exports facilitate a higher level of imports, which benefit more import-intensive urban-based producers and consumers.

Improving *market access* for cash-crops has a strong additional effect on aggregate GDP growth, largely through increased demand for cash-crop exports. The high export-intensity of cash-crops, and its relatively weak backward linkage to domestic sectors, creates a dominant export-driven sector similar in effect to the *copper-led growth* scenario. However, unlike mining-led growth, the sector does progressively distribute the gains from growth, albeit to a lesser extent than under staples-led growth. Although improved market access is likely to extend the benefits from cash-crop expansion, it is unlikely that more remote households will be able to engage in this sector.

Zambia's own experiences and those of other countries in the region indicate that successful cash-crop expansion requires substantial investment and appropriate institutions. Cotton in the Eastern province of Zambia and in Mali, and horticulture and floriculture in Kenya and Tanzania are prime examples. Each case hinged on attracting foreign investment, establishing credit and input supply-chains, and promoting institutions to represent farmers and provide marketing assistance (Tefft, 2003; Minot

and Ngigi, 2004). The maintenance and acceleration of Zambia's cash-crop boom will therefore depend heavily on attracting private sector investment in agriculture. Private sector confidence appears to be growing, especially following the more stable macroeconomic environment. However, non-interventionist policies and a demonstrated commitment by the government to diversification through agricultural growth will be critical.[59] Furthermore, based on the findings of Section IV, the developments taking place in the mining sector, as well as other changes in world commodity markets, will ultimately determine the long-term sustainability of cash-crop led growth. As with copper, the reliance on a single export crop raises vulnerability to negative terms-of-trade effects and may cause sudden reversals in pro-poor growth.

More generally, the ability of agriculture to generate long-term pro-poor growth will hinge on the creation of market opportunities for rural households. Market access has many components, including linkages between farmers and consumers, processors and wholesalers, and between rural and urban areas. Although trade liberalization has opened new markets for agricultural exports, implementing appropriate policies relating to internal markets has proven equally important in Africa (Orden *et al*., 2003). Based on past failures, the government should limit intervention in commercial markets, especially in ways that directly distort prices and favor individual crops. Rather, government involvement should be aimed at encouraging private investment, and addressing the deterioration and lack of infrastructure, which remains a significant constraint to improving market access and accelerating pro-poor growth in rural Zambia.

Addressing Urban Poverty

Although agricultural growth generates the highest returns for pro-poor growth, the small size of the agricultural sector and high levels of urban poverty suggests that accelerating agriculture alone will be insufficient for both broad-based and rapid

[59] Non-interventionism and a stable policy environment were critical for the success of Kenyan export horticulture (Minot and Ngigi, 2003). Cash-crop markets can prove too diverse, fast-changing and risky for state-enterprises and marketing boards.

poverty reduction. Furthermore, market development – a pre-requisite for long-term sustainable agricultural growth – hinges on overcoming supply constraints and finding sufficient demand. Urban growth is critical in determining the latter. Beyond its role as a market for agriculture, the urban economy will need to provide avenues for diversification away from export-mining and generating employment opportunities for the urban poor. This paper has broadly examined the role of mining, and manufacturing and tourism, in generating pro-poor growth.

The urban-biased Dutch Disease created by copper-mining has directly and indirectly been the largest contributor to poverty in Zambia over the last three decades. Copper exports crowded-out other sectors, concentrated political power, and through economic dependence, made Zambia vulnerable to the volatility and long-run downturn of world markets. However, while mining's past performance has not been positive, the prospects for future growth are uncertain. A complete shutdown of the sector, as threatened in 2002, would be devastating for the Zambian economy (Lofgren *et al.*, 2002). By contrast, a recovery of the sector through new investment and a more buoyant world market might undermine attempts at diversification and stable growth. Maintaining broad macroeconomic stability is critical for attracting private investment and encouraging growth other non-agricultural sectors. Therefore careful management of foreign exchange earnings and revenues from a possible copper price recovery will be critical (World Bank, 2004).

The importance of sustained pro-poor spending was revealed during structural adjustment. This is one possible means of neutralizing the negative effects on poverty of a copper-led growth strategy. As discussed above, improving rural markets, through increased and import-intensive rural infrastructure investment, would generate pro-poor returns (Lofgren et al., 2004). Other important areas of public investment include education and health. The former is necessary to alleviate the skilled-labor constraint and encourage labor-intensive manufacturing. Education has also proven important in determining the adoption of new technologies in some agricultural areas (World Bank, 2004). Investment in health, especially in combating the onslaught of HIV/AIDS, must

remain a priority of government policy. Prevalence is extremely high in urban areas, and threatens all sectors, including health and education provision. Although rural prevalence is lower than in urban areas it could be threatened by urban-rural migration, which would aggravate the existing labor-shortage in these areas. However, while addressing AIDS is critical for both long and short-term poverty-reduction, the treatment of the pandemic is likely to require external support.

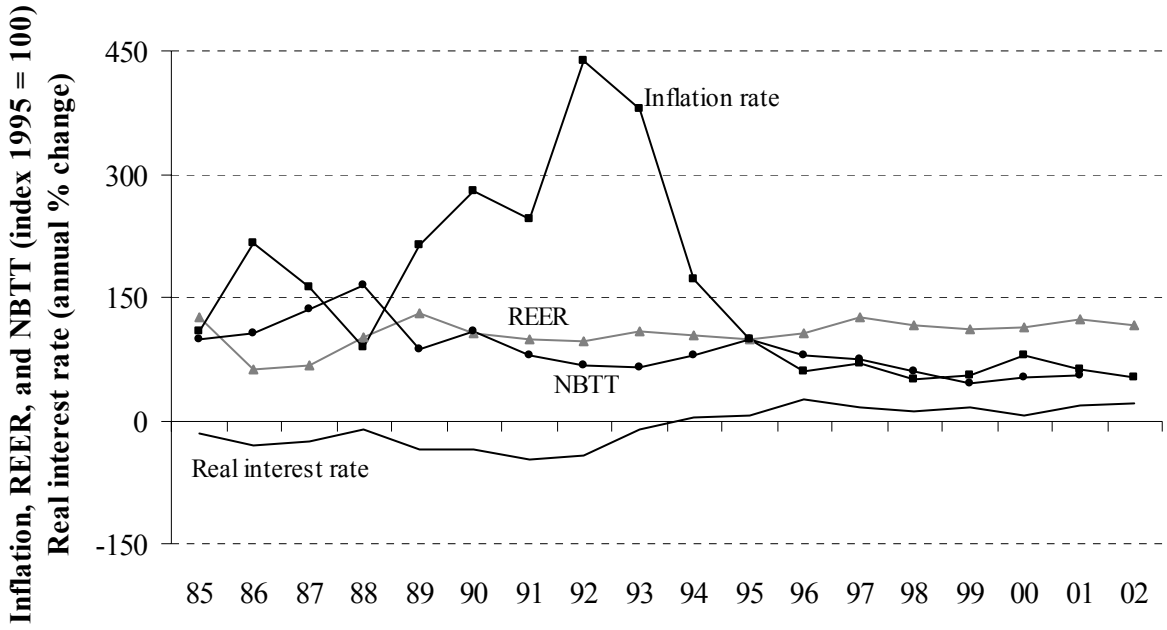
The non-agriculture-led growth scenario offers an alternative to agricultural diversification, with food and textile exports likely to provide the best opportunities. The food and beverage sector is already established and is less capital-intensive than minerals-beneficiation. Creating strong backward linkages into the rural economy, and promoting regional markets should be priorities for policy. Textile exports have performed well in recent years, but further expansion is contingent on investment (World Bank, 2004). The 'big-bang' approach to reforms that was adopted during the structural adjustment period, while possibly aimed at preventing significant policy-reversals, prevented a more appropriate sequencing of policies. In this regard, private investment was not forthcoming until after macroeconomic stabilization, and together with trade liberalization, undermined privatization. Although private investment has increased in more recent years, the government needs to demonstrate commitment to reform. Undertaking politically sensitive civil service reform, addressing corruption, and concluding privatization will be critical in establishing credibility and transparency.

Substantial reforms have already been implemented, but further trade-offs will have to be faced if the country is to substantially reduce poverty. Although this paper does not outline a comprehensive development strategy for Zambia, it does consider the main sectoral avenues for development. In this regard, agriculture provides the greatest opportunity for accelerating pro-poor growth. Not only do a majority of the poor live in rural areas, but agricultural potential is high both for production and regional trade. However, the road to pro-poor growth will ultimately require policies that address both urban and rural poverty. In this regard the role of the government is limited. Only

through good governance can an environment conducive to private sector involvement and self-sustaining pro-poor growth be established.

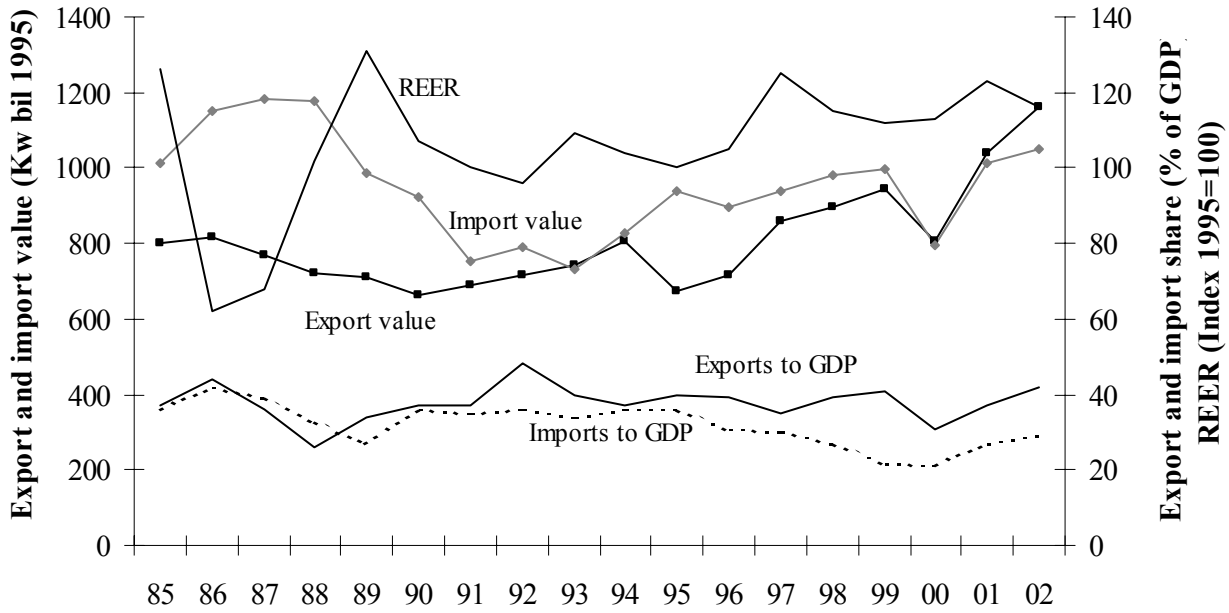
APPENDIX A. ADDITIONAL TABLES AND FIGURES

