COPPER CRISIS AND AGRICULTURAL RENAISSANCE IN ZAMBIA: AN ECONOMY-WIDE ANALYSIS

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ABSTRACT

Zambia's strong dependence on copper exports has suppressed other tradables sectors, indicative of a Dutch disease phenomenon. The current copper crisis will have strong economic effects, possibly reversing such Dutch disease effects. We use a computable general equilibrium model built around a 1995 social accounting matrix to simulate the short- and long-run effects of two scenarios that reflect the current crisis, a 20 percent reduction in world copper prices and a complete collapse of copper mining. Compared to the short run, the long run is characterized by more flexibility in production technology and capital allocation. Both scenarios require a significant reduction in the "non-copper" trade deficit, absorption, and household consumption. The strongest effects occur under the short-run mining-collapse scenario where household consumption falls by 13 percent and the real exchange rate depreciates by 42 percent. In the long run, these effects are approximately half as strong. The short- and long-run impacts of a 20 percent fall in world copper prices include a cut in household consumption by 4-5 percent and real depreciation by 7-10 percent. For all scenarios, the welfare losses for rural households are below the national average. Given that per-capita consumption is lower in rural areas, inequality falls. This distributional outcome is driven by the fact that the agro-food-fiber complex, which produces outputs that are relatively tradable, expands relative to the rest of the economy in terms of value-added, employment, and exports, suggesting that the copper crisis may induce an agricultural renaissance.

INTRODUCTION

Zambia depends heavily on the mining sector, which is dominated by copper and its by-products, for its foreign exchange earnings – in 1995, mining accounted for close to 80 percent of total export earnings. Accordingly, substantial drops in world prices and a (threatened) closure of a large part of the copper mines would have serious economic consequences. This paper uses a computable general equilibrium (CGE) model built around a 1995 social accounting matrix (SAM) of Zambia to explore the short- and long-run effects of alternative scenarios for copper production and exports. Section 2 provides a brief description of the Zambian economy. Section 3 describes the CGE model and its database. Section 4 describes the simulations, and Sections 5 and 6 present the results. The final section concludes.[1]

BACKGROUND

The structure of Zambia's economy is described in a 1995 SAM (Hausner, 1999). According to this database, metal mining is the second largest sector (after trade and transportation services), accounting for over 17 percent of value-added and 12 percent of total production. Given its relatively high capital intensity (capital, including natural resources captures 86 percent of value-added), mining accounts for a smaller portion, some 5 percent, of total employment.

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[1] For more detail and sensitivity analysis, see Lofgren et al. (2002). For more information on Zambia's copper sector, see World Bank (2002).

Mining generates over 78 percent of total export earnings, with 97 percent of domestic mining output being sent abroad. Among the other sectors in the economy, those with significant export-intensities include tourism, tobacco, coffee, and energy.

A majority of unskilled and primary-skilled labor is employed in the agro-food-fiber complex (consisting of all of agriculture; food, beverages and tobacco; textiles and garments; and wood, furniture and paper). Conversely most secondary- and post-secondary, skilled labor incomes are generated in the services sectors. Although most of the country's capital incomes arise in services, the mining sector is the largest individual sector in terms of capital income.

Since copper accounts for most of the Zambian metal mining sector, the fall in world prices by almost 50 percent since the 1995 peak has placed significant strain on the economy. Furthermore, copper mining in Zambia has recently been jeopardized by a threatened withdrawal of investment by a large international mining company, which might well result in the closing of the copper mines. Against this background, Zambia's reliance on the mining sector raises questions about the future of the economy and the need to foster production and exports in other sectors.

MODEL STRUCTURE

In our CGE model (and the underlying database) production is disaggregated into 28 activities, producing 27 commodities.[2] Individual activities may produce more than a single commodity and conversely, a single commodity may be produced by more than one activity. The factors of production are disaggregated into eight types: four types of labor (by amount of formal education, into workers with no, primary, secondary, and post-secondary education), three types of capital (agricultural, mining resources and other capital) and agricultural land. Producers make profit-maximizing decisions. Production technology is represented by a constant elasticity of substitution (CES) production function in primary factors. These factors are combined with fixed-share intermediates using a Leontief specification. Profit maximization implies that factors receive income where marginal revenue equals marginal cost based on endogenous relative prices.

Substitution possibilities exist between production for the domestic and the foreign markets. Producers' decisions are governed by a constant elasticity of transformation (CET) function, which distinguishes between exported and domestic goods, and captures differences between the products sold in the two markets. 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, world demand is perfectly elastic at a fixed world price. The ratio of exports to domestic goods is determined by the endogenous interaction of relative prices.

