The Trend and Financing of Investment at the Macro level in Uganda: The implications for sustainable growth[1]

[1] This research is collaborative effort between the Economic Policy Research Centre, Uganda Bureau of Statistics, Bank of Uganda and the World Bank.

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I. Introduction

1.The Ugandan economy recorded remarkable growth rates over the period 1986/87 to 2004/05. However, more recent macro level data presents mixed results regarding the performance of the economy. For example while total factor productivity grew by 1.6 percent on average during 1992 to 1996, the growth rate of total factor productivity declined to an average of –0.4 percent during the period 1997 to 2004. In addition, over the period 1996 to 2004, Uganda's average incremental capital output ratio (ICOR) was recorded at an average of 2.2 compared to an average of 1.8 realised over the period 1992 to 1996. These movements in the ICOR reveal a decline in investment performance and confirm the observed decline in total factor productivity growth over the period 1996 to 2004. The performance of private investment also stagnated during the last 10 years. In constant 1997/98 prices, private investment stagnated at an average of about 12 percent of GDP over the period 1992/93 to 2004/05. The average annual rate of growth of private investment fell from 17.7 percent in 1992/93-1996/97 to 8.4 percent over the period 1997/98-2004/05. Much of the growth in investment in the earlier period was related to the rehabilitation of the capital asset base and also as a response to prudent macroeconomic policies. For example, the prudent macroeconomic policies resulted in an average real GDP growth rate of 6.3 percent per annum over the period 1994/95 to 2004/05. Among the key factors underpinning domestic as well as external sector performance was the freeing of the current and capital accounts in the 1990's as well as the liberalization of trade. The removal of foreign exchange controls and pursuance of prudent fiscal and monetary policies also promoted economic performance. In addition, the developments of the infrastructure especially transport and communication sectors, greatly improved the investment climate. High growth in transport and communication sectors was driven by the privatisation of public corporations, which contributed, to the inflow of foreign capital into these sectors.

2. A number of issues still need to be rectified in order to eliminate remaining barriers to private sector growth and increase the efficiency of investment. The key remaining areas for reform include among others, infrastructure provision, strengthening the financial sector and improving access to credit, enhancing the commercial justice sector, promotion of exports, and improving the business environment for micro and small enterprises. Furthermore, a number of institutional reforms to promote business growth still need to be effected and these include effective rationalisation of investment and trade promotional bodies, namely, UIA, Uganda Export Promotion Board and the Uganda Tourism Board. Effective rationalisation of these bodies will cut red tape and promote value for money. In addition, a number of measures are still required to reduce the regulatory and administrative burdens on business. Among others, reform of business licensing system at both central and local government levels and improvement in the tax appeals process are important as the country moves forward.

3. Even at the aggregate level investment expansion has tended to slow down since 1997/98, with the result that in constant price terms, investment as a share of GDP at market prices which had reached a record level of 17.2 percent in 1992/93-1996/97 driven mainly by the private sector fell to 15.9 percent. This fall in the share

of private investment suggests that the number of new licensed projects must increase substantially to sustain strong growth in the future. The country's capital stock must expand because an increase in capital stock coupled with improvements in the efficiency with which capital stock is utilized is what will provide the foundation for sustainable growth in real activity and employment in the future. While private agents in Uganda have accessed foreign savings through either borrowing (debt) or greater foreign ownership of local enterprises (equity) in the past, there is growing concern that though net private transfers increased, the productive capital stock did not increase significantly the long run growth of the economy, could have been obscured by the property boom.

4. The construction boom in Uganda seems to be amplified by the confidence expressed in the sustained economic growth that the country witnessed. Indeed, the evolution of gross construction output over the last eleven years shows that total construction grew by 8.3 percent on average. The construction of commercial buildings expanded by 12.7 percent per annum and of that residential buildings by 4.9 percent. In terms of composition, the share of commercial buildings increased from 36 percent at the beginning of the period to 52 percent in 2004/05.

5. The has been pressure for construction prices to rise. By 2004/05 public construction prices had risen by 78 percent above the levels recorded in 1997/98. The rising costs of public construction were also followed by an increase of 48 percent in the private construction prices over the same period. The general tendency of construction prices to increase appears to be driven by the rapid increase in demand for construction inputs that followed improved political and investment climate after 1986. Indeed the Ugandan construction boom has come on the back of high growth rate of the economy and relatively high rental prices. There are also a number of qualitative influences that could have impacted on the housing and property market in Uganda. These qualitative influences include institutional changes, foreign exchange market liberalization and demographic factors that boosted the demand for residential and commercial buildings. Indeed the influx of new participants in the market for housing is a key factor in explaining the asset boom.

6. Data on imports of plant machinery and vehicles over the period 1997/98 to 2003/04 shows that these imports increased on average by 10.8 percent per year with the private imports growing by an average of 8.4 percent compared to public imports that expanded by 19.6 percent per year on average over the same period. The categories of imports that recorded remarkable growth rates were transport equipment, metal working machinery, power generating equipment and telecommunications machinery. All these high growth categories of imports increased by more that 29.0 percent per annum over the period 1997/98 to 2003/04. In spite of these fairly impressive growth rates, the low share of equipment in investment suggests that imports of plant and machinery will need to be expanded further to drive the growth process.

7. It is difficult to solely ascribe the recent slow down in the performance of business investment to the increased volatility in the macroeconomic environment. Given these developments, it is indeed important for policy makers to appreciate what lies behind the trends in investment both at the macro and micro levels. While this review

concentrates on the macro level trends, the second part of the study attempts to understand the determinants and constraints on firm's decisions to invest at the micro level. Preliminary evidence indicates that the slack in public sector investment could have affected investment in productive capacity by private firms. Public investment as a share of GDP in constant 1997/98 prices fell from 5.6 percent in 1992/93-1996/97 to 4.1 percent on average over the period 1997/98-2004/05. Policies to increase public investment in utilities are important given that a substantial share of firm costs are attributable to poorly functioning public sector, which is beyond the control of firms. Private supply responses to macroeconomic policy reform are likely to remain limited without an accompanying improvement in the public sector's investment performance. Indeed some element of Uganda's high transactions costs result from being landlocked, and from poor road and rail transport in Kenya as well as inefficiencies and delays at Mombassa port. Thus according to Reinikka and Svensson (2002) while stabilization and structural adjustment in Uganda were necessary conditions for sustainable improvement in the private sector, they were not sufficient to achieve sustained growth through capital accumulation.

8. Evidence from aggregate data shows that gross fixed capital formation was dominated by increases in private commercial and residential buildings. In constant price terms, the growth in construction tended to exceed the expansion in equipment investment since 1986/87. The increase in private transfers in the balance of payments in the last decade could partly have financed the construction boom. Since 1986/87 the construction component of investment grew by 11.5 percent per annum compared to an average growth rate of 10.2 percent per annum recorded for total fixed capital formation, an indication that property boom may not be increasing the capital stock in a sustainable fashion to ensure long-term expansion of the real economy. Given these developments, it is important for policy makers go beyond the aggregate analysis to unravel the key drivers of firm level investment decisions. An understanding of these issues will be important for informing policy.

1.3. Structure of the study

9. The remainder of the paper is structured as follows; Section 2 presents an overview of the macroeconomic developments, highlights the role of domestic savings and their impact on aggregate investment performance. It investigates the evolution of key macroeconomic aggregates and the trends in equipment and structures investment. Section 3 provides the sources of financing investment in Uganda. Section 4 avails the estimates of the determinants of total factor productivity in Uganda. The final section provides the preliminaries concluding remarks and implications for policy.

2.0. Macroeconomic environment and aggregate investment

2.1. Macroeconomic developments

10. Since the National Resistance Movement assumed control of the government in 1986, the Ugandan economy has undergone a commendable, post-conflict recovery.[2] Annual real GDP growth averaged 6.1 percent between 1986/87 and 2001/02, with growth recording 7.3 percent a year for the boom period 1992/93–1996/97. Largely as a result of this strong economic growth, the incidence of poverty in Uganda reduced from 56 percent of the population in 1992, to 44 percent in 1997 and 38 percent in 2003.

11. There are three distinct phases in the economic recovery process. Initially during 1986/87 to 1991/92, the steady improvement in security in most areas of the country provided the momentum for increased work effort and utilisation of agricultural land for production. However, investment remained low, although it had picked up substantially from the period of civil strife. The second phase of the recovery (1992/93–1996/97) was marked by strong macroeconomic stabilization and the liberalization of key sectors of the economy. The sectors that experienced liberalisation were the foreign exchange market, coffee sector, and banking sector. Following a boom in world coffee prices, earnings for Uganda's principal export product increased remarkably. The return of many members of the exiled Asian community and other, mostly educated Ugandans, who had fled the country during the Amin and Obote regimes, also contributed to the economic recovery during this period, with much needed human capital, entrepreneurship, and physical investment becoming available.

12. The third phase (1997/98–2004/05) was characterized by greater focus on poverty reduction programs and increased donor assistance. Under the Ugandan Poverty Eradication Action Plan (PEAP), initially published in 1997 and revised in 2000 and 2004, donor inflows, net of debt service, increased by 5.1 percentage points of GDP, reaching 11.5 percent of GDP in 2004/05, with flows of direct budget support rising from 2.9 percent of GDP in 1996/97 to 5.8 percent of GDP.At the same time, government spending increased from 1996/97 by 6.9 percentage points of GDP to 24.2 percent of GDP in 2004/05. The PEAP was complemented by further structural adjustment, including privatisation and restructuring of utility sectors (telephone and electricity), tax reform, and liberalization of international capital account transactions. The banking system was also strengthened through enhanced supervision. However, during this period, Uganda's terms of trade deteriorated substantially, as world coffee prices fell by over 70 percent, leading to a sharp decline in export earnings.

13. The Ugandan economy has been gradually transformed, as the industrial and services sectors have accounted for a growing share of GDP. Between 1986/87 and 2004/05 agricultures' share of GDP (before processing) diminished steadily. Agriculture's average share of GDP was 53.3 percent between 1986/97 and 1991/92

[2] Reinikka and Collier (2001) refer to Uganda as a role model for post-conflict recovery for a low-income country.

declining to 45.7 percent between 1992/93 and 1996/97 and further to 35.4 percent for the period 1997/98 to 2004/05. Meanwhile, the industrial sector, led by strong overall growth in manufacturing was at an average of 5.9 percent of GDP increasing to 7.4 percent of GDP in the second phase of economic recovery and rising further to 9.4 percent of GDP between 1997/98 and 2004/05. The construction sector has equally grown from an average of 4.7 percent between 1986/97 and 1991/92 to 6.5 percent between 1992/93 and 1996/97 and to 8.7 percent for the period 1997/98 to 2004/05. The services sector, also witnessed strong growth, rising from 31.8 percent of GDP in 1986/87 to 56.6 percent in 2004/05, mainly reflecting the expansion in commerce with the recovery of the monetary economy, tourism-related services, and more recently, a surge in the provision of public services, particularly health and education, under the PEAP. Telecommunications services also experienced strong growth in recent years, following the privatisation and restructuring of the sector. Competition in the sector led to lower prices to consumers and increased demand, while large investments greatly expanded supply.