Figure A.1. Inflation, Interest and Exchange Rates, and Net Barter Terms of Trade (1985-2002)



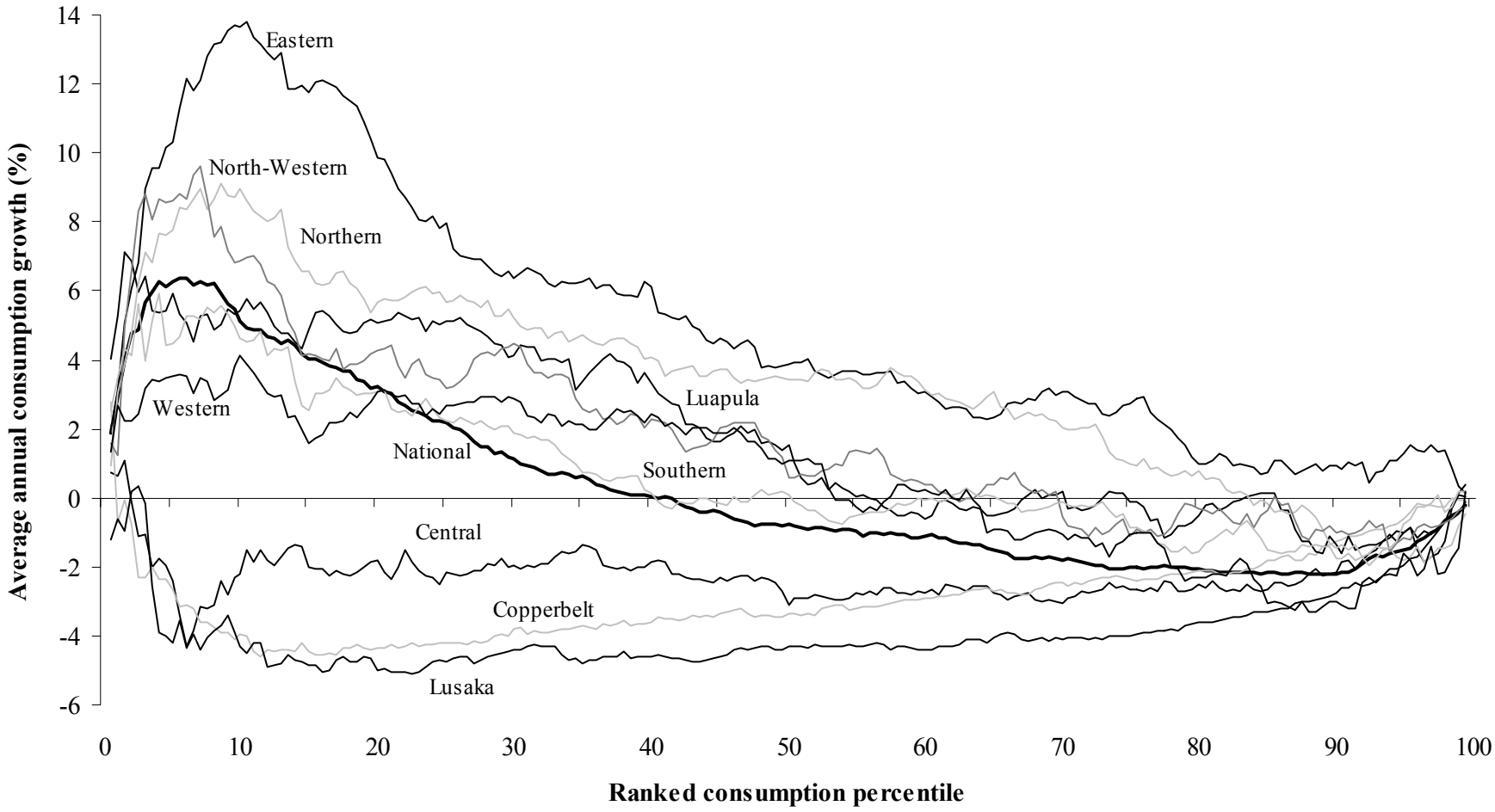
Source: World Development Indicators (2004).

Figure A.2. Inflation, Interest and Exchange Rates, and Net Barter Terms of Trade (1985-2002)



Source: World Development Indicators (2004).

Figure A.3. National and Provincial Growth Incidence Curves (1991-1998)



Source: Own calculations using Priority Survey (1991) and Living Conditions Monitoring Surveys (1996 and 1998).
Note: The national growth incidence curve is not strictly decomposable into provincial curves but changes in provincial population shares have been relatively small (see Section III). Bottom end of the distribution for both years are dropped (see Appendix B).

Table A.1. Poverty Headcount and Household Distribution by Province and Sector of Employment (1991)[1]

	Poverty headcount Share of provincial employment (Share of sector employment)											
	Agri.	**Mining**	**Manu.**	**Energy**	**Const.**	**Trade**	**Hotels**	**Trans.**	**Finance**	**Public**	**Other**	**All**
Central												
Poverty	63.6	38.0	17.2	26.8	41.5	33.7	34.3	20.6	14.2	19.3	34.7	49.4
Population	62 (10)	2 (6)	5 (6)	1 (7)	3 (8)	7 (10)	1 (11)	5 (9)	2 (7)	10 (9)	3 (6)	100 (9)
Copperbelt												
Poverty	55.2	24.8	26.0	27.3	26.0	23.6	10.7	18.9	39.0	17.2	34.4	29.4
Population	15 (3)	21 (84)	18 (36)	2 (21)	3 (13)	7 (14)	2 (23)	9 (24)	5 (27)	10 (12)	8 (22)	100 (13)
Eastern												
Poverty	84.0	-	30.1	-	53.1	29.0	-	30.7	0.0	47.8	37.0	75.3
Population	81 (21)	0 (0)	1 (3)	0 (2)	1 (5)	5 (11)	0 (5)	1 (3)	1 (5)	7 (11)	2 (5)	100 (15)
Luapula												
Poverty	80.7	-	44.5	42.0	36.5	39.5	9.4	54.3	34.8	25.5	37.1	67.1
Population	69 (14)	0 (1)	2 (3)	3 (26)	3 (11)	7 (12)	1 (7)	2 (5)	1 (7)	9 (10)	2 (5)	100 (11)
Lusaka												
Poverty	47.5	25.0	12.4	5.0	9.9	14.2	7.2	4.9	4.0	5.7	15.5	14.6
Population	13 (3)	1 (5)	12 (30)	2 (20)	7 (40)	13 (29)	3 (39)	11 (35)	6 (46)	18 (27)	13 (43)	100 (15)
Northern												
Poverty	84.1	-	39.4	15.0	46.5	21.8	-	16.9	28.1	23.3	67.2	70.2
Population	75 (17)	0 (0)	2 (5)	1 (11)	1 (7)	4 (8)	0 (0)	5 (14)	1 (5)	8 (10)	2 (5)	100 (13)
North-Western												
Poverty	83.0	-	23.0	20.1	9.6	58.0	22.3	21.4	-	26.3	31.8	66.9
Population	71 (7)	0 (1)	3 (2)	1 (3)	4 (7)	3 (3)	1 (3)	1 (1)	0 (0)	14 (7)	2 (2)	100 (5)
Southern												
Poverty	78.9	19.7	43.5	25.9	61.6	50.0	41.4	29.1	-	30.9	33.1	66.6
Population	70 (12)	1 (3)	5 (9)	1 (5)	2 (6)	5 (7)	1 (8)	4 (8)	0 (2)	8 (8)	4 (8)	100 (10)
Western												
Poverty	87.2	-	70.0	32.3	57.3	34.5	18.5	0.0	-	38.9	44.5	77.2
Population	77 (12)	0 (0)	4 (6)	1 (4)	1 (3)	5 (7)	1 (4)	1 (1)	0 (2)	8 (7)	2 (4)	100 (9)
Zambia												
Poverty	79.0	26.1	26.8	25.8	26.5	27.7	15.5	16.7	17.6	22.1	28.6	55.2
Population	57 (100)	3 (100)	6 (100)	1 (100)	3 (100)	7 (100)	1 (100)	5 (100)	2 (100)	10 (100)	5 (100)	100 (100)

Source: Own calculations from 1991 PS survey (CSO, 1993).

1. Sector of employment for households is determined by sector of employment of the household head. Employment includes both formal and informal sectors.

Notes: Poverty headcounts with low household population shares (less than 0.5% of provincial households) can be misleading and have therefore been removed. *Agri.* is agriculture; *Manu.* is manufacturing; *Const.* is construction; *Trans.* is transport; *Finance* is financial services; *Public* is public services.

Table A.2. Poverty Decomposition Across Household Stratum (1991-1998)

	Upper poverty line			Lower poverty line		
	Population Share	Absolute Headcount Change	Percentage Headcount Change	Population Share	Absolute Headcount Change	Percentage Headcount Change
Rural						
Small-scale	48.0	-1.6	-25.3	48.0	-3.9	-121.1
Medium-scale	2.7	0.0	-0.6	2.7	-0.2	-4.6
Large-scale	0.2	-0.1	-1.0	0.2	-0.1	-2.2
Non-farm	3.7	0.4	5.7	3.7	0.3	10.1
Urban						
Low-cost	24.0	2.7	41.8	24.0	2.6	78.9
Medium-cost	14.9	1.6	24.6	14.9	0.4	11.4
High-cost	6.5	-0.1	-1.6	6.5	-0.4	-10.9
Within group change		2.8	43.6		-1.3	-38.5
Population shift		4.3	67.1		4.7	144.2
Interaction		-0.7	-10.6		-0.2	-5.7
Total change		6.4	100.0		3.3	100.0