Further substitution possibilities exist between imported and domestic goods under a CES Armington specification (both in final and intermediates usage). Again under the small-country assumption, world supply is infinitely elastic at fixed world prices. The 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 accounts for transactions costs in domestic trade, exports, and imports – every traded commodity unit, requires a fixed quantity of a transactions services. As a result, the prices received by suppliers (border prices for imports) fall short of those paid by demanders (the border prices for exports).

The model contains four representative households, two types of enterprises, and the government. The household categories are low- and high-income metropolitan households, other urban households, and rural households. The two enterprises distinguish mining from non-mining firms. 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) and save. Enterprises pay their remaining income (dividends) to households and the rest of the world in fixed shares.

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[2] A detailed description of the model can be found in Lofgren et al. (2001). This class of models has developed from the neoclassical modeling tradition presented in Dervis, de Melo and Robinson (1982).

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 consumes commodities, and the remaining income of government is allocated to (dis)savings.

The model includes three broad macroeconomic accounts: the government balance, the current account (for payments to and from the rest of the world), and the savings-investment account. In order to bring about balance, a 'closure' rule is specified for each account. For the government, savings is the flexible, balancing item. For the current account, a flexible exchange rate adjusts to maintain a fixed level of foreign savings (defined in foreign currency). The fact that foreign savings is fixed signals that recourse to foreign borrowing is not permitted in response to the copper-related shocks. All savings (government, non-government, and foreign) are collected in one pool from which investment is financed. The base-year marginal propensities to save of non-government institutions are adjusted in order to generate savings equal to the cost of the investment bundle. The nominal absorption shares for investment, government consumption, and household consumptions are fixed. Accordingly, the overall macro closure is "balanced" in the sense that changes in absorption are spread across the three components of absorption. Finally, the CPI is the numéraire.

In land and labor markets, flexible wages assure that the sum of activity demanded equal a fixed employment level. The only exception is unskilled labor, for which the real wage is fixed under the condition of a perfectly elastic labor supply. This treatment aims at capturing the presence of considerable unemployment for this labor type. The treatment of capital markets is discussed below.

DESCRIPTION OF THE SIMULATIONS

In order to assess the impact of changes in the world copper price and the possible closing down of mining production, we defined two scenarios: (i) a 20 percent reduction in the world price of copper; and (ii) a 75 percent reduction in the capital stock of the mining sector (corresponding to a complete collapse of Zambian copper mining). Each scenario is simulated under short- and long-run assumptions, differing in the ease with which production techniques can be changed and capital can move between sectors. Factor substitution elasticities are higher in the long run than in the short run, reflecting that, over time, the adjustment in production techniques in response to a given change in relative factor prices is likely to be more substantial. In the short run, capital is immobile: for each activity, the stock is fixed. In the long run, this assumption is retained only for tobacco, energy, tourism, and, in part, for mining. For the tourism, energy, and tobacco sectors the fixity assumption captures the fact that these activities lack the infrastructure needed to greatly increase their output. For mining, resource capital is specific to the sector (cannot be reallocated to other sectors). In the long run, the rest of the capital stock – non-resource capital in mining (6.3 percent of Zambia's total capital stock; 20 percent of the capital stock in mining) and the total capital stock in other sectors are freely mobile across activities. For all sectors with fixed capital stocks, some changes in production can still be brought about through substitution between capital and other factors.

SCENARIO 1: A 20 PERCENT DROP IN WORLD COPPER PRICES

The first simulation assesses the impact of a 20 percent fall in the price (in foreign currency) received by Zambia for its copper exports. The results are presented in Tables 1 and 2.

In the short run, the decrease in the world price of copper reduces export earnings in the mining sector, putting pressure on the trade balance. Depreciation of the real exchange rate, providing incentives to substitute for imports and increase exports, is needed to reduce the "non-mining" trade deficit. At the new equilibrium, the real exchange rate has depreciated by 10 percent, while total exports have risen by 4.1 percent and total imports fallen by 5.6 percent. Absorption falls by 4.2 percent, in nominal terms spread evenly across the three components of absorption. The impact of the fall in world copper prices on value-added and trade in specific sectors is shown in Table 2. Given that capital is sector-specific, adjustments tend to be stronger in sectors that are less capital-intensive. In terms of real value-added, the largest relative increases are recorded for coffee, cotton, capital goods, tourism, and tobacco. Overall, the agro-food-fiber sectors expand slightly while the rest of the economy contracts. In foreign trade, the sectors that increase foreign-currency export earnings the most include: food, beverages and tobacco (by 10.9 billion Kwacha); textiles and garments (6.6 billion Kwacha); and other manufacturers (4.7 billion Kwacha). While the above sectors increased exports by the largest absolute amount, this growth is from larger initial export shares.