14. Still, the economy is largely based on agriculture. Moreover, Uganda's merchandise exports consist almost entirely of basic agricultural commodities, with coffee and, more recently, fish accounting for the largest share of export earnings. The growth in agriculture since the mid-1980s, has mainly reflected an expansion of the land under cultivation, rather than an increase in productivity.[3] Liberalization of the foreign exchange market and the removal of state monopoly in the purchase of coffee and cotton by Coffee Marketing Board and Lint Marketing Board respectively, greatly improved the incentives to coffee, cotton and other farmers to produce cash crops for export.

15. Despite a marked slowdown over the last three years, the industrial sector averaged 10.2 percent annual growth between 1986/87 and 2004/05. Manufacturing expanded by 10.9 percent during this period, mostly to meet domestic demand for consumption goods, while construction expanded at an average annual rate of 9.9 percent. Driven by quarrying for construction materials (bricks and concrete), the mining and quarrying sector grew by 20.8 percent a year, albeit from a very small base, while public utilities production (mostly electricity) grew by 7.0 percent a year reflecting additional production of electricity on account of the construction of the Kiira hydro electricity extension.

16. Several factors contributed to the relatively steady growth of the services sector, which expanded by 6.8 percent a year on average between 1986/87 and 2004/05. Through the first two phases of the post-conflict recovery, wholesale and retail services, the largest component of the services sector maintained steady but above average growth, reflecting monetization of the economy and further expansion of trade. At the same time, tourism-related services (hotels and restaurants) and transportation, particularly air transport, also grew fairly rapidly However, as growth in these sectors slowed during the third phase, the rapid expansion in public services, both general government and poverty reducing activities under the donor-supported PEAP, continued to lift overall growth in the services sector above GDP growth. Most importantly, the introduction of universal primary education in 1997/98, which immediately doubled the number of children attending primary schools, and the subsequent program to train and hire 10,000 new teachers each year led to

[3] World Bank (2001), Project Appraisal Document, National Agricultural Advisory Services Project, page 2.

particularly strong growth in the sizeable education sector.[4] The number of clinics and healthcare workers was also increased and this supported the growth of the health sector. Furthermore, following the successful privatisation and restructuring of the telecommunications sector in 1998, which introduced highly competitive cellular telephone services and attracted large-scale investment to the sector by three multinational companies, telecommunications services have been growing by an average of 25 percent per annum.

17. Uganda's economy indeed benefited from aid financed rehabilitation and reconstruction of the productive capacity. Country received large inflows relative to the size of its economy. However, foreign aid will increasingly need to be directed to sectors that support new investments especially in infrastructure and utility provision. It is clear that new investments and activities will require more capital, more intensive acquisition of know-how and more targeted partnerships between local and foreign partners are required.

Table 1: Value added at constant (1997/98) prices, percentage growth rates

INDUSTRY GROUP	1982/83-1985/86	1986/87-1991/92	1992/93-1996/97	1997/98-2004/05
	Period average			
MONETARY				
Agriculture	0.9	4.9	7.0	4.1
Mining & quarrying	-3.5	28.9	21.8	11.7
Manufacturing	-0.2	11.7	14.5	6.4
Electricity/water	3.0	5.7	9.0	6.4
Construction	-4.0	12.7	15.0	9.7
Wholesale & Retail Trade	0.9	6.8	9.8	5.5
Hotels & Restaurants	-0.7	12.3	14.4	12.3
Transport/communication	1.0	6.1	10.5	12.7
Community services	2.5	6.3	6.5	5.1
TOTAL MONETARY	1.0	6.7	9.0	6.3
NON-MONETARY				
Agriculture	1.9	2.3	2.2	2.6
Construction	1.4	3.6	3.0	3.3
Owner-occupied Dwellings	2.1	2.8	6.2	7.1
TOTAL NON-MONETARY	1.9	2.4	2.7	3.4
TOTAL GDP	1.3	5.3	7.3	5.6

Source: Uganda Bureau of Statistics

[4] The program to lower the student-teacher ratio calls for increases of 10,000 teachers a year, from about 75,000 teachers in 1997/98 to 145,000 teachers by 2004/05.

Table 2: Value added at constant (1997/98) prices, percentage share of GDP

INDUSTRY GROUP	1982/83-1985/86	1986/87-1991/92	1992/93-1996/97	1997/98-2004/05
		Period average		
MONETARY		4.7	6.5	8.7
Agriculture	22.2	22.6	23.5	19.8
Mining & quarrying	0.2	0.2	0.4	0.8
Manufacturing	7.6	5.9	7.4	9.4
Electricity/water	0.6	0.7	1.2	1.4
Construction	2.7	3.9	5.8	8.1
Wholesale & Retail Trade	13.7	14.2	12.0	11.3
Hotels & Restaurants	1.0	1.2	1.7	2.7
Transport/communication	2.9	3.5	4.1	6.0
Community services	15.5	13.3	17.7	20.6
TOTAL MONETARY	66.3	65.4	73.9	80.0
NON-MONETARY				
Agriculture	30.0	30.7	22.2	15.6
Construction	0.8	0.8	0.7	0.6
Owner-occupied Dwellings	2.9	3.0	3.2	3.8
TOTAL NON-MONETARY	33.7	34.6	26.1	20.0
TOTAL GDP	100.0	100.0	100.0	100.0

Source: Uganda Bureau of Statistics

2.2 Investment climate in Uganda

18.While limitations exist on domestic resource mobilisation, private investment will need to increase much above the present level of about 14.1 percent of GDP to an average of more than 24 percent that is common in some developing countries in Asia (World Bank, 2004). The increase requires attention to be paid to the macroeconomic and microeconomic environment that affects the investment climate in Uganda. At the macroeconomic level, the challenge is to demonstrate to investors that the macroeconomic stability so far achieved is sustainable. It is important to establish a low cost business environment, strengthen the financial sector, reform key utilities and raise firm productivity by enhancing capacity utilisation and efficiency of the labour and financial markets.

19. At the microeconomic level, a number of other obstacles to investment seem to be slowing growth through limiting productivity growth. These current problems include limited access to long-term finance. The requirements for collateral pose a challenge for most of the domestic investors. To ensure development of a sound financial system, additional reform policies to support financial service providers are required to improve their ability to respond to the needs of the private sector. Competition in the private sector will need to improve substantially to lead to a decline in intermediation costs and interest rates so that lending to the private sector can increase. Firms also have limited access to long-term financing. Improving access to long-term financing requires substantial reform in key areas of pensions, insurance and capital markets. Firms have also expressed concerns about the administration of the tax regime. The improvement of tax administration is required in order to ensure that tax laws are clear, unambiguous and consistent with the investment code. In short, tax policy should be consistent and predictable.

20. There are also key constraints in the utilities sector that need to be addressed by strengthening the regulatory framework to facilitate private investment. In water and sanitation, reforms aimed at increasing investment and expanding services need to be fast tracked. Electricity generation, transmission and distribution need to be improved. The share of production lost due to power outages and fluctuations by manufacturing firm's averages 6.3 percent (World Bank, 2004). The transportation sector requires reforms in railways in addition to a need expand the road network. Efficiency and effectiveness of air transport services need to be strengthened with adequate regulation that encourages private sector participation.

21. The private sector has to cope with substantial regulatory burden, which raises the cost of doing business. The regulatory burden and the associated high costs for the private sector result from inadequate regulatory capacity within government, unclear regulatory framework and inconsistent interpretation of policies and regulations. Government needs to speed up regulatory and institutional reforms in order to modernise the business-operating environment. Corruption in Uganda will need to be tackled through adoption of anti corruption legislation, reforming public sector payment systems and providing sufficient resources towards anti corruption programs. There is need to build anti corruption policies and improvement in the legislation on public procurement. Other efforts required include reform in the public sector and strengthening of accountability.

22. Ratings have an impact on investor decisions and to capital flows. The increase in FDI in the 1990's corresponded with a major improvement in the country's risk ratings. Key to improving investor perceptions is the need to better the conditions that influence them. Uganda needs to establish its self as a safe haven for investors in Africa, as Botswana and Mauritius have done. Maintaining credibility and pursuing good policies to win investor confidence and to overcome some of the disadvantages of a limited market size are some of the policy issues that need to be addressed. Attracting renewed capital inflows to Uganda in the medium term will be important for private investment growth and poverty reduction.

2.3. Equipment and structures investment in Uganda

23. It has long been recognised that the ability to produce better and cheaper machines is what provoked the economic take off in the west. The idea was that technology embodied in machines was one of the most important factors in the process of economic growth. In this vein Ortiguera (2003) finds strong correlation between investment rates in equipment capital and income growth on the one hand, and between the rate of decline in equipment prices and income growth on the other. This evidence suggests that policies aimed at equipment investment may have large growth effects. Therefore, understanding the mechanism that links equipment investment and growth is of primary importance (Hendricks, 2000).

24. Countries that grow faster tend to have substantially shorter equipment service lives while, restrictions on capital goods imports are harmful for long run growth. The normative angle appears to be that policies that raise the relative price of imported capital goods, such as tariffs or import quotas, have highly detrimental effects on economic growth. The decline in relative prices of equipment is interpreted as an improvement in the supply conditions of equipment goods, relative to final output.

That is the production of equipment goods experiences faster technological change than the production of final output (Ortiguera 2003). It is the low price of equipment that causes high demand for equipment goods and fosters technical change as a result. Growth is predominantly caused by investment in machinery and equipment, whereas investment in non-residential buildings and structures is caused predominantly by economic growth.

25. Table 3 shows the levels of gross fixed capital formation in real and nominal values. In constant 1997/98 prices the share of fixed capital formation to GDP at market prices has declined to 15.9 percent between 1997/98 and 2004/05 from 17.2 percent during the period of high growth (1992/93 to 1996/97) and 16.1 percent in the earlier period. However, the composition of investment between public and private appears to have been transformed. Between 1986/87 and 1991/92, public investment was equivalent to an annual average of 7.6 percent as a ratio to GDP while private investment was 8.5 percent of GDP. By 1997/98 - 2004/05 private investment still stagnated at 11.9 percent of GDP, though it was nearly three times the level of public investment which was recorded at 4.1 percent of GDP.

26. Public investment in equipment (machinery and vehicles) when measured at constant 1997/98 prices equally fell from 6.3 percent of GDP in 1986/87 – 1991/92 to 4.0 percent of GDP in 1997/98 – 2004/05. The decline in public investment is mainly due to the completion of large investment projects undertaken previously such as the construction of the Kiira dam and installation of power generating units, rehabilitation of Entebbe airport and the construction of roads. The share of structures investment in GDP has generally tended to dominate. Structures investment increased from an average of 9.9 percent of GDP during the period between 1986/87 and 1991/92 to an average of 11.3 percent of GDP between 1992/93 and 1996/97 and further to 11.9 percent of GDP between 1997/98 and 2004/05.