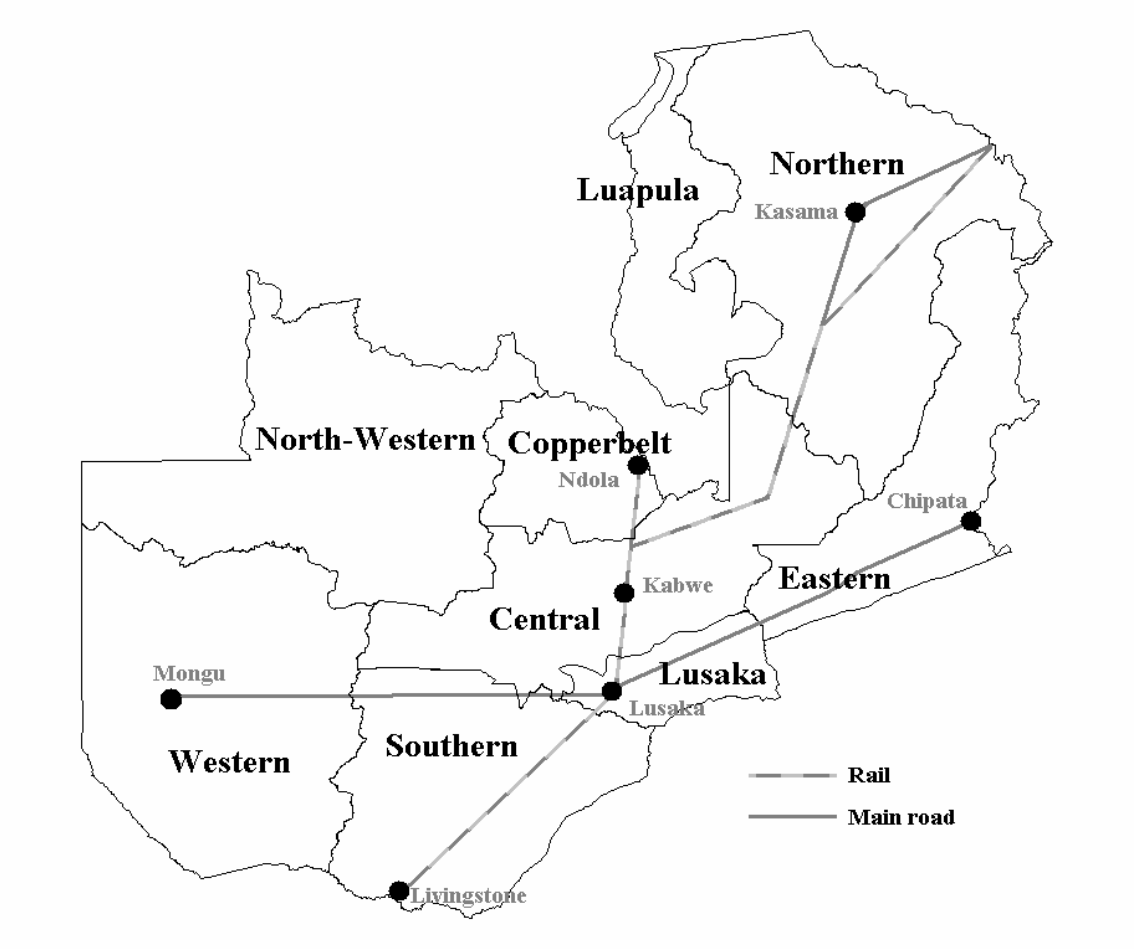
Source: Own calculations using the 1991 PS survey (CDO, 1993) and 1998 LCMS survey (CSO, 1999a).

Table A.3. Poverty Decomposition Across Provinces (1991-1998)

	Upper poverty line			Lower poverty line		
	Population Share	Absolute Headcount Change	Percentage Headcount Change	Population Share	Absolute Headcount Change	Percentage Headcount Change
Province						
Central	9.1	0.8	12.9	9.1	0.8	24.0
Copperbelt	15.0	1.7	26.8	15.0	2.1	63.0
Eastern	12.8	-0.2	-3.3	12.8	-1.3	-39.9
Luapula	9.5	0.1	2.1	9.5	0.0	0.6
Lusaka	16.1	3.8	58.6	16.1	2.8	85.1
Northern	12.6	0.2	2.6	12.6	-0.3	-9.2
North-western	5.2	-0.1	-1.4	5.2	-0.3	-7.6
Southern	11.9	0.0	-0.2	11.9	-0.4	-13.0
Western	7.8	0.5	7.0	7.8	0.3	9.5
Within group change		6.8	105.1		3.7	112.5
Population shift		-0.4	-6.1		-0.6	-19.1
Interaction		0.1	1.1		0.2	6.6
Total change		6.4	100.0		3.3	100.0

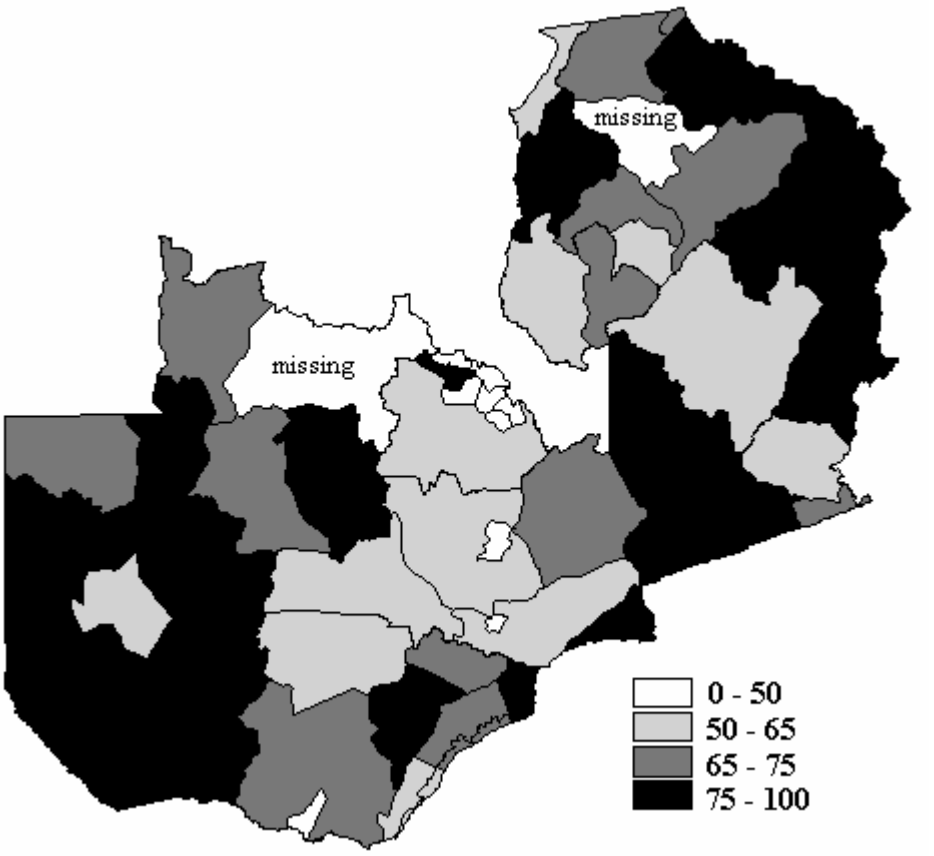
Source: Own calculations using the 1991 PS survey (CSO, 1993) and 1998 LCMS survey (CSO, 1999a).

Figure A.4. Major Transport Routes in Zambia



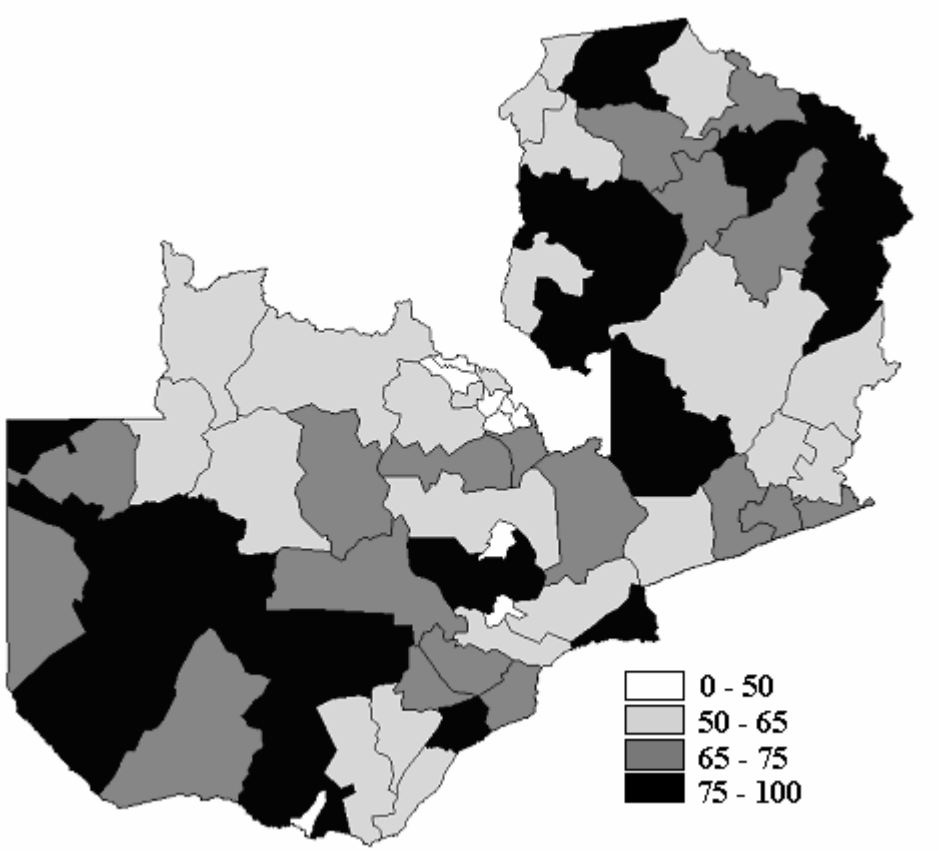
Note: Stylized mapping of Zambian rail lines and roads. Northern rail line is less developed than and incompatible with the southern line.

Figure A.5. Lower Poverty Line Poverty Headcount by Province (1991)



Source: Own calculations using the 1991 PS survey (CSO, 1993).
Note: There was a change in the definition of the sampling districts between the Priority Surveys of 1991 and 1993, and the LCMS surveys of 1998. Two districts in 1991 were missing.

Figure A.6. Lower Poverty Line Poverty Headcount by Province (1998)



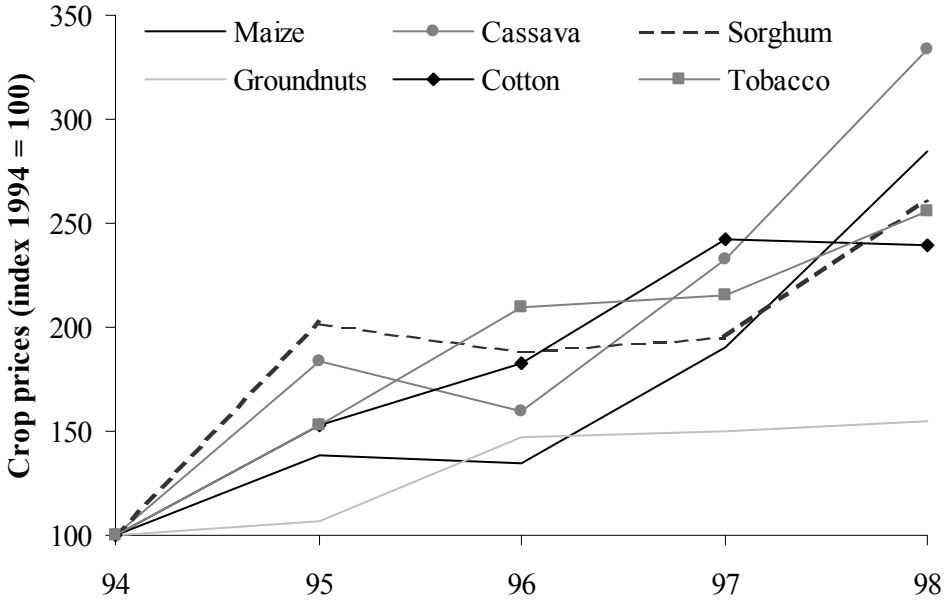
Source: Own calculations using the 1998 LCMS survey (CSO, 1999b).