Table 1. Short- and Long-Run Results from Shocks to Zambia's Copper Sector.

	Base Year Value (1995 bil. KwZ)	Drop in World Prices		Fall in Mining Capital Stock	
		Short-run Scenario	Long-run Scenario	Short-run Scenario	Long-run Scenario
Real Macro Indicators (1995 bil. KwZ)		**Percentage Change from Base**			
Absorption	3144	-4.2	-3.8	-11.7	-7.6
Exports	1082	4.1	3.6	-33.9	-27.4
Imports	1228	-5.6	-4.9	-21.7	-15.1
Real GDP (market prices)	2998	-0.7	-0.6	-15.6	-11.6
Real Household Consumption (1995 bil. KwZ)		**Percentage Change from Base**			
Metropolitan high income	298.3	-7	-6.4	-19.8	-13.7
Metropolitan low income	605.6	-4.9	-3.5	-20.1	-8.3
Other urban	88.1	-4.3	-4.8	-11.4	-9.2
Rural	755.2	-3.4	-2.9	-5.8	-4.1
Total	1747.2	-4.6	-3.8	-13.4	-7.5
Real Exchange Rate Index		**Percentage Change from Base**			
LCU per FCU	1.0	10.0	7.4	42.1	25.3
Factor Income Distribution (%)		**Deviation from Base**			
Unskilled labor	6.5	0.5	0.3	1.6	0.6
Primary labor	25.1	0.8	1.0	2.7	2.2
Secondary labor	15.9	-0.5	0.5	-7.2	-0.5
Post secondary labor	3.4	-0.1	0.1	-1.5	-0.1
Agricultural capital	4.2	0.1	0.2	1.7	0.9
Mining resource capital	11.9	-2.5	-4.0	-2.2	-5.8
Other capital	31.4	1.5	1.8	3.0	2.1
Land	1.7	0.3	0.1	1.9	0.7
Total	100.0				

Source: Base year values from the 1995 SAM (Hausner, 1999).

Other sectors with smaller initial shares but with more significant export growth include: livestock products (by 0.7 billion Kwacha); wood and wood products (1 billion Kwacha); other crops (1.5 billion Kwacha); and horticultural crops (1.9 billion Kwacha). Overall, export growth is stronger for the agro-food-fiber sectors than for the rest of the economy. On the import side, the sectors with the largest declines in imports include: capital goods (by 22.8 billion Kwacha); financial services (8.2 billion Kwacha); and food, beverages and tobacco (7.5 billion Kwacha). As with exports, the ranking of absolute import changes hides the greater relative movement amongst other products. These more responsive commodities largely include the horticultural crop and agro-related products.

Given the higher degree of capital mobility and more flexibility in technique choice, the results for the long-run simulations, presented in Tables 1 and 3, are indicative of structural changes in the economy in response to the two shocks. The impact of the fall in world copper prices is lessened in the long run as the economy is able to adjust production and trade more easily, reducing the depreciation that is needed to restore the external balance.

Sectors that are capital-intensive and responsive to improved incentives for exports or import substitution tend to grow by a larger amount in the long-run since they are now able to acquire more easily the capital necessary to increase production. Growth in real value-added is strongest for the same five sectors as in the short run, although the ranking is different. Export and import changes are more evenly spread out across the sectors. Also in the long run, agro-food-fiber growth in value-added and exports is stronger than the economy-wide average. Given the greater long-run flexibility of the economy, the world price shock is more easily absorbed, as indicated by smaller long-run real changes in absorption, household consumption, exports, and imports.