Table 3: Investment as a share of GDP

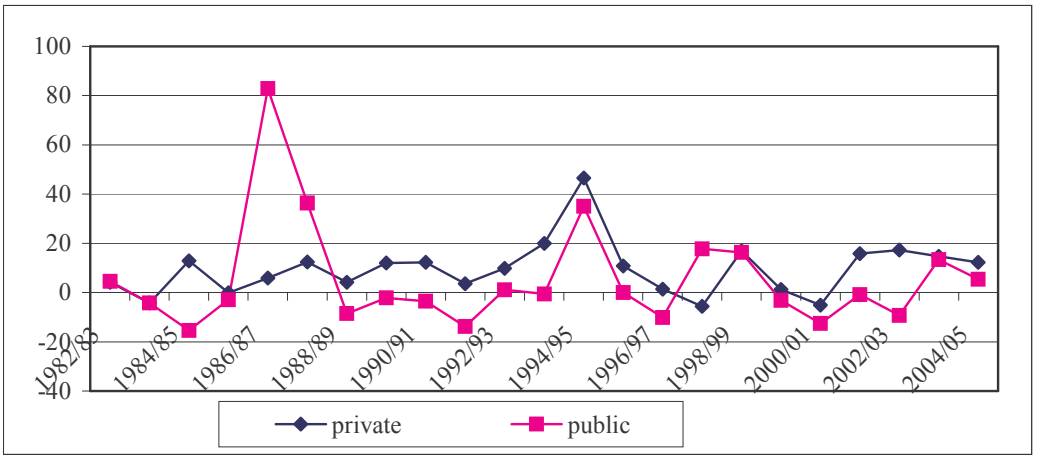
ITEM	1982/83-1985/86	1986/87-1991/92	1992/93-1996/97	1997/98-2004/05
	Period average			
	Current market prices			
Fixed Capital Formation	12.1	12.9	16.7	19.5
of which – Private	8.4	7.6	11.6	14.1
- Public	3.6	5.3	5.1	5.4
Construction	9.2	8.0	11.0	13.9
of which – Private	6.7	4.8	7.3	10.3
- Public	2.6	3.3	3.8	3.6
Machinery and Equipment	2.8	4.8	5.7	5.5
of which – Private	1.8	2.8	4.4	3.8
- Public	1.1	2.0	1.3	1.8

	Constant (1997/98) prices			
Fixed Capital Formation	12.2	16.1	17.2	15.9
of which – Private	7.4	8.5	11.9	11.9
- Public	4.8	7.6	5.3	4.1
Construction	7.8	9.9	11.3	11.9
of which – Private	4.9	5.0	7.3	9.1
- Public	2.8	4.8	4.0	2.8
Machinery and Equipment	4.4	6.3	5.9	4.0
of which – Private	2.4	3.5	4.6	2.8
- Public	2.0	2.8	1.3	1.3

Source: Uganda Bureau of Statistics

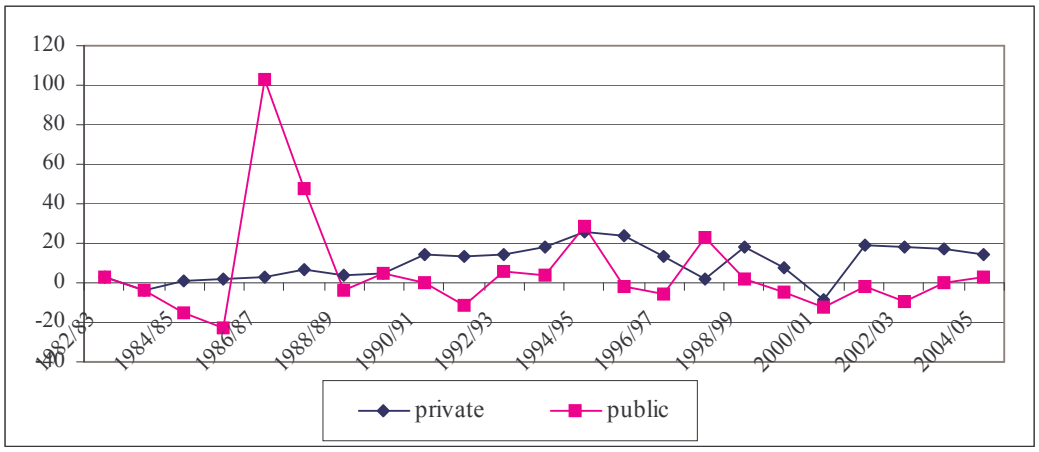
27. Table 4 provides growth rates of gross fixed capital formation in constant 1997/98 prices. Investment growth was quite low during the civil strife and in some years negative growth was registered. The growth in total investment declined substantially to an average of –0.1 percent per annum during the 1982/83-1985/86 period. This was however, followed by a dramatic recovery to an annual rate of 10.1 percent largely driven by public sector public investment in construction (see figure 1). Government's contribution to growth in construction was higher than the private sector as government embarked upon the rehabilitation of structures that had stalled and those destroyed during the civil strife. Investment continued to grow in the next phase (1992/93 to 1997/98) at an average annual rate of 13.4 percent as the private sector's investment in both construction and machinery and equipment picked up to averages of 19.0 percent and 17.4 percent in response to market reforms implemented by government (see figures 2 and 3). The period 1997/98 to 2004/05 has generally had a slow down in investment growth as a result of government focussing on social expenditures in line with the PEAP. Private sector investment growth has equally slowed down to half of its rate during the previous period although investment in construction has continued to thrive with an annual growth rate at an average of 10.7 percent per annum compared to 0.16 percent annual growth for the public sector.

Figure 1: Public and private fixed capital formation as a share of GDP



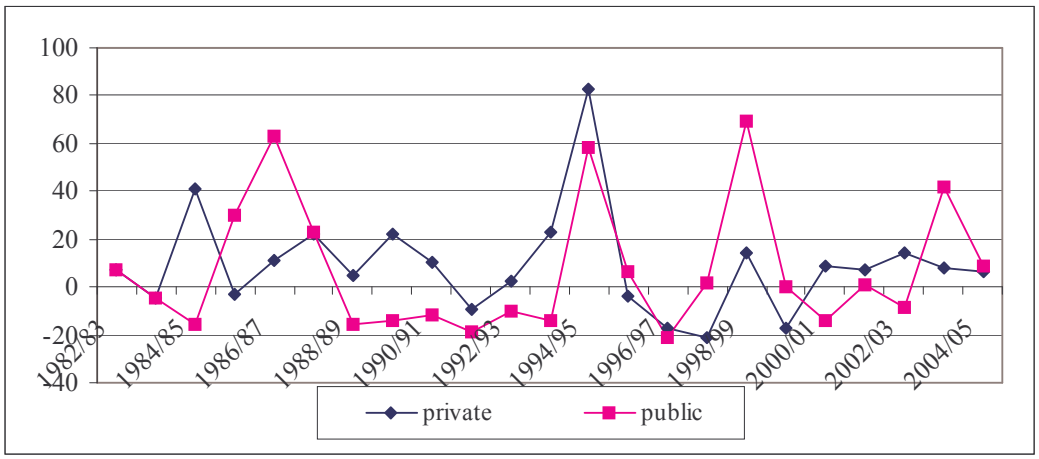
Source: Uganda Bureau of Statistics

Figure 2: Public and private investment in construction as a share of GDP



Source: Uganda Bureau of Statistics

Figure 3: Public and private investment in machinery and equipment as a share of GDP



Source: Uganda Bureau of Statistics

Table 4: Investment at constant prices, percentage growth rates

ITEM	1982/83-1985/86	1986/87-1991/92	1992/93-1996/97	1997/98-2004/05
	Average growth rate			
Fixed Capital Formation	-0.1	10.1	13.4	7.1
of which – Private	3.2	8.4	17.7	8.4
- Public	-4.5	15.2	5.1	3.4
Construction	-3.4	11.8	14.1	8.2
of which – Private	0.5	7.6	19.0	10.7
- Public	-9.8	23.4	5.9	0.1
Machinery and Equipment	6.1	7.4	13.6	4.7
of which – Private	10.0	10.2	17.4	2.5
- Public	4.2	4.4	4.1	12.5

Source: Uganda Bureau of Statistics

2.4 Investment deflators: Property and asset price boom?

28. The construction boom in Uganda seems to be amplified by the confidence expressed in the sustained economic growth that the country witnessed. Indeed, the evolution of gross construction output over the last eleven years shows that total construction grew by 8.3 percent on average. For the individual components, the construction of commercial buildings expanded by 12.7 percent per annum, road construction by 7.3 percent and residential buildings by 4.9 percent. In terms of composition, the share allotted to roads fluctuated between 13.4 percent and 7.7 percent and averaged 11.4 percent over the period 1994/95 to 2004/05. Between 1994/95 and 1997/98 residential building construction exceeded the share of commercial buildings, by 1999/2000 the two components were about even. However, over the period 2001/01 to 2004/05 the share of commercial buildings in total construction exceeded that of residential buildings. The share of commercial buildings increased from 36 percent at the beginning of the period to 52 percent in 2004/05 suggesting that the construction boom has shifted in favour of commercial buildings. In the latter period the rate of increase of commercial buildings averaged 14.4 percent per annum compared to an average annual growth rate of 6.7 percent recorded for residential building construction. The details regarding the evolution of construction output are indicated in Table 5 below.

Table 5: Evolution of gross construction output 1994/95 to 2004/05

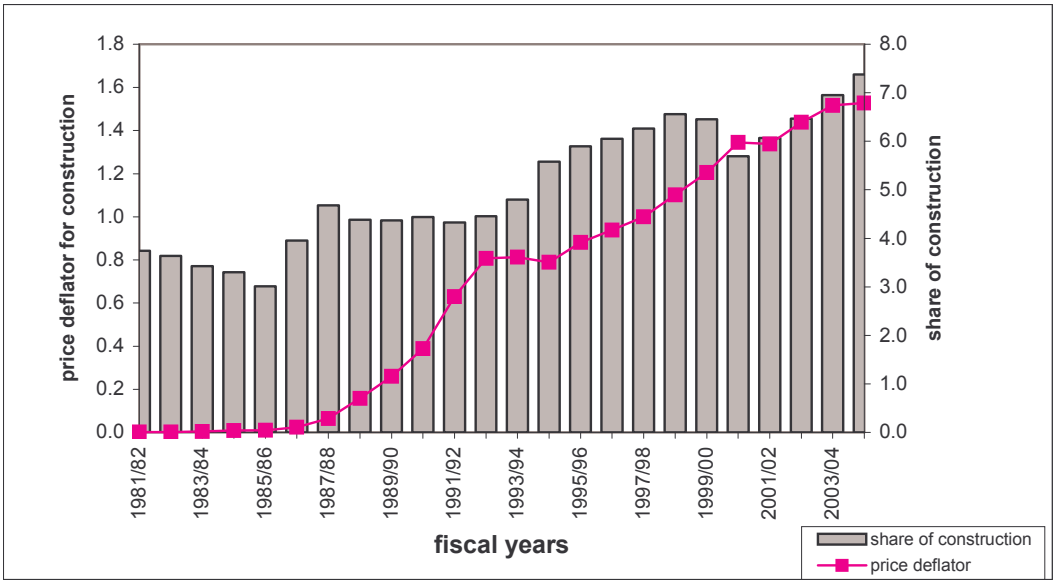
Sector	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
Roads	Gross construction out put in current prices									
Commercial buildings	72,772	91,544	119,036	151,889	164,119	161,519	176,144	157,383	216,710	288,101
Residential buildings	248,207	279,282	349,479	490,969	560,568	581,085	667,095	880,855	1,067,683	1,198,972
Total	338,527	382,069	417,252	457,088	530,729	520,341	581,501	673,079	765,561	827,891
	Gross construction output in constant 1997/98 prices									
Roads	87,895	100,842	119,036	128,428	123,741	104,021	113,162	91,574	116,332	161,754
Commercial buildings	295,262	305,786	349,479	439,095	406,906	424,387	492,190	604,877	703,432	791,249
Residential buildings	392,425	410,795	417,252	430,649	408,994	410,907	459,191	493,227	532,001	562,083
Total	775,582	817,423	885,767	998,172	939,641	939,316	1,064,544	1,189,677	1,351,765	1,515,087
	Share of gross construction output in constant 1997/98 prices									
Roads	11.3	12.3	13.4	12.9	13.2	11.1	10.6	7.7	8.6	10.7
Commercial buildings	38.1	37.4	39.5	44.0	43.3	45.2	46.2	50.8	52.0	52.2
Residential buildings	50.6	50.3	47.1	43.1	43.5	43.7	43.1	41.5	39.4	37.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Annual percentage growth rates of gross construction output in constant 1997/98 prices									
Roads	-3.7	14.7	18.0	7.9	-3.6	-15.9	8.8	-19.1	27.0	39.0
Commercial buildings	18.5	3.6	14.3	25.6	-7.3	4.3	16.0	22.9	16.3	12.5
Residential buildings	11.6	4.7	1.6	3.2	-5.0	0.5	11.8	7.4	7.9	5.7
Total	12.1	5.4	8.4	12.7	-5.9	0.0	13.3	11.8	13.6	12.1