Table A.4. Annual Production of Key Agricultural Crops (1990-1999)

	Annual production (millions of metric tons)						
	Maize	**Millet**	**Sorghum**	**Cassava**	**Ground-nuts**	**Sugar**	**Cotton**
1990	1093	32	20	640	25	1127	31
1991	1096	26	21	682	28	1150	49
1992	483	48	13	682	21	1300	26
1993	1598	37	35	744	34	1220	48
1994	1021	63	35	744	35	1311	33
1995	738	55	27	744	36	1310	17
1996	1409	55	36	744	35	1400	41
1997	960	61	31	702	46	1500	80
1998	638	62	25	817	57	1550	105
1999	822	70	25	971	51	1650	140

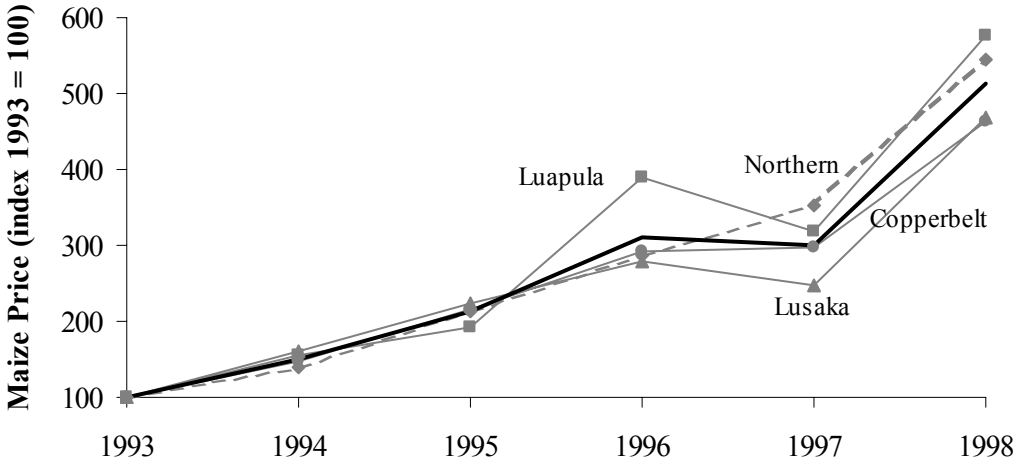
Source: Food and Agriculture Organization (FAOSTAT, 2003).

Figure A.7. Relative Crop Prices (1994-1998)



Source: Own calculations using Post-Harvest Crop Surveys (various years).

Figure A.8. Provincial Maize Prices (1993-1998)



Source: Famine Early Warning System (FEWS).

Table A.5. HIV/AIDS Prevalence Rates in Zambia (2001)

	Adult prevalence rate (%)		
	Male	**Female**	**Total**
National	12.9	17.8	15.6
Urban	19.2	26.3	23.1
Rural	8.9	12.4	10.8
Central	13.4	16.8	15.3
Copperbelt	17.3	22.1	19.9
Eastern	11.0	16.1	13.7
Luapula	8.6	13.3	11.2
Lusaka	18.7	25.0	22.0
Northern	6.2	10.0	8.3
North-Western	9.5	8.8	9.2
Southern	14.6	20.2	17.6
Western	8.3	16.9	13.1

Source: 2001/02 Demographic and Health Survey (CSO, 2002).

Table A.6. Governance Indicators (1996-2002)[1]

	1996	**1998**	**2000**	**2002**
Voice and Accountability				
Point estimate (-2.5 to 2.5)	-0.15	-0.11	-0.24	-0.4
Percentile rank	48.2	46.6	43.5	39.4
Political Stability				
Point estimate (-2.5 to 2.5)	-0.39	-0.04	-0.48	-0.02
Percentile rank	27.4	45.5	30.9	44.3
Government Effectiveness				
Point estimate (-2.5 to 2.5)	-0.81	-0.39	-0.79	-0.93
Percentile rank	16.2	38.3	22.3	14.4
Regulatory Quality				
Point estimate (-2.5 to 2.5)	0.18	0.32	0.43	-0.6
Percentile rank	64.1	59.8	65.4	29.9
Rule of Law				
Point estimate (-2.5 to 2.5)	-0.33	-0.34	-0.47	-0.52
Percentile rank	41.0	41.6	43.8	35.6
Control of Corruption				
Point estimate (-2.5 to 2.5)	-0.91	-0.56	-0.85	-0.97
Percentile rank	16.0	33.3	20.7	17.0

Source: World Bank Governance Indicators (Kaufman et al., 2004).

1. Each of the following governance indicators are composites of a series of existing measures reflecting different dimensions of each area of governance. The estimates range from –2.5 (bad) to 2.5 (good). For information on the calculation of these measures and on their standard errors, see Kaufman et al. (2004).

Table A.7. Detailed Macroeconomic Results for Simulations, 2001-2015

	Initial value (Kw bil., 2001)	Average annual growth rate (%), 2001-2015							
		current growth path	*copper-led growth*	*agriculture-led growth*	*non-agric-led growth*	*staples-led growth*	*staples market access*	*cash-crop-led growth*	*cash-crops market access*
Gross domestic product	12,007	4.0	5.0	5.0	5.0	5.0	5.1	5.0	5.6
Private consumption	10,864	2.9	5.9	3.9	3.7	3.9	4.4	3.7	4.5
Investment	2,634	2.2	8.1	3.7	3.6	3.5	4.2	4.7	6.1
Government	1,709	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Agriculture	2,963	4.6	3.3	7.7	4.2	7.8	8.1	7.1	8.6
Staples	2,709	4.1	3.7	7.3	4.0	8.0	8.4	4.0	3.4
Cash-crops	168	10.2	-7.2	13.4	7.1	7.0	3.5	22.8	27.2
Industry	3,276	3.6	6.3	3.4	4.5	3.4	3.6	3.3	3.6
Mining	1,325	1.9	8.6	1.9	1.9	1.9	1.9	1.9	1.9
Manufacturing	1,951	4.5	4.2	4.3	5.8	4.3	4.7	4.2	4.6
Services	5,768	3.9	4.9	4.1	5.6	4.0	4.0	4.7	4.7
Real exchange rate		0.9	-3.5	-0.2	0.1	-0.1	-0.4	-1.3	-1.9
Exports	3,804	5.5	6.2	6.5	7.1	6.4	6.8	7.5	9.9
Agriculture	368	11.3	-12.5	18.8	6.8	18.4	19.9	22.2	26.9
Staples	122	10.7	-10.8	22.9	5.4	26.1	28.9	-0.8	-5.5
Cash-crops	244	11.6	-13.5	15.7	7.4	8.4	3.8	25.7	30.6
Industry	3,070	3.9	7.6	2.6	4.3	2.8	2.5	1.6	1.1
Mining	2,501	1.3	9.1	1.2	0.8	1.2	1.2	1.2	1.0
Manufacturing	394	10.1	-14.0	6.3	13.1	6.8	6.1	3.2	1.5
Services	366	8.5	-5.2	3.9	17.6	4.2	3.4	2.1	1.1
Imports	5,860	2.6	8.5	3.5	3.7	3.4	3.9	4.5	6.3
Agriculture	416	0.3	11.9	-4.0	3.4	-2.4	-0.7	3.0	12.7
Staples	292	-0.4	13.0	-7.0	2.9	-7.2	-6.4	4.5	14.2
Cash-crops	116	1.6	7.4	0.8	4.4	3.6	5.6	-3.3	6.5
Industry	4,887	2.8	8.3	3.8	3.7	3.7	4.2	4.6	5.6
Mining	76	3.1	10.5	1.3	5.0	1.6	1.6	0.1	0.3
Manufacturing	4,812	2.8	8.2	3.8	3.7	3.7	4.2	4.6	5.6
Services	557	2.9	7.8	4.0	4.0	3.8	3.9	5.1	5.5

Source: Zambia CGE-micro model results.

Table A.8. Sectoral Shares for Simulations, 2001-2015

	Initial share of GDP in 2001	Final share of total in 2015							
		current growth path	*copper-led growth*	*agriculture-led growth*	*non-agric-led growth*	*staples-led growth*	*staples market access*	*cash-crop-led growth*	*cash-crops market access*
Gross domestic product	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	24.7	26.7	19.8	35.2	22.3	35.9	36.5	32.5	36.4
Staples	22.6	22.9	18.9	30.4	19.7	33.4	34.7	19.5	16.9
Cash-crops	1.4	3.1	0.2	4.1	1.9	1.8	1.1	12.4	18.9
Industry	27.3	25.8	32.4	22.0	25.5	22.1	22.4	21.7	20.8
Mining	11.0	8.3	17.8	7.2	7.3	7.3	7.1	7.2	6.7
Manufacturing	16.2	17.4	14.6	14.8	18.2	14.8	15.2	14.5	14.2
Services	48.0	47.5	47.8	42.8	52.1	42.1	41.1	45.8	42.8
Exports	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	9.7	20.4	0.7	45.1	9.2	43.1	48.8	58.6	72.1
Staples	3.2	6.3	0.3	24.1	2.6	34.6	44.4	1.1	0.4
Cash-crops	6.4	14.1	0.4	20.7	6.6	8.3	4.3	57.5	71.7
Industry	80.7	65.3	97.4	48.0	55.4	49.7	45.1	36.7	25.0
Mining	65.8	37.0	96.7	32.6	27.9	32.9	30.7	28.2	20.3
Manufacturing	10.4	18.9	0.5	10.2	22.0	10.9	9.4	5.8	3.4
Services	9.6	14.3	2.0	6.9	35.4	7.2	6.1	4.7	3.0
Imports	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	7.1	5.1	10.8	2.5	6.8	3.2	3.8	5.8	16.0
Staples	5.0	3.3	8.8	1.1	4.5	1.1	1.2	5.0	13.6
Cash-crops	2.0	1.7	1.7	1.4	2.2	2.0	2.5	0.7	2.0
Industry	83.4	85.1	80.5	87.3	83.3	86.8	86.7	83.9	75.5
Mining	1.3	1.4	1.7	1.0	1.5	1.0	0.9	0.7	0.6
Manufacturing	82.1	83.7	78.9	86.3	81.8	85.8	85.8	83.2	75.0
Services	9.5	9.8	8.6	10.3	9.9	10.0	9.5	10.3	8.5

Source: Zambia CGE-micro model results.