Real household consumption declines following the fall in world copper prices both in the short and long run. As shown in Table 1, for both simulations, the losses for rural households (whose per-capita incomes are less than half of the urban average) are smaller than for urban households.[3] Among the urban households, the largest losses are recorded for group with the highest incomes, the metropolitan high-income group. Accordingly, the simulated distributional changes are progressive. This outcome depends on initial household factor endowments and the changes in different types of factor incomes following the world price shock. Poorer households derive a large portion of their income from unskilled and primary-skilled labor, whose returns increase in both the short- and long-run scenarios as a result of the shift in production towards agriculture. Furthermore, increased production in the agricultural sector increases demand for and returns to land (whose income is earned by rural households). By contrast, high-income metropolitan households earn a substantial portion of their income from mining-resource capital, whose returns decline following the world price shock. This fall in mining capital returns increases in the long-run scenario but is offset by rising returns to higher skilled labor resulting from the additional growth in the non-agricultural non-mining sectors. Therefore, while factor returns change between the short- and long-run scenarios, the progressive nature of the world price shock is evident in both scenarios.

SCENARIO 2: A 75 PERCENT DECLINE IN MINING SECTOR CAPITAL

This scenario imposes a 75 percent reduction in the capital stock of metal mining. Given that copper accounts for around 75 percent of total metal mining and the sector is highly capital-intensive (capital accounts for 86 percent of value added), this approximates a complete shutdown of the copper sector. It constitutes a severe shock for Zambia's economy as it involves the withdrawal of a large part (19 percent) of the total capital stock and a severe contraction in the sector that dominates exports.

Tables 1 and 3 present the short- and long-run results. In the short run, a real exchange rate depreciation of 42.1 percent is needed to induce the export increases and import substitution that is needed to make up for the loss of copper exports. At the new equilibrium, exports have declined by 34 percent and imports by 22 percent while real GPD at market prices has fallen by 16 percent (because of the fall in the economy-wide capital stock). The resulting declines in real absorption and household consumption are by 12 percent and 13 percent, respectively.

At a more disaggregated level, real value-added grows by 6 percent for the agro-food-fiber sectors, while it declines by 21 percent for the rest of the economy (including mining). Among exports, increases by more than 100 percent are recorded for many non-mining sectors. Starting from a small share of total exports (6 percent), aggregate agro-food-fiber exports increase by 241 percent while exports in the rest of the economy decline by 53 percent (in spite of strong growth outside of mining). The sectors that perform the best in terms of absolute increases in export earnings are: food, beverages and tobacco (65.9 billion Kwacha); other manufactures (25.8 billion Kwacha); and textiles and garments (23.5 billion Kwacha). While these sectors out-performed others in generating the necessary export revenue, they were doing so from initially higher export shares. While from a lower base, the sectors with the highest growth rates were largely those from the agricultural and related sectors (including food, beverages and tobacco, livestock, horticultural crops and other crops). However this general shift to the agricultural and related sectors is less pronounced than under the short-run simulation of a drop in world copper prices. The impact of these shocks are more severe in the short run, when there is less scope for the economy to adjust production techniques and reallocate capital between sectors. The absorption declines.

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[3] In 1995, average per-capita incomes in rural and urban areas were around 138,000 and 281,000 Kwachas, respectively.

In the long run, the higher degree of economic flexibility greatly reduces the required depreciation of the real exchange rate, to 25 percent, and enables export-oriented sectors to assume a larger share of the adjustment burden: the declines in total exports and imports are both smaller than in the short run, reducing the declines in absorption and household consumption to around 7-8 percent.

Compared to the short run, the long-run real value-added growth rates are more positive for the agro-food-fiber complex and less negative for the other sectors. The sectors with the best long-run performance in terms of changes in export earnings are: textiles and garments (67.7 billion Kwacha); capital goods (59 billion Kwacha); and food, beverages and tobacco (34.3 billion Kwacha). Of these, the sectors with the highest export growth rates are: fertilizers, pesticides and basic chemicals; capital goods; and textiles and garments.

Also under the simulations for this scenario, both short- and long-run, the rural households are cushioned by their land and agricultural capital endowments. The high-income metropolitan households lose from declines in capital incomes generated within the mining sector. One contrast between the short- and long-run results is that the incomes of high-skilled labor decline by much less in the long run when capital stocks can move and production techniques are more flexible. This is particularly beneficial for the two metropolitan households. For rural households, the relative improvement in consumption in the long-run scenario is less pronounced than for other households since the distribution shifts in favor of non-rural factors.

CONCLUSION

Zambia's dependence on export revenues from its mining sector has had a strong impact of the sectoral distribution of production, incomes, and employment. The current crisis in copper mining, which dominates the sector, has strong short- and long-run repercussions. In this paper, we explore the impact of two scenarios, a 20 percent decline in mining export prices and the more substantial shock of a 75 percent decline in mining production. For both scenarios, the need for structural change is driven by the need to make up for lost export revenues (signaled by real exchange rate appreciation), restoring the current account to the initial balance.