Source: Uganda Bureau of Statistics

29. Property and housing prices have undergone rapid and sustained increases between 19886/87 and 2004/05. Understanding the evolution of these prices is important in assessing the apparent strong link between the reduction in macroeconomic volatility and political risk, a foreign remittance boom and the real

estate sector. Foreign remittance booms have been documented to lead to high rates of real estate expansion because both household wealth and consumption increase (Hunter et al, 2002). In addition, the rising perceptions about the future growth in incomes, increased credit worthiness and higher corporate investment lead to pronounced construction expenditure. Table 6 and figure 4 track the evolution of the price indices of the main components of fixed investment. It shows that by 2004/05 public construction prices had risen by 78 percent above the levels recorded in 1997/98. The rising costs of public construction were also followed by an increase of 48 percent in the private construction prices over the same period. The general tendency of the construction prices to increase appears to be driven by the rapid increase in demand for construction inputs that followed improved political and investment climate after 1986. The increased demand for construction inputs exerted pressure on the supply of inputs deployed in the construction sector. Indeed, these developments mirror the changes in the share of construction in total GDP. Between the fiscal years 1981/2-1985/6 construction averaged 3.4 percent of total GDP and increased to an average of 6.3 percent of GDP over the period 1994/5 to 2004/5.

Figure 4: Share of construction in GDP and construction price deflator



Source: Uganda Bureau of Statistics

Table 6: Investment deflators at constant 1997/98 prices

ITEM	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
	Level of deflators							
Fixed Capital Formation	100.0	113.3	124.2	138.0	136.4	150.5	162.5	168.7
Of which – Private	100.0	110.4	120.0	132.5	131.4	145.2	155.8	162.4
- Public	100.0	119.8	133.8	151.9	151.4	170.9	188.6	194.9
Construction	100.0	110.2	120.5	134.5	133.8	143.8	151.7	152.8
Of which – Private	100.0	106.5	115.8	127.5	127.6	137.7	145.3	148.3
- Public	100.0	119.1	133.2	153.8	154.7	170.8	184.2	178.0
Machinery and Equipment	100.0	121.4	135.3	147.6	144.2	171.2	195.3	218.9
Of which – Private	100.0	121.4	135.3	147.6	144.2	171.2	195.3	218.9
- Public	100.0	121.4	135.3	147.6	144.2	171.2	195.3	218.9
	Percentage growth rates							
Fixed Capital Formation	7.5	13.3	9.6	11.1	-1.1	10.3	8.0	3.8
Of which – Private	5.5	10.4	8.7	10.4	-0.8	10.5	7.3	4.2
- Public	13.4	19.8	11.7	13.5	-0.3	12.9	10.3	3.3
Construction	6.5	10.2	9.4	11.6	-0.5	7.5	5.4	0.8
Of which – Private	3.6	6.5	8.8	10.1	0.1	7.9	5.5	2.1
- Public	14.7	19.1	11.8	15.5	0.6	10.4	7.8	-3.3
Machinery and Equipment	9.8	21.4	11.4	9.1	-2.4	18.8	14.1	12.1
Of which – Private	9.8	21.4	11.4	9.1	-2.4	18.8	14.1	12.1
- Public	9.8	21.4	11.4	9.1	-2.4	18.8	14.1	12.1

Source: Uganda Bureau of Statistics

Table 7: Average growth rates of investment deflators, 1997/98=100

Category	1982/83-1985/86	1986/87-1991/92	1992/93-1996/97	1997/98-2004/05
Fixed capital formation	75.3	110.8	7.8	7.8
of which - Private	68.7	109.0	8.5	7.0
- Public	87.1	118.1	6.4	10.6
Construction	76.3	107.8	8.8	6.4
of which - Private	71.1	107.7	10.1	5.6
- Public	84.7	119.2	6.6	9.6
Machinery & equipment	83.0	116.2	6.1	11.8
of which - Private	74.9	114.4	6.1	11.8
- Public	98.	118.8	6.1	11.8

Source: Uganda Bureau of Statistics

30. International evidence tends to show that unbalanced asset price developments, especially in property prices, have resulted in macroeconomic disruptions and stress on the financial system. This has not yet happened in Uganda because the boom appears to be partly financed by foreign savings and private transfers. Private transfers[5] increased at an average rate of 7 percent per annum over the last 12 years from US$ 57.5 million in 1993/94 to US$ 462.5 million in 2004/05. Indeed the Ugandan construction boom has come on the back of high growth rate of the economy and relatively high rental prices. For example, the increase in rent prices in

[5] Figures on private transfers are bank of Uganda's estimates based on data from commercial banks and forex bureaus.

the overall consumer price index by 22.3 percent from June 2001 to July 2005 seems to be mainly driven by the expected high growth in overall incomes. There are also a number of qualitative influences that could have impacted on the housing and property market in Uganda. These include fiscal reforms, institutional reforms, foreign exchange market liberalization and the demographic factors. All these influences boosted the demand for residential and commercial buildings. Indeed the influx of new participants in the market and the desire to meet the pent up demand for housing that occurred during years of civil strife when there was limited construction are key factors in explaining the asset boom.

31. Information gleaned from data on imports of plant machinery and vehicles indicates that the share of private imports tended to dominate. However, the share of private imports fell from 74.6 percent in 1997/98 to 66.3 percent in 2003/04. The share of government imports of machinery and vehicles increased from 25.4 percent in 1997/98 to 33.7 percent in 2003/04. Imports of road vehicles were significant and represented on average 29.0 percent of fixed capital formation. Imports of electrical machinery followed and accounted for 17.9 percent total fixed capital formation. The third category of key imports was that of telecommunications equipment which took up 13.7 percent of the total equipment imports. Specialised machinery for industrial purposes represented on average 12.0 percent of fixed capital formation while the share of general industrial machinery was 10.0 percent during the period under review. Overall total imports increased on average by 10.8 percent with the private imports growing by 8.4 percent compared to public imports that expanded by 19.6 percent on average over the period. The categories of imports that recorded remarkable growth rates were transport equipment, metal working machinery, power generating equipment and telecommunications machinery. All these high growth categories of imports increased by more that 29.0 percent per annum over the period 1997/98 to 2003/04. Table 8 provides the details regarding the performance of equipments imports.

Table 8: Fixed capital formation of plant machinery and vehicles US$ 000

Category	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04
Power generating machinery & equipment	11,916	16,941	14,045	16,161	12,347	9,327	27,171
Machinery specialised for industries	40,031	43,821	34,576	28,653	29,208	46,487	50,537
Metal working machinery	2,177	3,713	3,748	1,632	3,175	3,004	5,397
General industrial machinery & equip. nes	29,349	40,631	29,261	26,685	28,141	32,057	43,009
Office mach. & automatic data processing	15,194	20,752	21,506	21,808	23,037	32,188	34,006
Telephone & sound recording apparatus	20,374	40,529	29,255	48,486	58,056	52,410	66,617
Electrical machinery nes	35,959	62,860	67,150	60,617	48,968	55,082	77,581
Road vehicles	96,493	99,645	83,562	70,571	81,550	104,158	122,582
Other transport equipments	794	3,805	4,201	1,034	1,735	2,933	5,921
Furniture & parts there of	2,080	2,868	2,417	2,941	2,481	3,469	4,636
Professional, scientific instruments	5,839	8,062	14,339	6,558	5,874	6,622	12,560
Total	260,206	343,625	304,061	285,147	294,573	347,736	450,018
Private	194,046	228,386	188,321	191,879	202,064	254,026	298,303
Public	66,160	115,238	115,740	93,268	92,509	93,709	151,715
Percentage contribution to fixed capital formation							
Power generating machinery & equipment	4.6	4.9	4.6	5.7	4.2	2.7	6.0
Machinery specialised for industries	15.4	12.8	11.4	10.0	9.9	13.4	11.2
Metal working machinery	0.8	1.1	1.2	0.6	1.1	0.9	1.2
General industrial machinery & equip.	11.3	11.8	9.6	9.4	9.6	9.2	9.6

nes							
Office mach. & automatic data processing	5.8	6.0	7.1	7.6	7.8	9.3	7.6
Telephone & sound recording apparatus	7.8	11.8	9.6	17.0	19.7	15.1	14.8
Electrical machinery nes	13.8	18.3	22.1	21.3	16.6	15.8	17.2
Road vehicles	37.1	29.0	27.5	24.7	27.7	30.0	27.2
Other transport equipments	0.3	1.1	1.4	0.4	0.6	0.8	1.3
Furniture & parts there of	0.8	0.8	0.8	1.0	0.8	1.0	1.0
Professional, scientific instruments	2.2	2.3	4.7	2.3	2.0	1.9	2.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Private	74.6	66.5	61.9	67.3	68.6	73.1	66.3
Public	25.4	33.5	38.1	32.7	31.4	26.9	33.7
Annual percentage growth rates							
Power generating machinery & equipment		42.2	(17.1)	15.1	(23.6)	(24.5)	191.3
Machinery specialised for industries		9.5	(21.1)	(17.1)	1.9	59.2	8.7
Metal working machinery		70.5	1.0	(56.5)	94.6	(5.4)	79.7
General industrial machinery & equip. nes		38.4	(28.0)	(8.8)	5.5	13.9	34.2
Office mach. & automatic data processing		36.6	3.6	1.4	5.6	39.7	5.6
Telephone & sound recording apparatus		98.9	(27.8)	65.7	19.7	(9.7)	27.1
Electrical machinery nes		74.8	6.8	(9.7)	(19.2)	12.5	40.8
Road vehicles		3.3	(16.1)	(15.5)	15.6	27.7	17.7
Other transport equipments		379.3	10.4	(75.4)	67.8	69.0	101.9
Furniture & parts there of		37.9	(15.7)	21.7	(15.6)	39.8	33.7
Professional, scientific instruments		38.1	77.9	(54.3)	(10.4)	12.7	89.7
Total		42.2	(17.1)	15.1	(23.6)	(24.5)	191.3
Private		9.5	(21.1)	(17.1)	1.9	59.2	8.7
Public		70.5	1.0	(56.5)	94.6	(5.4)	79.7

Source: Uganda Bureau of Statistics

3.0 Financing investment in Uganda

3.1 Trends in foreign and domestic savings for investment

32. The first column in Table 9 contains data on gross investment as a per cent of GDP. The investment rate varied from 15.8 per cent of GDP in 1990/91 to 22.2 per cent in 2003/04. There was a general rise in the rate of investment during the period. However, the issue of concern is how was gross investment financed? There are two possibilities: either with domestic savings or with foreign resources of various types.