Table A.9. Detailed Poverty Results for Simulations, 2001-2015 (Upper Poverty Line)

	Initial poverty (2001)	Final poverty rate in 2015							
		current growth path	*copper-led growth*	*agriculture-led growth*	*non-agric-led growth*	*staples-led growth*	*staples market access*	*cash-crop-led growth*	*cash-crops market access*
Poverty headcount (P0)	75.4	68.3	56.6	59.4	63.9	59.5	54.5	62.0	55.8
Rural	85.6	78.4	74.7	68.1	76.4	68.1	61.2	72.3	64.2
Small-scale	86.4	79.0	76.5	68.1	77.2	68.0	60.4	73.0	64.4
Medium-scale	80.3	69.5	63.3	56.3	65.2	59.0	54.5	55.9	45.1
Non-farm	80.9	78.0	61.3	74.8	74.4	75.5	74.0	74.5	72.8
Urban	58.3	51.4	26.5	45.0	42.9	45.2	43.3	44.8	41.8
Low-cost	64.3	56.2	32.2	48.9	46.4	49.0	47.1	48.1	44.9
Medium-cost	50.1	47.1	12.6	43.6	41.9	44.1	41.9	45.4	42.3
High-cost	33.0	28.7	8.9	24.5	24.1	24.6	23.3	25.5	23.6
Province									
Central	78.9	73.8	60.5	66.4	70.1	66.5	64.2	67.7	61.9
Copperbelt	67.0	61.6	39.5	55.9	54.5	56.1	54.1	56.2	52.1
Eastern	82.6	67.1	70.0	56.0	68.3	62.5	58.1	51.0	36.7
Luapula	85.4	79.2	67.9	68.4	76.1	65.8	61.8	74.1	68.4
Lusaka	54.4	45.5	28.0	40.3	36.3	40.2	39.1	40.7	39.1
Northern	85.0	79.7	70.1	65.9	76.5	62.5	55.1	75.8	70.9
North-western	76.0	71.1	62.4	54.2	67.5	52.6	47.9	66.5	61.3
Southern	78.4	72.7	63.8	65.6	68.4	65.6	58.9	68.0	59.2
Western	90.3	87.3	78.4	77.9	83.9	76.6	56.7	83.3	78.0
Poverty severity (P2)	25.6	20.4	15.9	15.1	18.3	15.0	12.5	16.8	13.5
Rural	33.3	26.5	23.0	19.2	24.7	19.1	15.4	21.9	17.2
Small-scale	33.7	26.6	23.7	18.7	24.9	18.5	14.6	21.9	16.9
Medium-scale	27.7	21.1	18.6	15.5	19.6	15.9	12.9	16.1	11.3
Non-farm	32.2	29.3	17.6	26.4	25.7	27.0	25.8	26.0	24.6
Urban	12.6	10.2	4.0	8.2	7.7	8.3	7.7	8.2	7.3
Low-cost	14.9	11.8	4.9	9.3	8.7	9.4	8.8	9.1	8.1
Medium-cost	8.3	7.6	1.9	6.7	6.3	6.7	6.2	7.1	6.4
High-cost	4.8	4.3	0.9	3.5	3.4	3.5	3.2	3.9	3.3

Source: Zambia CGE-micro model results.

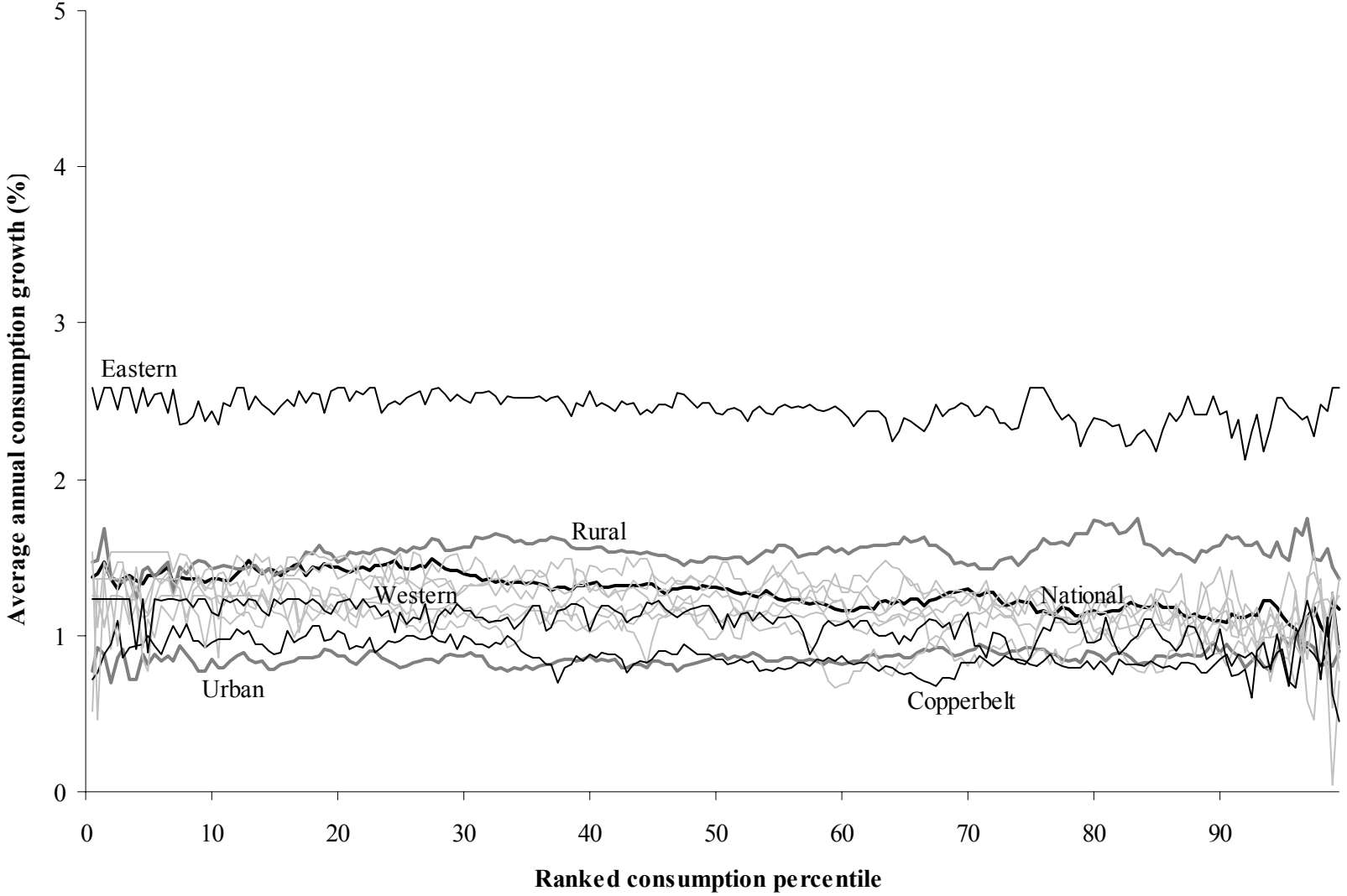
1. The initial poverty rates in 2001 are the same as those 1998 (see Table 4) since the 2002 household survey containing information on poverty and distribution was not yet available.

Table A.10. Pro-Poor Growth Rates for Simulations (Upper Poverty Line)

	Average annual pro-poor growth rate (%)								
	1991-98	**2001-15**	**2001-15**	**2001-15**	**2001-15**	**2001-15**	**2001-15**	**2001-15**	**2001-15**
	structural adjustment	***current growth path***	***copper-led growth***	***agriculture-led growth***	***non-agric-led growth***	***staples-led growth***	***staples market access***	***cash-crop-led growth***	***cash-crops market access***
Upper poverty line									
National	1.1	1.3	2.9	2.9	2.0	2.9	3.7	2.4	3.4
Rural	4.0	1.5	2.4	3.4	2.0	3.4	4.5	2.7	4.1
Urban	-1.8	0.8	4.2	1.7	1.9	1.6	1.9	1.7	2.1
Central	-2.3	1.1	2.9	2.5	1.6	2.5	3.0	2.1	3.3
Copperbelt	-3.5	0.9	3.8	1.8	1.9	1.8	2.0	1.7	2.3
Eastern	5.7	2.5	2.0	4.4	2.2	3.6	4.2	5.2	7.6
Luapula	2.4	1.4	3.0	3.3	2.0	3.6	4.4	2.2	3.3
Lusaka	-4.2	1.1	3.6	2.0	2.4	2.0	2.2	1.8	2.2
Northern	4.1	1.3	2.7	3.5	1.9	3.9	4.9	2.0	2.9
North-western	2.6	1.2	2.5	3.5	1.8	3.9	4.4	2.0	2.9
Southern	1.3	1.3	2.6	2.6	2.0	2.6	3.8	2.3	3.8
Western	1.1	1.1	2.4	2.8	1.6	3.0	6.2	1.8	2.7