A major feature of the simulated changes in economic structure is an increased role for Zambia's agriculture and related processing sectors in terms of its shares in value-added, exports, and employment, suggesting that the copper crisis may lead to an agricultural renaissance. This reflects that growth in the agro-food-fiber complex, along with other sectors with relatively tradable outputs, has been kept in check by the Dutch disease effects of high earnings from copper exports. This structural change has a progressive impact on income distribution as it raises the income shares of land, agricultural capital and unskilled labor, factors that play an important role in the incomes of rural and low-income urban households.

REFERENCES

Dervis, K., de Melo, J. and Robinson, S. (1982) *General Equilibrium Models for Development Policy*. New York: Cambridge University Press.

Hausner, U. (1999) "A Social Accounting Matrix for Zambia" Discussion paper no. 49, Trade and Macroeconomics Division, International Food Policy Research Institute.

Lofgren, H., Harris, R.L. and Robinson, S. (2001) 'A Standard Computable General Equilibrium (CGE) Model in GAMS'. Discussion Paper no. 75, Trade and Macroeconomics Division, International Food Policy Research Institute.

Lofgren, Hans, Sherman Robinson, and James Thurlow (2002) "Macro and Micro Effects of Recent and Potential Shocks to Copper Mining in Zambia," Discussion Paper No. 99, Trade and Macroeconomics Division, International Food Policy Research Institute.

World Bank (2002) *Zambia: Looking Beyond Copper*. Final Report of the World Bank Task Force on the Zambia Copper Crisis, Washington, D.C.

Table 2. Changes in Quantities Imported and Exported Following a 20 Percent Drop in World Copper Prices.

| | Base Year Share of Total | | | Percentage Change from Base Year Value | | | | | |
| | | | | Short-run | | | Long-run | | |
	Value Added	Imports	Exports	Value Added	Imports	Exports	Value Added	Imports	Exports
Maize	4.3	2.5	0.8	1.2	-12.8	33.1	1.2	-12.7	31.3
Drought-tolerant staples	1.0	0.0	0.0	-1.3	-18.8	30.3	-2.0	-18.8	24.2
Groundnuts	0.4	0.0	0.0	-0.1	-20.5	33.4	-0.9	-18.7	25.6
Sugar	0.3			-1.4			-2.1		
Cotton	0.5	0.8	0.2	4.7	-1.4	17.3	12.7	-6.9	40.0
Tobacco	0.3	0.1	0.5	2.8	-1.9	10.4	11.7	-11.6	33.0
Coffee	0.3	0.0	0.3	8.4	-28.6	30.6	12.3	-35.7	43.5
Wheat	0.6	0.5	0.0	2.0	-10.4	22.9	2.4	-13.9	28.6
Horticulture crops	5.1	0.3	0.5	0.0	-29.0	46.0	-0.6	-21.9	29.9
Other crops	3.3	0.4	0.3	1.6	-29.0	51.8	0.5	-21.7	33.3
Livestock products	1.8	0.1	0.2	-0.5	-31.3	63.7	-1.7	-20.3	32.7
Fisheries	0.9	0.0	0.0	-1.8	-20.3	28.1	-2.3	-14.1	15.8
Forestry	3.9	0.0	0.0	-0.8	-31.3	51.4	-1.3	-20.8	28.6
Metal mining	17.3	1.2	78.4	-0.7	-25.0	-1.0	-2.3	-20.6	-2.7
Food-beverages-tobacco	6.2	4.1	1.9	-1.4	-13.9	71.0	-2.1	-10.5	41.9
Textiles-garments	1.2	2.3	2.3	1.9	-4.2	39.7	4.3	-3.8	49.8
Wood-furniture-paper	2.2	5.9	0.2	0.7	-3.6	54.5	1.2	-2.9	49.0
Basic chemicals-fertilizers	0.4	4.9	0.1	2.5	0.4	14.2	9.4	0.7	69.3
Other manufactures	1.3	20.2	2.9	0.6	-2.9	20.2	4.8	-3.1	45.6
Energy	4.7	0.0	5.2	0.3	-0.6	2.2	0.6	1.0	-0.4
Capital goods	1.4	35.7	1.2	3.5	-6.2	37.5	8.8	-5.6	62.1
Construction	1.7			-4.0			-3.9		
Trade-transportation services	20.6	7.1		-0.4	-5.6		-0.1	-3.7	
Tourism	1.1		2.9	3.7		5.0	13.2		15.5
Other market services	3.7			-0.9			-1.5		
Financial services	8.2	13.8	2.1	0.6	-4.3	9.5	0.8	-3.8	9.1
Public services	7.3			-1.1			-2.7		
Agro-food-fiber sectors	32.3	17.1	7.2	0.2	-8.9	46.5	0.0	-7.8	41.4
Other sectors	67.7	82.9	92.8	-0.3	-4.9	0.8	-0.4	-4.4	0.7
Total (Percentage)	100.0	100.0	100.0	-0.1	-5.6	4.1	-0.3	-4.9	3.6
Total (Billions of Zambian Kwacha)	2639.2	1228.1	1082.5	2635.5	1159.6	1126.8	2631.8	1167.3	1121.5