33. Direct estimates of domestic savings are unavailable; the analysis takes advantage of a national income accounting identity to generate gross savings. By definition investment less the trade deficit equals savings. Gross investment, as we have seen, is reported in the first column of the table while the trade deficit is reported in the fourth column. The trade deficit is the difference between imports and exports i.e. the negative value of the trade balance. If the trade deficit is negative, a country is exporting more than it imports and is accumulating assets abroad. If it is importing more than it is exporting, the trade deficit is positive and the country has to finance the deficit by relying on foreign resources.

34. In Uganda, the trade deficit is heavily positive. Indeed, net imports varied between 14.9 per cent of GDP in 1990/91 and 13.2 per cent in 2003/04. This very large excess of imports over exports was financed by foreign capital inflows of various types, including emigrants' remittances that have generally decreased since 1990/91 from 17.6 percent of GDP to about 12.7 percent of GDP in 2003/04. In fact it was the availability of foreign capital that has made the large trade deficit possible. In other words, the direction of causality, was from foreign aid (and other forms of foreign capital) to imports, and not the other way round.

Table 9:Uganda's resource balance and savings in percent of GDP (1990/91 to 2003/04)

	I Investment	X Exports	M Imports	RB=M-X Trade deficit	FF Foreign Flows	RB-FF Foreign Savings	NS=I+FF-RB National Savings	DS=I-RB Domestic Savings
1990/91	15.78	7.80	22.70	14.90	17.60	(2.70)	18.48	0.88
1991/92	16.80	9.10	25.10	16.00	10.50	5.50	11.30	0.80
1992/93	16.28	7.30	21.80	14.50	11.30	3.20	13.08	1.78
1993/94	15.95	9.23	22.67	13.43	11.40	2.03	13.92	2.52
1994/95	17.67	12.59	25.85	13.26	9.30	3.96	13.71	4.41
1995/96	16.97	13.16	28.55	15.39	7.90	7.49	9.48	1.58
1996/97	16.69	14.71	21.47	6.75	3.90	2.85	13.83	9.93
1997/98	15.88	9.61	20.37	10.76	5.00	5.76	10.12	5.12
1998/99	19.25	12.25	24.25	12.00	3.90	8.10	11.15	7.25
1999/00	19.20	11.21	23.09	11.88	6.70	5.18	14.02	7.32
2000/01	17.78	11.95	24.52	12.57	6.20	6.37	11.41	5.21
2001/02	18.84	11.95	26.42	14.47	7.50	6.97	11.87	4.37
2002/03	20.13	12.25	26.45	14.20	7.50	6.70	13.43	5.93
2003/04	22.20	14.92	28.11	13.19	12.70	0.49	21.71	9.01

Source: Bank of Uganda, Uganda Bureaux of Statistics and Authors computations

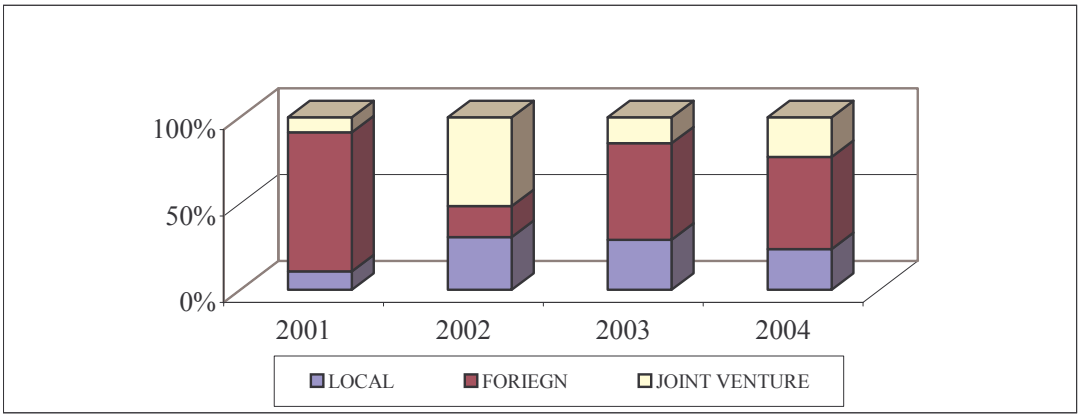
35. To compute gross savings the identity: gross investment – trade deficit = gross savings is applied. The results suggest that gross savings in Uganda were quite low – at an average of about 2 percent per annum – until 1996/97 when they rose to about 10 percent of GDP and have averaged about 7 percent per annum thereafter. The implication is that foreign resources have financed a big portion of the investment that has occurred in Uganda. The situation was slightly better in the second half of the period, but the fact remains that Uganda is saving very little out of its current income in order to increase the stock of physical capital and that it is mostly depending on non-residents and emigrants to finance investment with the exception of 2003/04.

36. The national income accounting data suggests two things. First, part of the inflow of foreign resources has been used to supplement domestic consumption, both in the private sector (household consumption) and in the public sector (government current expenditure). Second, part of the inflow of foreign resources has acted as a substitute for domestic savings and, in fact, most of the investment that has occurred has been financed by foreign capital. Uganda is therefore in a position in which it is dependent on foreign resources for most of its investment and consumption.

3.2 Foreign Direct Investment (FDI)

37. During the last five years, FDI has been equivalent to around 20 per cent of gross fixed capital expenditure. FDI has in the past followed a similar trend to total business investment, reflecting the fact that the same basic factors affect the rates of return on foreign as well as domestic investment. The country has traditionally drawn on foreign savings to fund higher levels of investment than domestic saving alone would allow and to promote faster economic growth. As a result, the country usually runs a current account deficit, which, over time, equals the excess of national investment over national saving, and this has meant growing net foreign debt and growing role of non-resident in capital formation. Investment data on newly licensed projects over the last four years shows that the share of planned investments by foreign residents exceeds that by the domestic investors. Figure 5 shows the percentage distribution of planned investment projects.

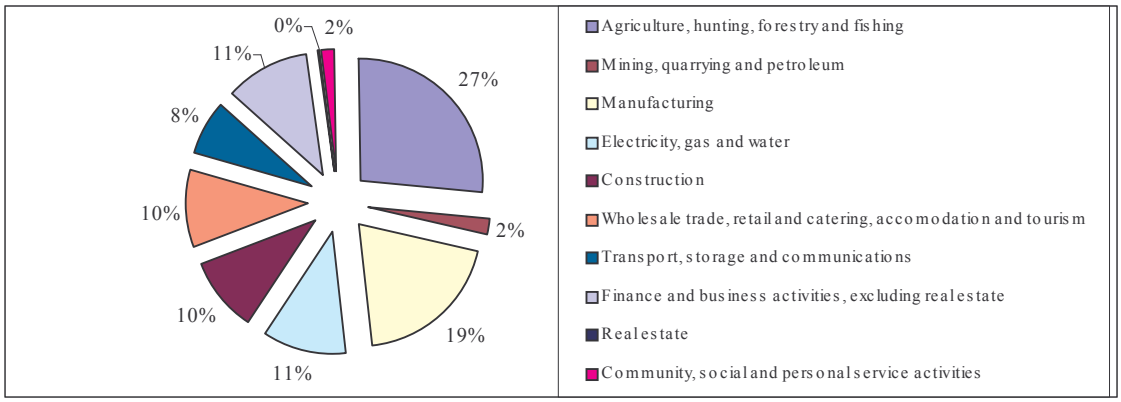
Figure 5: Percentage distribution of planned investment



Source: Uganda Investment Authority

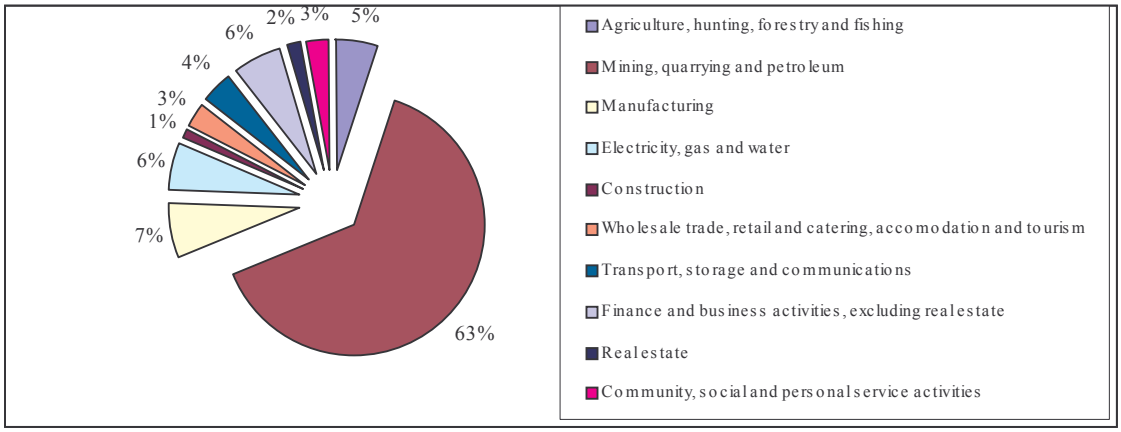
38. In addition to the higher share of foreign investment compared to local investment shown in the data on newly licensed projects, the mining and quarrying sector attracted the largest share of newly licensed projects in 2002/03 while agriculture, hunting, forestry and fishing attracted the highest share of investors in 2001/02. These two years have demonstrated the effectiveness of targeted investments promotion, as in both years the UIA promoted investment in mining and quarrying and agriculture, forestry, hunting and fishing. Figures 6 and 7 below show the sectoral distribution of newly licensed projects ranked by the amount of planned investment declared.

Figure 6: Planned Investment of Licensed Projects in 2001/02



Source: UIA

Figure 7: Planned Investment of Licensed Projects in 2002/03



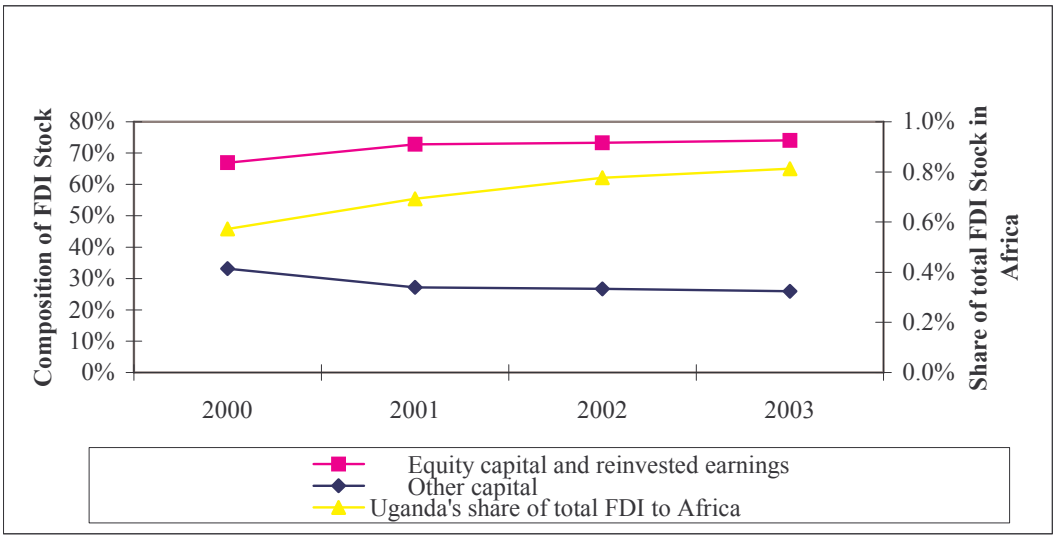
Source: UIA

39. Similarly, data compiled from the survey of enterprises on actual investments for the years 2001 to 2003 shows that foreign investment inflows exceeded the local investment component. Even in the case of joint ventures between residents and non-residents, the survey shows that on average residents hold a 35 percent stake compared to a 65 percent stake held by non-residents in the individual enterprises. It is therefore not surprising that during the past decade, FDI inflows rose from a mere US$1.0 million in 1991 to an estimated US$223.8 million in 2004.