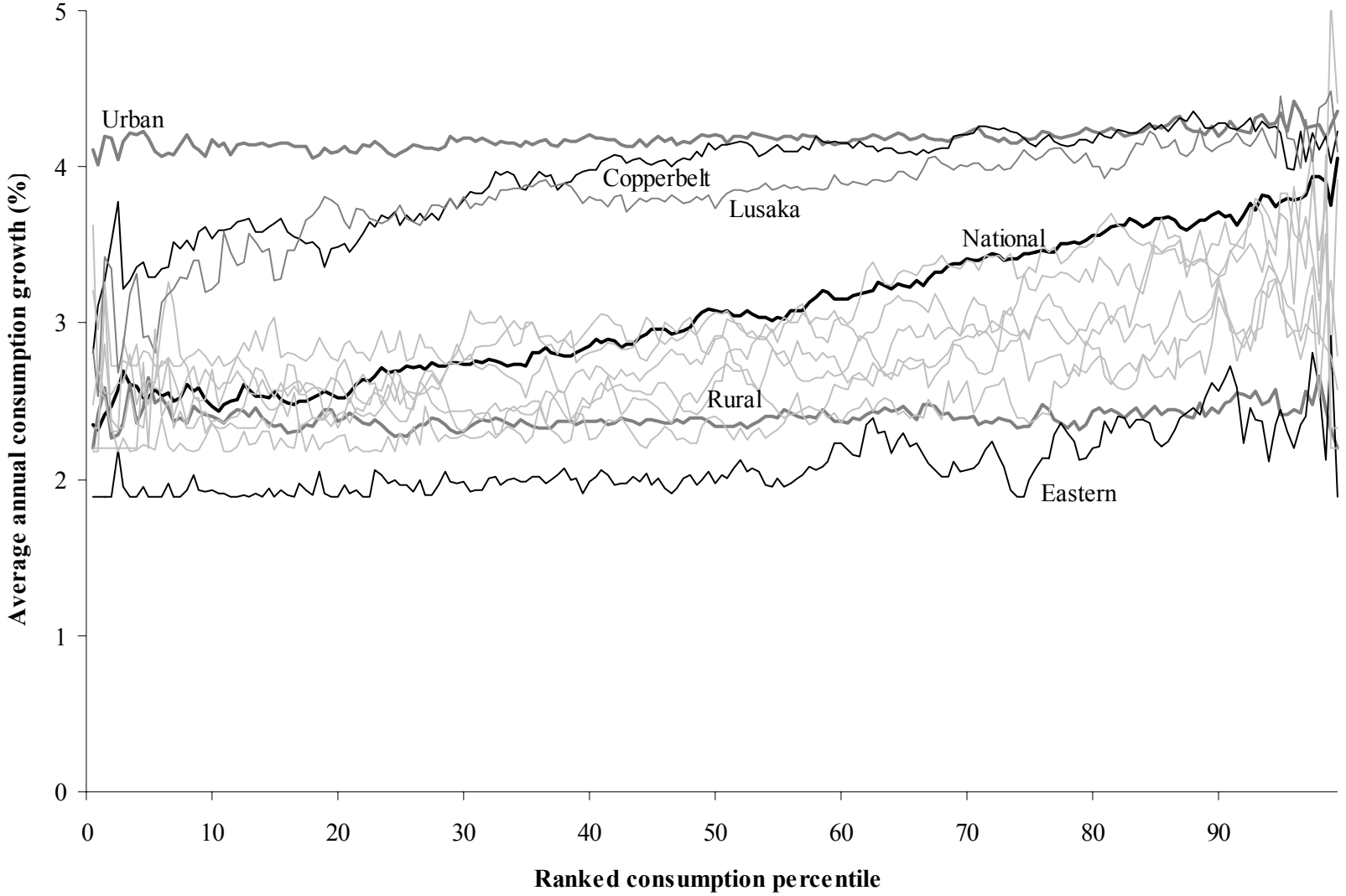
Source: Zambia CGE-micro model results; own calculations using Priority Survey (1991) and Living Conditions Monitoring Survey (1998) for 1991-1998.
[1.] The initial poverty rates in 2001 are the same as those 1998 (see Table 4) since the 2002 household survey was not yet available.

Figure A.9. National and Provincial Growth Incidence Curves for Current Growth Path Simulation (2001-2015)



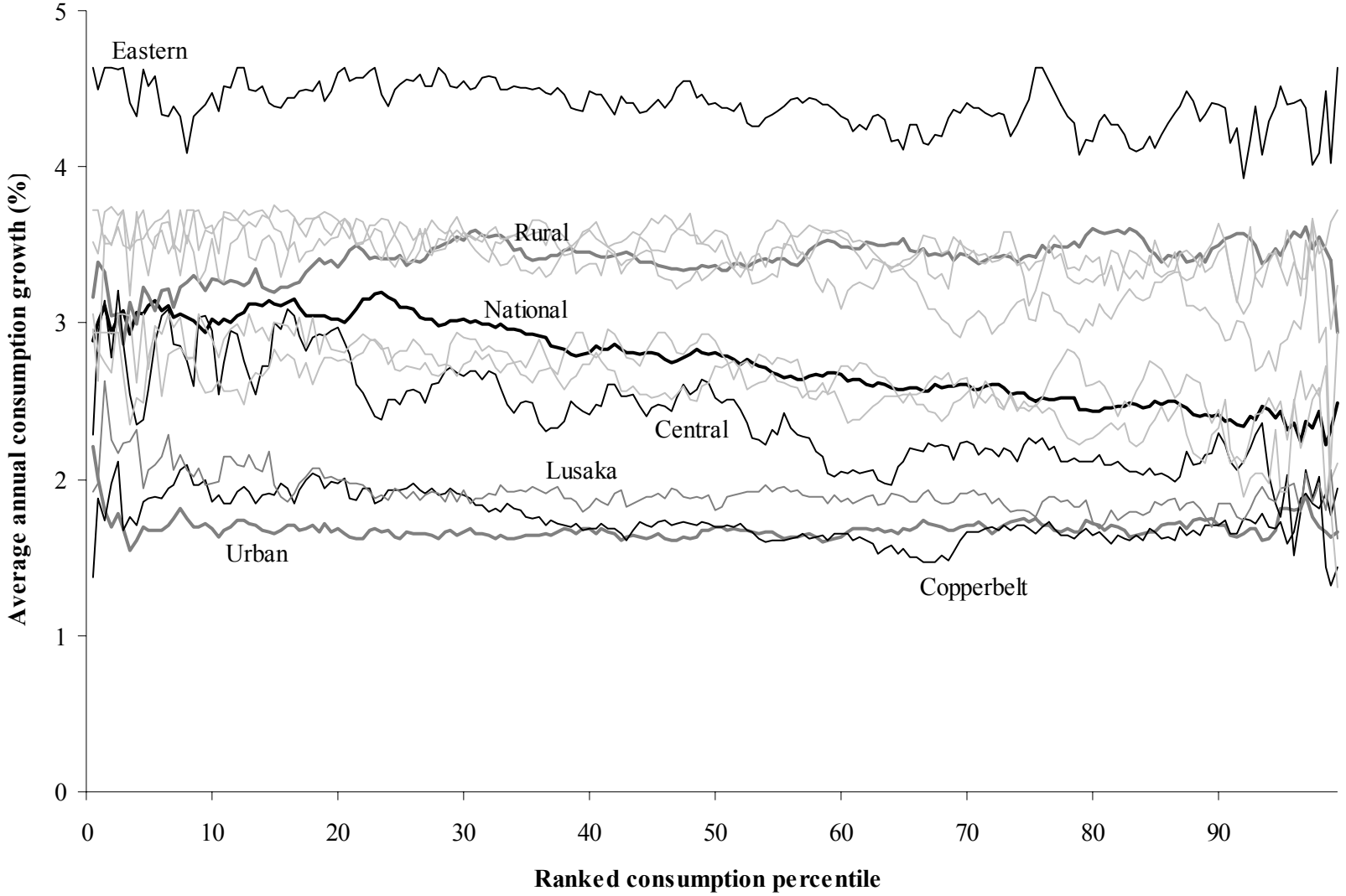
Source: Zambia CGE-micro model results

Figure A.10. National and Provincial Growth Incidence Curves for Copper-Led Growth Simulation (2001-2015)



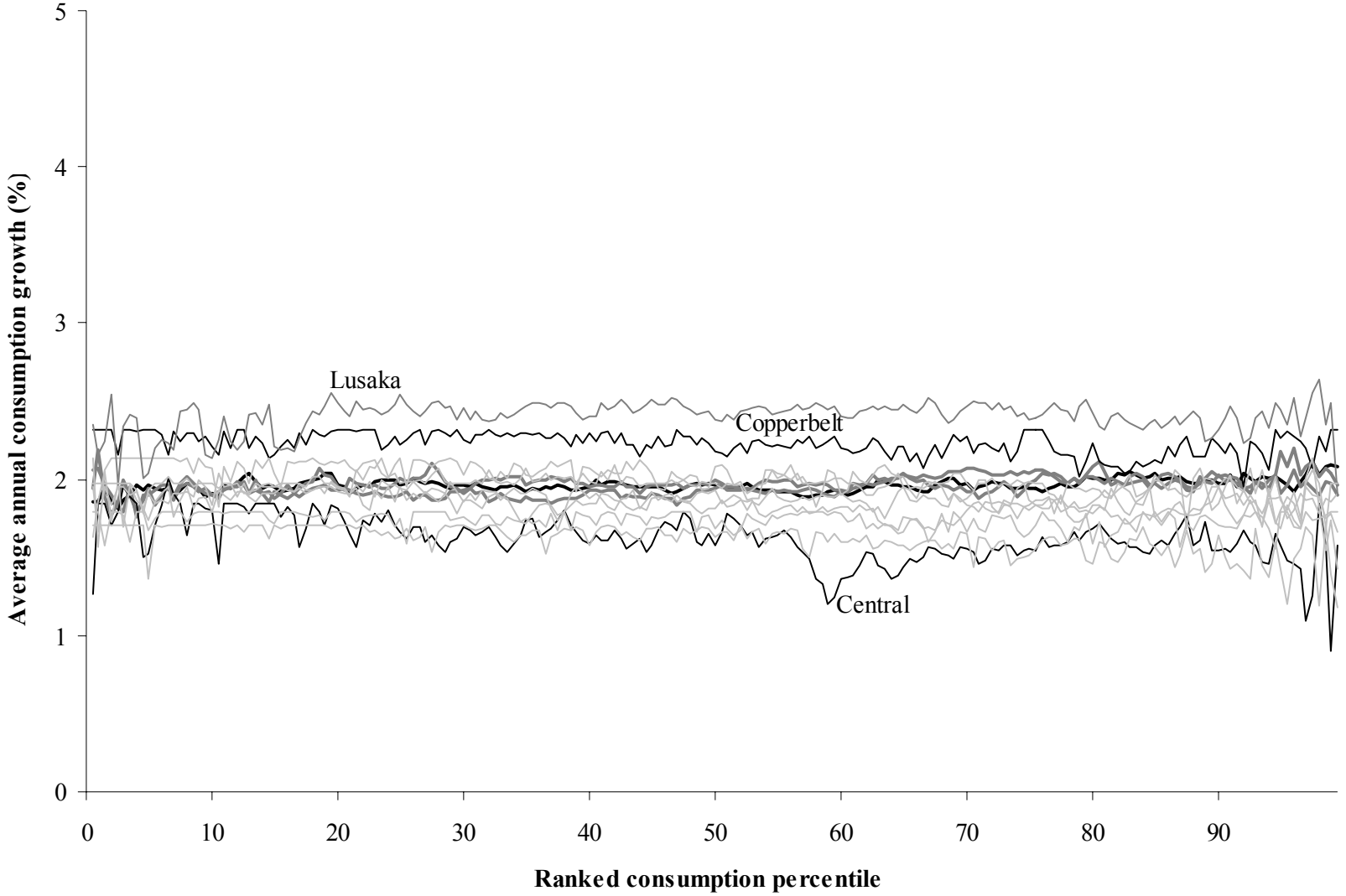
Source: Zambia CGE-micro model results

Figure A.11. National and Provincial Growth Incidence Curves for Agriculture-Led Growth Simulation (2001-2015)



Source: Zambia CGE-micro model results

Figure A.12. National and Provincial Growth Incidence Curves for Non-Agriculture-Led Growth Simulation (2001-2015)