Source: Base year values from the 1995 SAM (Hausner, 1999).

Table 3. Changes in Quantities Imported and Exported Following a 75 Percent Drop in Mining Sector Capital Stock.

| | Base Year Share of Total | | | Percentage Change from Base Year Value | | | | | |
| | | | | Short-run | | | Long-run | | |
	Value Added	Imports	Exports	Value Added	Imports	Exports	Value Added	Imports	Exports
Maize	4.3	2.5	0.8	6.5	-31.6	135.9	6.9	-30.6	121.0
Drought-tolerant staples	1.0	0.0	0.0	3.1	-34.4	101.5	1.4	-34.4	81.8
Groundnuts	0.4	0.0	0.0	6.9	-37.3	114.5	4.8	-37.3	94.3
Sugar	0.3			1.2			0.4		
Cotton	0.5	0.8	0.2	13.6	4.2	51.1	92.7	11.9	245.5
Tobacco	0.3	0.1	0.5	7.2	15.1	19.1	46.6	-20.5	116.0
Coffee	0.3	0.0	0.3	22.6	-35.7	67.4	73.8	-64.3	210.0
Wheat	0.6	0.5	0.0	7.8	-8.6	48.6	12.2	-25.8	88.6
Horticulture crops	5.1	0.3	0.5	5.2	-69.4	269.7	1.6	-50.6	121.8
Other crops	3.3	0.4	0.3	15.5	-71.0	353.9	5.8	-51.0	143.6
Livestock products	1.8	0.1	0.2	11.0	-75.5	579.5	1.1	-49.5	159.3
Fisheries	0.9	0.0	0.0	0.2	-50.0	136.8	-0.4	-32.8	68.4
Forestry	3.9	0.0	0.0	-3.2	-77.1	282.9	-4.7	-50.0	77.1
Metal mining	17.3	1.2	78.4	-72.9	6.8	-75.2	-74.3	25.6	-76.6
Food-beverages-tobacco	6.2	4.1	1.9	3.3	-37.8	429.5	1.4	-26.2	223.4
Textiles-garments	1.2	2.3	2.3	8.4	-11.8	142.5	55.0	-6.0	409.7
Wood-furniture-paper	2.2	5.9	0.2	4.3	-13.3	322.8	11.0	-6.4	309.6
Basic chemicals-fertilizers	0.4	4.9	0.1	8.1	-4.9	87.0	80.6	-1.2	720.1
Other manufactures	1.3	20.2	2.9	1.7	-17.9	110.0	8.1	-14.2	128.5
Energy	4.7	0.0	5.2	1.2	-10.9	23.4	1.7	2.0	1.1
Capital goods	1.4	35.7	1.2	13.4	-25.3	170.9	87.9	-18.9	617.4
Construction	1.7			-11.8			-9.8		
Trade-transportation services	20.6	7.1		-10.8	-31.0		-4.9	-16.0	
Tourism	1.1		2.9	10.0		13.5	42.0		48.7
Other market services	3.7			-3.6			-5.3		
Financial services	8.2	13.8	2.1	1.9	-19.4	48.6	3.2	-12.9	36.5
Public services	7.3			1.7			-4.0		
Agro-food-fiber sectors	32.3	17.1	7.2	5.6	-23.3	238.5	7.1	-16.7	254.5
Other sectors	67.7	82.9	92.8	-21.4	-21.3	-54.9	-17.8	-14.8	-49.1
Total (Percentage)	100.0	100.0	100.0	-12.7	-21.7	-33.9	-9.7	-15.1	-27.4
Total (Billions of Zambian Kwacha)	2639.2	1228.1	1082.5	2304.7	962.0	715.7	2381.9	1042.2	785.9

Source: Base year values from the 1995 SAM (Hausner, 1999).