3.2.1 Uganda's Share of FDI Inflows to Sub-Saharan Africa

40. Uganda's share of Africa's stock of FDI has marginally increased since 2000 from 0.6 percent to 1 percent in 2003. Initially, the growth in the FDI stock was driven by faster growth in other capital (inter-company loans), which contributed about 33.1 percent of total FDI stock in 2000 but has since declined to 26.0 percent in line with the rise in inter-company loan repayments. The decline in other capital FDI Stock has been matched by a rise in equity capital and reinvested earnings. Figure 8 below depicts recent developments in Uganda's FDI stock.

Figure 8: Stock of foreign direct investment flows to Uganda

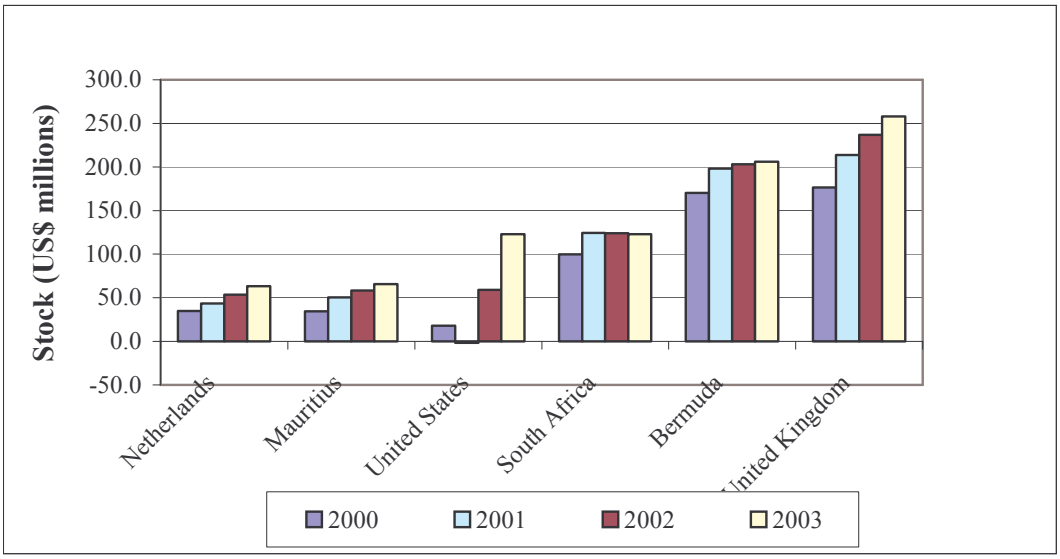


Source: BOU

3.2.2 Origin of FDI to Uganda

41. As illustrated in Figure 9 below, the United Kingdom holds the highest share of FDI stock in the country. The large share of FDI Stock from the United Kingdom has a historical bearing because even before independence financing of development projects in Uganda came mainly from the British government, which was the colonial authority. Much of this investment was channelled through the Uganda Development Corporation (UDC) formed by the British in 1952 and went towards the industrialization process of the country. The other component that went to industrialisation was by a few Asian private investors such as the Madhvani and Metha groups. When the Asians were expelled from Uganda some of them migrated to the UK and obtained British citizenship. Their subsequent return and repossession of assets has also contributed to the large stock of direct investment from the UK. Next to the United Kingdom is Bermuda although in the last two years the stock of FDI has levelled off. South Africa is by far the leading source of FDI from Africa to Uganda (although the stock has stagnated over the last two years) followed by Mauritius and Kenya. In the case of Mauritius and Bermuda, much of the FDI from these states is believed to originate from other countries although the statistics show that a considerable amount of the stock of FDI is from these two countries. The combined contribution to the total stock of FDI in Uganda from United Kingdom, Bermuda, South Africa, United States, Mauritius and Netherlands was 66 percent of total FDI in 2003.

Figure 9: Leading sources of Uganda's FDI



Source: Bank of Uganda

3.2.3 Sectoral composition of FDI

42. While sectoral data on actual FDI inflows is limited, the majority of the FDI to Uganda is attracted to the manufacturing sector. The remainder has been shared almost equally with the exception of the agricultural and real estate sectors, which receive minimal FDI inflows partly due to difficulties in securing land ownership. Similar observations are drawn from the Uganda Investment Authority (UIA) data on newly licensed projects. These relate to foreign investment applications received by UIA for licensing which serve as indicators of investment intentions and later actual FDI in Greenfield projects. There is brisk growth in applications in the manufacturing and service sectors (particularly transport storage and communication, financing, and wholesale and retail trade, catering and accommodation). While the manufacturing sector remains the single largest sector attracting FDI, it is important to note that the initial investment in this sector was propelled by the British governments investment in manufacturing before independence and the repossession of defunct industries by Asians expelled from the country during Idi Amin's regime in 1972. The recent privatisation process has led to the private sector's acquisition of previously state owned industries boosting the share of FDI inflows to the manufacturing sector. The services sector is another sector that has attracted a lot of FDI in part due to the privatisation of previously state owned corporations, hotels, and financial institutions followed by the dismantling of government's monopoly on a number of activities in the economy such as trading in produce, provision of communication and transportation services. The mining and quarrying sector where there is a lot of potential for FDI inflows remains the lowest recipient sector of FDI. This is partly due to the lack of geological data on the availability and magnitude of minerals at the potential mineral sites in the country. In the more recent past, however, the government with support from the World Bank has embarked on the provision of data on the available mining sites in the country and the determination of the stocks of minerals available at each of the respective sites.

3.2.4 Other foreign inflows

43. Other foreign inflows have equally risen over the same period. The increase has been driven by factors similar to those of FDI. In general, Net Transfers have increased since in 1996/97 from US$ 282.2 million to an estimate of US$ 955.6 million in 2003/04. In gross terms, both private and public transfer inflows have more than doubled from US$ 252.5 million to US$ 483.3 million for private transfer inflows and for public transfer inflows from US$ 364.6 million to US$ 694.8 million. Workers remittances constitute the largest share of private transfer inflows amounting to about 70 percent of total private transfers. The leading sources of the private transfers have been identified to include United Kingdom. Japan, USA and South Africa. Between 1997/98 and 2003/04 when the capital account has been liberalized, trade credit inflows have risen sharply. About 90 percent of total trade credit has been for export pre-finance.

44. Another positive development is the foreign participation in the domestic securities market, for which initial response reveals some interest by foreign fund managers in shilling denominated assets. By the late 1990's there were no inflows of portfolio investments in the Ugandan economy by non-residents. However, in 2000/2001 the balance of payments recorded an inflow of US$0.2 million as liabilities to non-resident portfolio investors mainly in the form of equity securities of listed companies on the securities exchange. In 2003/04, portfolio investments on a net basis rose to the tune of US$ 10.4 million mainly driven by the increased participation of foreign fund managers in government securities.

Table 10: Foreign exchange inflows to Uganda- 1982 to 2004 (US$ million)

ITEM	1982-1985	1986-1991	1992-1996	1997-2004
	Period average			
Current Transfers, n.i.e.: Credit	79.5	264.8	502.1	741.8
Dir. Invest. in Rep. Econ., n.i.e.	0.0	0.2	77.6	184.5
Portfolio Investment Liab., n.i.e.	0.0	0.0	0.0	0.6
Equity Securities	0.0	0.0	0.0	0.2
Debt Securities	0.0	0.0	0.0	0.4
Other Investment Liab., n.i.e.	-4.1	80.2	60.4	150.7
Monetary Authorities	-23.9	-24.5	-0.1	0.0
General Government	16.3	128.1	96.8	175.5
Banks	-4.6	1.4	-4.6	-15.7
Other Sectors	8.1	-24.9	-31.7	-9.2
Reserves and Related Items	15.2	46.0	44.7	113.4
Reserve Assets	-4.8	2.1	-95.3	-72.3
Use of Fund Credit and Loans	27.4	-8.3	16.9	-28.4
Exceptional Financing	-7.3	52.2	123.1	214.1

Source: Bank of Uganda

45. The foreign inflows over the last decade have had a significant impact on both the Balance of Payments and the International Investment Position. In the Balance of

Payments, the current account deficit excluding grants has widened from 9.4 percent as a ratio of GDP in 1996/97 to about 11.8 percent in 2003/04. This has been fueled mainly by the rise in the import bill for general merchandise as incomes have grown. The rising disbursements of donor flows coupled with growing private sector transfers and private capital flows in the capital and financial accounts have more than offset the developments in the trade balance of the current account allowing for a rise in the gross official reserves of the central bank. The reserves have risen from an average of about 6.1 month of import cover for goods and services in the 1996/97 to an average of 7.2 months in 2003/04.

46. The trend of capital inflows as a ratio to GDP has similarly been on the increase. In the case of official capital inflows, there has been an increase relative to GDP from an average of 2.7 percent for the period 1986 to 1991 to an average of 9.9 percent between 1992 and 1996 and to 12.1 percent in the following period. Table 10 shows that in the last two decades, aid in form of grants has become more important than debt flows. Official grants averaged about 4.2 percent of GDP over the entire period compared to 3.2 percent in the case of official debt. Overall grants have shown a steady increase since 1986 from about 1.3 percent of GDP in 1986-1991, to 5.1 percent between 1992 and 1996 increasing slightly to about 6.0 percent during the period 1997–2003. Compared to official flows, private capital flows in Uganda as a ratio to GDP have remained at very low levels over the entire period. The entire period averages for FDI, portfolio flows and loans and other investments were less than 1.0 percent of GDP.

47. Looking at private capital flows over time one observes that in general the trend was negative between 1986 and 1991. FDI increased as a percentage of GDP from an average of 1.5 percent over 1992-1996 to an average of 2.9 per cent in the period 1997 to 2003. On the other hand, loans and other investments decreased from an average of –0.6 percent of GDP to –0.9 percent of GDP during both the first two recovery stages improving slightly to an average of –0.2 per cent of GDP between 1997 and 2003. However, the overall total private capital flows have risen from an average –0.6 percent of GDP during the first recovery period to an average of 2.8 percent for the period 1997 to 2003.