Source: Zambia CGE-micro model results

Table A.11. Growth Decomposition for Simulations

	Contribution to average annual GDP growth rate (%), 2001-2015				
	agriculture-led growth[1]	*staples-led growth*	*staples with market access*	*cash-crop-led growth*	*cash-crops with market access*
GDP at factor cost	5.0	5.0	5.1	5.0	5.6
Physical capital	1.4	1.4	1.5	1.6	1.7
Human capital	0.8	0.8	0.8	0.8	0.8
Total factor productivity	2.8	2.8	2.8	2.7	3.1
GDP at factor cost	5.0	5.0	5.1	5.0	5.6
Agriculture	2.3	2.4	2.7	2.2	3.1
Mining	0.1	0.1	0.1	0.1	0.1
Manufacturing	0.7	0.7	0.7	0.6	0.6
Services	1.9	1.8	1.7	2.2	1.8

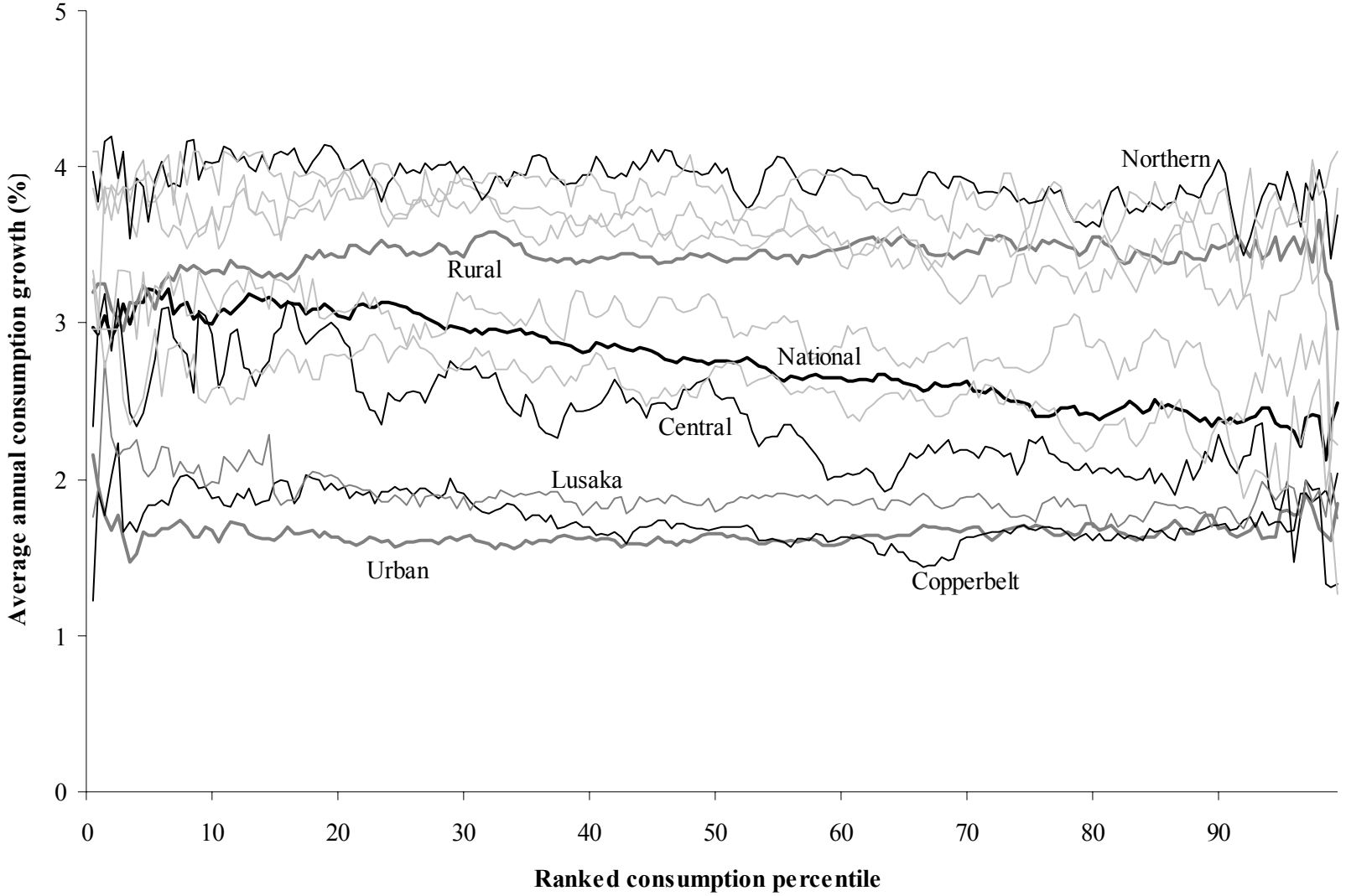
Source: Zambia CGE-micro model results.
[1] *Simulation results from Table 17.*

Table A.12. Poverty Changes for Simulations (Upper Poverty Line)

	Final poverty rate in 2015				
	agriculture-led growth[1]	***staples-led growth***	***staples with market access***	***cash-crop-led growth***	***cash-crops with market access***
Headcount (P0)	59.4	59.5	54.4	62.0	55.8
Rural	68.0	68.1	61.1	72.3	64.2
Small-scale	68.1	68.0	60.4	73.0	64.5
Medium-scale	56.3	59.0	54.5	55.9	45.1
Urban	45.0	45.2	43.3	44.8	41.8
Squared poverty gap (P2)	15.1	15.0	12.5	16.8	13.5
Rural	19.2	19.1	15.4	22.0	17.2
Small-scale	18.7	18.5	14.6	21.9	16.9
Medium-scale	15.5	15.9	12.8	16.1	11.3
Urban	8.2	8.3	7.7	8.2	7.3

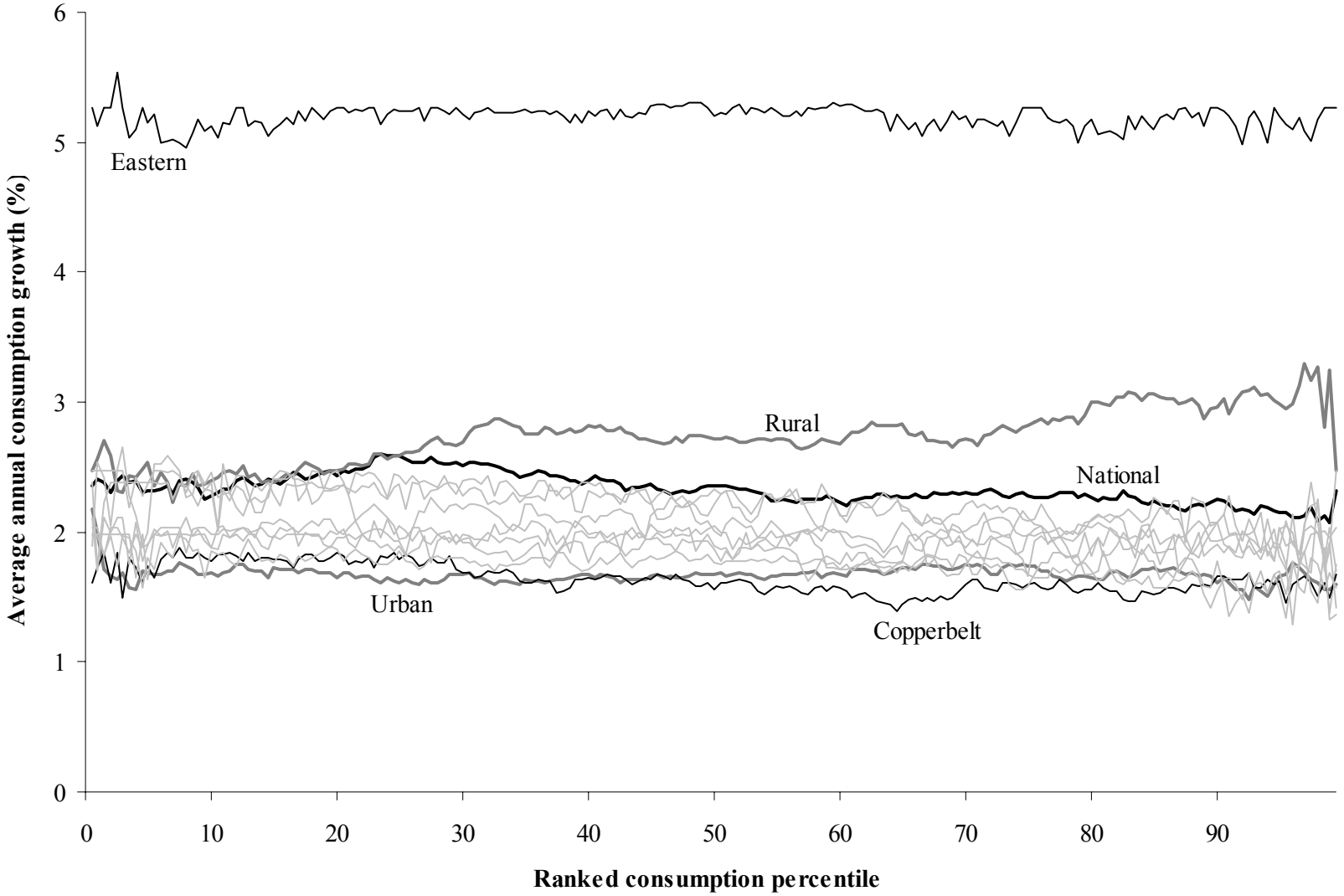
Source: Zambia CGE-micro model results.
[1] *Simulation results from Table 17.*

Figure A.13. National and Provincial Growth Incidence Curves for Staples-Led Growth Simulation (2001-2015)



Source: Zambia CGE-micro model results

Figure A.14. National and Provincial Growth Incidence Curves for Cash-Crop -Led Growth Simulation (2001-2015)



Source: Zambia CGE-micro model results

APPENDIX B. POVERTY ANALYSIS AND HOUSEHOLD SURVEYS

Household Surveys

Three nationally representative household surveys (1991, 1996 and 1998) were used for the poverty and inequality analysis. McCulloch *et al*. (2001) describe the cleaning of the surveys in detail. A brief summary is provided here. The first survey is the 1991 Priority Survey (PS) (CSO, 1993), which was conducted between October and November and included information on household income and cash expenditures for a sample of 9,886 households. The 1991 PS failed to capture information on home produced consumption. Although the 1991 PS is representative at the provincial level (using the 1990 census), it did exclude a number of districts. The second and third surveys were the 1996 and 1998 Living Conditions Monitoring Surveys (LCMS). These surveys covered additional questions regarding migration and access to facilities. The 1996 LCMS sampled 11,752 households, again representative at the provincial level, but covering all districts based on a revised classification. The larger 1998 LCMS effectively sampled 16,800 households between November and December. Stratification in rural areas was based on farm scale and non-agricultural activity, while urban areas was based on housing cost areas (as defined by local government councils).

Expenditure Measure

Household consumption expenditure was the chosen welfare indicator. McCulloch et al. (2001) describe in detail the calculation of the per capita adult equivalent consumption measure used in this study. The measure included household spending on food, education, health, clothing, housing and transport. Amongst other items, the expenditure measure excluded alcohol, entertainment and cigarettes. The 1991 did not account for home produced consumption, but rather imputed a value for each household, which is included in the expenditure measure used in this study. As described in McCulloch *et al*. (2001), the bottom end of the consumption distribution for the 1991 PS shows implausibly low food consumption values. These are excluded from the sample.

Poverty Lines

Upper and lower national poverty lines were computed by McCulloch *et al.* (2001). These were set at K46, 286 and K32,232 per adult equivalent per month in 1998 prices, and correspond to the official basic needs (moderate) and food (extreme) poverty lines. The lower poverty line satisfies nutritional requirements (corresponds to US$0.50 per day). The upper poverty line adds another 30% for basic non-food needs (corresponds to US$0.78 per day). The US$1 per day per capita (PPP) poverty line, which is useful for international comparison, produces extremely high poverty rates (above 90%) and is therefore not useful for our purposes.

Pro-Poor Growth

The growth process is defined as 'pro-poor' if and only if poor people benefit in absolute terms (Ravallion, 2004; Ravallion and Chen, 2003). Based on this *absolute* definition of pro-poor growth, the pro-poor growth rate is the average annual growth rate of real per capita consumption between two periods for each percentile of the population falling below the poverty line. In other words, it is the mean consumption growth rate of the poor, which can be derived from the growth incidence curves.

Growth Incidence Curves

The growth incidence curve indicates the average annual real consumption growth for each percentile of the population ranked according to per capita consumption (Ravallion and Chen, 2003). As already described above, the differences in design and methodology of the 1991, 1996 and 1998 surveys lead to unreliable consumption changes at the very bottom end of the distribution. The annual growth rates for the very poor appear to be implausibly high due to very low food expenditure in 1991, thus making the growth incidence curves steeply downward sloping. Accordingly, a cut-off point (ten percent of the lower poverty line) is arbitrarily adopted for the consumption measure. The growth incidence curves and pro-poor growth rates therefore do not include households that reported total adult equivalent per capita consumption of less than ten percent of the lower poverty line. Poverty and inequality measures shown other than the

pro-poor growth rate and growth incidence curve do not have this cut-off. The number and share of individuals eliminated from the 1991 survey are shown in Table B1. Although not shown, the households eliminated from the 1991 survey broadly match the stratification and distribution of the households eliminated from the 1996 and 1998 households and therefore does not greatly effect the *decomposition* of pro-poor growth across provinces and strata.

Table B1. Household Eliminated from the 1991 Priority Survey

	Number of People		Percentage
	Original	Eliminated	eliminated
National	7,636,990	584,685	7.7
Rural	4,171,814	572,452	13.7
Small-scale	3,667,405	528,679	14.4
Medium-scale	205,948	18,705	9.1
Large-scale	17,598	639	3.6
Non-farm	280,863	24,429	8.7
Urban	3,465,176	12,233	0.4
Low-cost	1,835,440	5,626	0.3
Medium-cost	1,135,274	4,276	0.4
High-cost	494,462	2,331	0.5

Source: Own calculations using Priority Survey (1991) and Living Conditions Monitoring Surveys (1996 and 1998).

APPENDIX C. THE MACRO-MICRO MODEL

The poverty and distributional impact of alternative development strategies is modeled using a extended regional version of the 2001 recursive dynamic computable general equilibrium (CGE) model described in Lofgren *et al*. (2004).[60] This class of model developed from the neoclassical-structuralist modeling originally tradition presented in Dervis, de Melo and Robinson (1982). The results from the economy-wide CGE model are passed down to the micro-level household survey.

CGE Model Specification

In accordance with the Zambian social accounting matrix (SAM), the model distinguishes between 243 productive activities (27 sectors in nine provinces) and the 27 commodities that they produce.[61] While production is generated within provinces, commodities are bought and sold on national markets. The model identifies 48 factors of production: 36 types of labor (male/female, low/high-educated, and by province); land (by province) and three types of capital (agricultural, mining, and other). Producers in the model make decisions in order to maximize profits, with the choice between province-specific factors being governed by a constant elasticity of substitution (CES) function. Once determined, these factors are combined under a fixed-share Leontief specification. Profit maximization implies that the factors receive income where marginal revenue equals marginal cost based on endogenous relative prices.

Substitution possibilities also exist between production for the domestic and the foreign markets. This decision of producers is governed by a constant elasticity of transformation (CET) function which distinguishes between exported and domestic goods, and by doing so, captures any time or quality differences between the two

[60] A detailed description of the workings of the model can be found in Lofgren *et al*. (2001) and Thurlow (2003), while a generic version of the model is presented in Robinson and Thurlow (forthcoming). Although the regionalized SAM has not yet been documented, a national version of the SAM is described in Evans, Robinson and Thurlow (2004).

[61] The actual number of activities in the model differs since certain sectors are not present in all provinces (the actual total in 2001 is 232 activities).

products. Profit maximization drives producers to sell in those markets where they can achieve the highest returns. These returns are based on domestic and export prices (where the latter is determined by the world price times the exchange rate adjusted for any taxes). Under the small-country assumption, Zambia is assumed to face a perfectly elastic world demand at fixed world prices. The final ratio of exports to domestic goods is determined by the endogenous interaction of relative prices for these two commodity types.

Further substitution possibilities exist between imported and domestic goods under a CES Armington specification. Such substitution can take place both in final and intermediates usage. The Armington elasticities vary across sectors, with lower elasticities reflecting greater differences between domestic and imported goods. Again under the small country assumption, South Africa is assumed to face infinitely elastic world supply at fixed world prices. The final ratio of imports to domestic goods is determined by the cost minimizing decision-making of domestic demanders based on the relative prices of imports and domestic goods (both of which include relevant taxes).

The model distinguishes between various 'institutions' within the Zambian economy, including enterprises, the government, and 63 types of households. The household categories are disaggregated across provinces and according to economic stratum.[62] Households and enterprises receive income in payment for producers' use of their factors of production. Both institutions pay direct taxes to government (based on fixed tax rates), save (based on marginal propensities to save), and make transfers to the rest of the world. Enterprises pay their remaining income to households in the form of dividends. Households, unlike enterprises, use their income to consume commodities under a linear expenditure system (LES) of demand.

The government receives income from imposing activity, sales and direct taxes and import tariffs, and then makes transfers to households, enterprises and the rest of the world. The government also purchases commodities in the form of government

[62] Stratum include rural small, medium and large-scale farmers; rural non-farm households; and urban low, medium, and high cost areas (defined according cost-of-living).

consumption expenditure, and the remaining income of government is (dis)saved. All savings from households, enterprises, government and the rest of the world (foreign savings) are collected in a savings pool from which investment is financed.

Macro Adjustment Rules

The model includes three broad macroeconomic accounts: (i) the savings and investment account; (ii) the current account, and (iii) the government balance. In order to bring about balance between the various macro accounts, it is necessary to specify a set of 'macroclosure' rules, which provide a mechanism through which macroeconomic balance can be achieved.

(i) A savings-driven closure was assumed in order to balance the Zambian savings-investment account. Under this closure, real investment quantities are fixed, and the marginal propensities to save of households and enterprises adjust to ensure that the level of investment and savings are equal at equilibrium.[63]

(ii) For the current account it was assumed that a flexible exchange rate adjusts in order to maintain a fixed level of foreign savings. In other words, the external balance is held fixed in foreign currency indicating the government is not able to borrow in order to cover additional expenditure. Finally, the domestic price index was chosen as the numéraire.

(iii) In the government account the level of direct and indirect tax rates, as well as real government consumption expenditure, are held constant. As such the balance on the government budget is assumed to adjust to ensure that public expenditures equal receipts.

On the microeconomic side, firms are assumed always to be on their factor demand curves. In the Zambian model it was assumed that all land and labor is fully employed and hence is paid a flexible real rental rate or wage under the condition of fixed supply. Capital is constrained to be sector-specific and earning flexible activity-specific returns.

[63] There is no explicit specification of the financial sector in the CGE model.

CGE Model Dynamics

In order to account for the full 'dynamic' effect of policy and non-policy changes, the static model described above is extended to a recursive dynamic model in which selected parameters are updated based on the modeling of inter-temporal behavior and results from previous periods. Current economic conditions, such as the availability of capital, are endogenously dependent on past outcomes but remain unaffected by forward-looking expectations. The dynamic model is also exogenously updated to reflect demographic and technological changes that are based on observed or separately calculated projected trends. Most of these time-trends are taken from the World Bank's Zambian Revised Minimum Standards Model (RMSM) as described in detail in Lofgren et al. (2004).

The process of capital accumulation is modeled endogenously, with previous-period investment generating new capital stock for the subsequent period. Although the allocation of new capital across sectors is influenced by each sector's initial share of aggregate capital income, the final sectoral allocation of capital in the current period is dependent on the capital depreciation rate and on sectoral profit-rate differentials from the previous period. Sectors with above-average capital returns receive a larger share of the new capital stock than their current share in capital income. The converse is true for sectors where capital returns are below-average.

Population growth is exogenously imposed on the model based on separately calculated growth projections. It is assumed that a growing population generates a higher level of consumption demand and therefore raises the supernumerary income level of household consumption within the LES demand system. Both labor supply and total factor productivity (TFP) growth are updated exogenously based on AIDS-adjusted estimates (see Lofgren *et al*., 2004). Finally, mining production is assumed to be predominantly driven by a combination of changes in world demand and prices, and other factors external to the model. Accordingly, GDP growth in these sectors and in the world price of exports are updated exogenously between periods based on detailed sector-level projections (World Bank, 2004).

The dynamic model is solved as a series of equilibria each one representing a single year. By imposing the above policy-independent dynamic adjustments, the model produces a projected or counterfactual growth path. Policy changes can then be expressed in terms of changes in relevant exogenous parameters and the model is re-solved for a new series of equilibriums. Differences between the policy-influenced growth path and that of the counterfactual can then be interpreted as the economy-wide impact of the simulated policy.

Poverty Analysis

The poverty and distributional impact of policy changes are modeled inside the same 1998 LCMS household survey that was used to construct the CGE model. Each representative household in the CGE model is linked to its corresponding household within the survey. The use of 'representative' households in the model is identical to the use of sample weights in surveys. Each household is an average representative of a larger number of households within the greater population. Since poverty in this study is defined according to per capita expenditure, changes in household expenditure from the CGE model are passed down to the survey, where poverty and inequality are calculated (see Appendix A).

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