Table 11: Official and private capital flows to Uganda as a share of GDP

	1982-1985	1986-1991	1992-1996	1997-2003
		Period average		
Total capital flows	0.6	2.7	9.9	12.1
Official flows	0.5	3.3	9.3	9.3
Loans	0.2	2.0	4.2	3.3
Grants	0.4	1.3	5.1	6.0
Private flows	0.0	-0.6	0.6	2.8
FDI	0.0	0.0	1.5	2.9
Portfolio flows	0.0	0.0	0.0	0.0
Loans	0.0	-0.6	-0.9	-0.2

Source: Bank of Uganda

These developments in the external sector clearly show that mostly both official transfers and private capital flows have filled the resource balance on trade in goods and services.

3.3 Domestic sources of investment capital

48. There are limited domestic sources of capital in Uganda and the large pool of resources held by the NSSF mainly dominates these. As a result domestic investment in Uganda is mostly financed by personal savings due to the nature of the banking system in Uganda. Even so, other unproductive savings—such as real estate and foreign currencies held for wealth and speculative motives—still impede the growth of savings with the financial system. Moreover, the meagre resources available are not optimally allocated in terms of private sector development, as depicted by the high concentration of loans to trade and other services. The entire single borrower capacity of the Ugandan banking system totals only U shs 66 billion and the single largest borrowing capacity of any one bank is only Ushs 14 billion (Peiris, 2005). Consequently, financing provided through the domestic financial system is limited to small investment projects. Alternative financing sources such as Development Finance institutions have been minimal and in particular the Uganda Development Bank (UDB) has hardly been active due to its insolvency and the associated freeze on its lending. Private credit has therefore remained low at about 5.8 percent of GDP against an average of 19.1 for Sub-Saharan countries.

Figure 10: Sector distribution of shilling denominated private sector credit (1992 to 2005)

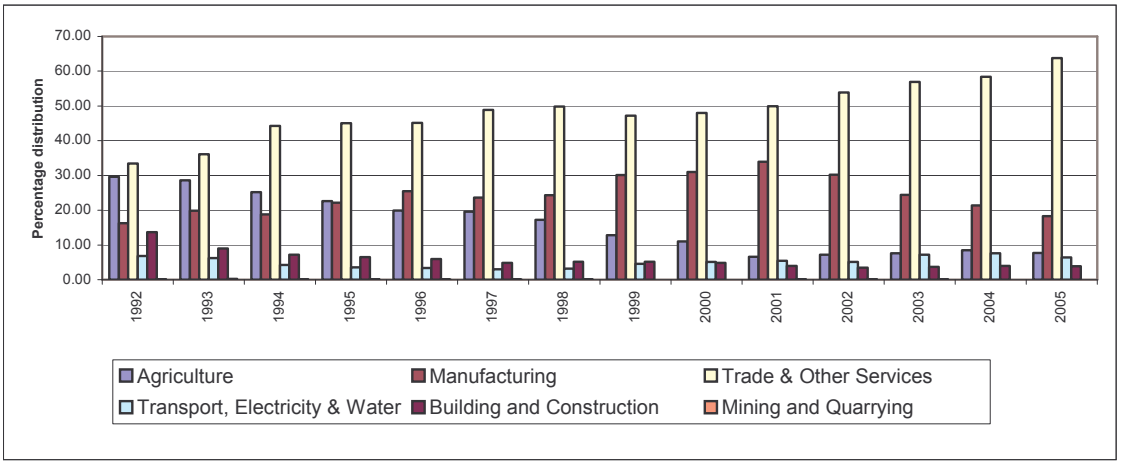
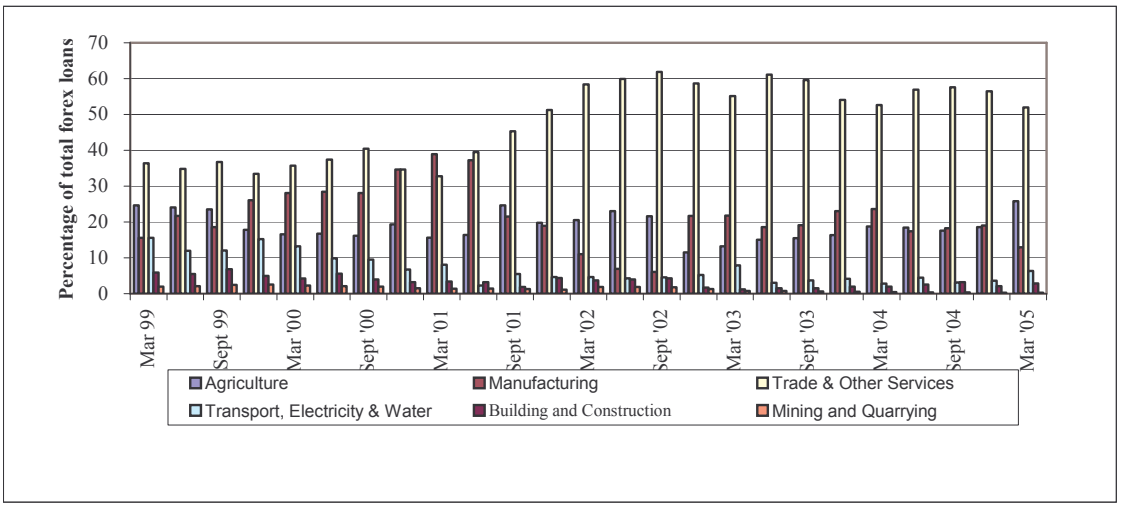


Figure 11: Sector distribution of foreign exchange denominated private sector credit (1992 to 2005)



49. Leasing and housing finance also suffers from lack of medium to long term funding sources. Reverse term transformation, which is the practice of transforming long-term liabilities of the pension funds and insurance companies into short term-liabilities of the banking sector, continues to take place.

50. While credit is allocated on market terms, lending to the private sector is rather limited, since banks hold GOU Treasury bill portfolios that are generally larger than their loan books. Interest rates are high by regional standards largely explained by a combination of high operating costs, high credit risks and provisions for loan loss. The high credit risk is due to the absence of credit information on borrowers and dysfunctional land and company registries among others.

4.0. Total factor productivity and Incremental Capital Output Ratio

4.1 Determinants of total factor productivity

51. Dunn (2002) using a growth accounting exercise identified three distinct growth episodes for post conflict Uganda. He argues that from 1986 to 1992, total factor productivity contributed under 1 percent per annum to overall growth. From 1993 to 1997 the contribution of TFP rose to 3 percent per annum. It is the positive growth in TFP that reversed sharply the steady decline that characterised the country's earlier past. O'Connell (2003) argues that the crisis years in Uganda (1971-1986) reduced real growth in GDP per worker by 4.8 percentage points per annum and TFP by 4.4 percentage points. The pattern of acceleration and subsequent levelling out of TFP reflects a recovery phase in which the removal of distortions and improved efficiency drove the economy towards its potential output level. This suggests that the scope for improved TFP growth from elimination of macroeconomic distortions alone is limited. Hence, sustaining growth in the near future can only be achieved with much higher investment rates. Indeed Dunn (2002) indicates that achieving growth rates of 7 percent per year would need an increase in investment as a percentage of GDP to 27 percent.

52. Keefer (2003) follows closely the cross-country empirical paradigm and identifies macroeconomic policies, school enrolment, improved property rights and contract enforcement, favourable terms of trade as critical factors for growth. Indeed Keefer concentrates on key institutional reforms. Berthelemy et al (2001) estimate a stronger role for TFP growth in Uganda during the post recovery period of 4.7 percent per annum. A large proportion of 1.3 percent per annum of this growth was due to a one-off removal of distortions. Institutional and security related factors contributed 1.5 percent per annum. The improved export performance contributed 0.6 percent while improved human capital contributed 0.8 percent per annum. Diversification of the economy was responsible for 0.2 percent while 0.3 percent was due to sustained re-allocation of factors of production from a low to highly productive activities.

53. A simple exercise to estimate the determinants of total factor productivity was implemented. First total factor productivity was estimated for the periods 1986 to 2004 using equation i. Estimating this equation required the construction of data on capital stock in order to estimate the long run model. For estimation purposes the long run total factor productivity growth was estimated using equation ii.

$$y = \alpha + \alpha KP_t + \beta KG_t + \gamma ALG_t + \varepsilon_t \qquad \text{(i)}$$

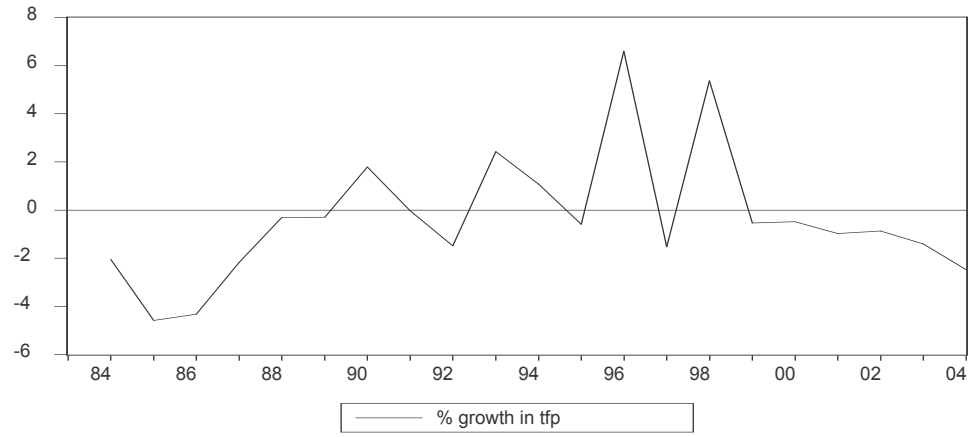
Where the variable KP_t denotes real private capital growth, KG_t denotes real public capital growth, LG_t labour growth; and finally, ε is the $i.i.d$ stochastic error component. The estimates of capital stock allowed for the computation of total factor productivity because the growth of TFP is given by the estimated constant-the deterministic component of TFP plus the error term-the stochastic component of TFP that is generated from estimating equation ii below.

$$tfpg_t = y - \alpha KP_t - \beta KG_t - \gamma LG_t = \alpha + \varepsilon_t \qquad \text{(ii)}$$

where $tfpg_t$ is the total factor productivity growth[6] in period t. The results generated show that the average percentage growth in TFP during the period 1986 to 1991 was –0.9 percent increasing to 1.6 percent during the high growth period (1992 to 1996) and then declining to an average of –0.4 percent during the period (1997 to 2004). Figure (8) plots the developments in productivity growth.

[6] TFP growth is empirically derived as the deterministic component α -the constant and the stochastic component ε_t -which is the residual in period t.

Figure 12: Evolution of total factor productivity



Source: Authors

54. From the coefficients for the ratio of private and government investment shares to GDP, and the coefficients for the ratio of private capital stock to lagged real GDP and public capital stock to lagged real GDP, the private capital output ratio was estimated at 0.6 while the government capital output ratio is estimated at 0.4. The sum of the two provides the estimate for a capital output ratio of about 1.

55. In the third step the evolution of the total factor productivity residual was explained by movements in, the level of openness, the terms of trade, domestic prices and aid inflows in equation iii below:

$$tfp_t = c + \ln open_t + \ln tot_t + \ln \inf_t + \ln a2igs_t \qquad \text{(iii)}$$

where *open* is the ratio of exports to GDP, *tot* is the terms of trade, *inf* equals the inflation rate, and a2igs is the ratio of aid to imports of goods and services all in period t. We estimate equation (iii) using OLS (see table of results in appendix 5).

56. Openness exhibits a significant positive effect generally at the 15-percent level. Greater openness enhances growth of the economy through higher total factor productivity. The terms of trade variable has the expected positive effect and are significant at the 10-percent level. So improvements in the terms of trade associate with higher total factor productivity. On the domestic variables, the results indicate that inflation has a significant negative effect at the 10 percent level of significance on total factor productivity. The finding that higher inflation associates with lower total factor productivity may explain the observed empirical regularity between higher inflation and lower economic growth in the 80's. That is, higher inflation leads to lower economic growth through its effect on total factor productivity. The model also shows that higher aid relative to imports of goods and services leads to lower total factor productivity although this is not a significant finding (see results of the regression in appendix 5).

4.2 The Incremental Capital Output Ratio (ICOR)

57. Uganda's ICOR has been on a downward trend since the 80's until the period 1992-1996,
Indicating an improvement in investment efficiency. Since 1996, Uganda's average ICOR has increased to an average of 2.2, which is comparatively higher than the average of 1.8 between1992-96 showing a decline in investment position. This confirms the developments in total factor productivity where we have observed a general decline in the period after 1996.

58. One of the reasons for the decline in investment efficiency is the fact that the financial sector is not fulfilling its role of transforming the domestic savings into effective investments
due to preference for investing in the safe and high yielding treasury securities. In addition, Uganda's capital markets is still quite small and companies have little or no choice but to rely on banks for funds.

Table 12: Uganda's Incremental Capital - Output Ratio

	1982-85	1986-91	1992-96	1997-04
Investment to GDP	11.4	14.9	15.6	16.0
GDP growth	3.2	5.7	8.4	7.1
ICOR	3.6	2.6	1.8	2.2

Source: Authors computations

V. Preliminary conclusions and implications

59. While Uganda's recovery has been rated as robust, the recent performance of the economy at the aggregate macroeconomic level has been mixed. Between 1992 and 1996 total factor productivity grew by 1.6 percent, however, between 1997 and 2004, the growth rate of total factor productivity declined to an average of –0.4 percent. In addition, over the same period, the average incremental capital output ratio (ICOR) was recorded at an average of 1.8 compared to an average of 2.2. These movements in the ICOR reveal a decline in investment performance and confirm the observed decline in total factor productivity since 1996.

60. Even as both domestic and foreign sources have been important in financing aggregate investment in Uganda, the analysis of the trade balance suggests a critical role for foreign savings. It is clear that part of the inflow of foreign resources has been used to supplement domestic consumption, both in the private sector (household consumption) and in the public sector (government current expenditure). Another component of the inflow of foreign resources has acted as a substitute for domestic savings and, in fact, most of the investment that has occurred has been financed by foreign capital. Uganda is therefore in a position in which it is dependent on foreign resources for a significant portion of its investment and consumption. This structure of financing has implications to future economic growths.

61. The levels and composition of gross fixed capital formation by type such as in buildings, machinery and equipment show that the construction boom in Uganda was amplified by the confidence expressed in the sustained economic growth that the country witnessed. Indeed, the evolution of gross construction output over the last eleven years shows that total construction grew by 8.3 percent on average. For the

individual components, the construction of commercial buildings expanded by 12.7 percent per annum, road construction by 7.3 percent and residential buildings by 4.9 percent. In terms of composition, the share allotted to roads averaged 11.4 percent over the period 1994/95 to 2004/05. Between 1994/95 and 1997/98 residential building construction exceeded the share of commercial buildings, by 1999/2000 the two components were about even. However, over the period 2001/01 to 2004/05 the share of commercial buildings in total construction exceeded that of residential buildings. The share of commercial buildings increased from 36 percent at the beginning of the period to 52 percent in 2004/05 suggesting that the construction boom has shifted in favour of commercial buildings.

62. The composition of investment by private and public shows that in constant 1997/98 prices the share of fixed capital formation to GDP at market prices has declined to 15.9 percent between 1997/98 and 2004/05 from 17.2 percent during the period of high growth (1992/93 to 1996/97) and 16.1 percent in the earlier period. However, the composition of investment between public and private appears to have been transformed. Between 1986/87 and 1991/92, public investment was equivalent to an annual average of 7.6 percent as a ratio to GDP while private investment was 8.5 percent of GDP. By 2004/05 private investment had risen to 11.9 percent of GDP, nearly three times the level of public investment which was recorded at 4.1 percent of GDP.

63. The trend of investment deflator's shows that by 2004/05 public construction prices had risen by 78 percent above the levels recorded in 1997/98. The rising costs of public construction were also followed by an increase of 48 percent in the private construction prices over the same period. The general tendency of the construction prices to increase appears to be driven by the rapid increase in demand for construction inputs that followed improved political and investment climate after 1986. The increased demand for construction inputs exerted pressure on the supply of inputs deployed in the construction sector. Indeed, these developments reflect the increasing share of construction in total GDP.

64. Estimates of the contribution of capital accumulation to growth and productivity show that Uganda's incremental capital output ratio trended downward during the 80's until the period 1992-1996, when an improvement in investment efficiency was recorded. Since 1996, the average ICOR increased to an average of 2.2, which is comparatively higher than the average of 1.8 between1992-96 showing a decline in investment performance. This decline in investment efficiency is in conformity with fall in the growth rate of total factor productivity over the period 1996 to 2004. The decline in investment efficiency is due to the fact that the financial sector is not adequately fulfilling its role of transforming the domestic savings into effective investments due to preference for investing in the safe and high yielding treasury securities. In addition, Uganda's capital markets is still quite small and companies have limited choice in the source of investment capital.

65. In order to improve investment performance it is important to go beyond the aggregate level analysis to identify critical interventions that need to be put in place to improve investment at the firm level. This will require a characterization of firm level data sets from existing surveys and an investigation of the critical determinants of productivity and investment at the firm level.

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APPENDIX 1

Brief methodology for computation of investment components

The road construction, and other public sector building and construction gross output (for both projects and government) are generated from data in the Public Investment Plan (PIP). The levels of private commercial buildings and residential houses were estimated from the census and surveys. The trends of supply of principle inputs to building and construction are used as principal indicators of the building and construction, other than road construction. Adjustments are then made to cater for provisions for output of a non-capital nature such as minor maintenance made.

The estimation of machinery and equipment in gross fixed capital formation is based on the Standard International Trade Classification (SITC) of imports. The main import groupings are Group 71 – 79 (machinery and vehicles), 82 (which includes furniture), and 87 (which includes scientific instruments). The codes in the database help to separate data by type of user and purpose of importation. The available data is categorized into private imports, diplomatic imports, project imports and so on. This broad breakdown is then employed to determine the separation between public and private investment.

APPENDIX 2

To understand the link between capital accumulation and economic growth we follow Beddies (1999) and Ghura (1997). These studies utilise an aggregate production function in the capital stock is divided into private and government physical capital, and human capital. Their Solow-Swan-type aggregate production function can be written as:

$$Y_t = A_t\left(K_t^p\right)^{\alpha}\left(K_t^g\right)^{\beta}\left(Z_t\right)^{\gamma}, \text{ where } Z_t = H_t L_t \qquad (1)$$

In this neoclassical model Y denotes output in period t; A_t is the measure of technology in period t; K_t^p and K_t^g denote the private and the government physical capital stocks in period t, respectively; Z_t is labour L_t in period t, augmented by human capital developments H_t. The parameters α, β, and γ denote the elasticities of output with respect to three types of capital[7]. In lower case specification equation (1) can be written in growth rates as:

$$y = \alpha + \alpha k^p + \beta k^g + \gamma z \qquad (2)$$

In order to estimate equation (2) directly, one has to construct a series for the capital stock. In this paper we use data on investment-to-GDP and GDP growth dating back to 1960 from Bigsten and Kayizzi-Mugerwa (2001), and derive a figure of 122.2 percent as the ratio of capital to GDP at the end of 1981/82. This ratio is used to derive the stock of capital at the end of 1981/82. The capital stock series thereafter is constructed using the perpetual inventory method by assuming a depreciation rate of 15 percent[8] and using the time series on total investment using equation (3) below.

$$K_t = K_{t-1}\left(1-\delta\right) + I_t \qquad (3)$$

where K_t is the capital stock in period t, δ is the rate of depreciation and I_t is total investment in period t.

To construct a series on the public stock, it is assumed that the share of government capital in the total capital stock is equal to the average government investment ratio over the sample. Using this theoretical capital stock in 1981/82, the series upto 2003/04 is then obtained the same way as the total capital stock while private capital stock is obtained as the difference between total capital stock and government capital stock. Thus

$$K_t^g = K_{t-1}^g\left(1-\delta^g\right) + I_t^g$$
$$K_t^p = K_t - K_t^p \qquad (4).$$

[7] While Romer (1986) and Lucas (1988) reject the central assumptions of technical progress being exogenous and available in the same way to all countries, this model provides an initial way in which to look at the issue of productivity growth in developing countries.

[8] This rate generated the most plausible capital-output ratio of about 1 which matches the ratios observed in other developing countries .

Where I_t^g denotes real government investment and $\left(\delta^g\right)$ the depreciation rate of government capital stock.

Estimation and Data

The equivalent of equation (2) above which is used for estimation purposes can be written as

$$GRGDP_t = a + \alpha KPG_t + \beta KGG_t + \gamma GLT_t + \varepsilon_t$$

where $GRGDP_t$ represents output growth, the variable KPG_t denotes real private capital growth; KGG_t is real public capital growth, GLT_t denotes labour growth and ε_t is an independently and identically distributed stochastic shock (all in period t).

Before estimating, some issues relating to the properties of the underlying data were verified. Testing for stationarity of the different time series to ensure that the variables used in the regressions were not subject to spurious correlation was done. The augumented Dickey-Fuller test (ADF) was used to test for unit roots in the data. Table 13 summarises the results of the stationarity tests for the variables.

Table 13: Unit root test on the variables

Variable	Lag length	ADF Test Statistic
GRGDP	0	-2.661
KPG	0	-1.510
KGG	0	-2.187
GLT	0	-2.137

Source: Authors

The tests revealed that all variables had unit roots. The variables were detrended as follows. Each variable was regressed on a constant, a time trend and its own significant lags. The residual from the regressions were then used as the detrended series in the subsequent analysis. The test results for stationarity in the new series are shown in table 14 below.

Table 14: Unit root test on the detrended variables

Variable	Lag length	ADF Test Statistic
GRGDP	0	-3.272
KPG	0	-3.268
KGG	0	-4.372
GLT	0	-4.108

Source: Authors

All series were stationary at both the 10 percent and 5 percent significance levels. Equation (2) was therefore, estimated by way of OLS using the detrended series. Table 15 below summarises the results.

Table 15: Regression estimates for real output growth using capital stock accumulation and labour force growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KPG	0.388259	0.288714	1.344786	0.1964
KGG	0.525929	0.249840	2.105065	0.0505
GLT	0.245346	1.537541	0.159570	0.8751
C	-0.003276	0.006372	-0.514118	0.6138
R-squared	0.335208	Mean dependent var	-0.002559	
Adjusted R-squared	0.217892	S.D. dependent var	0.032973	
S.E. of regression	0.029161	Akaike info criterion	-4.062353	
Sum squared resid	0.014456	Schwarz criterion	-3.863396	
Log likelihood	46.65471	F-statistic	2.857308	
Durbin-Watson stat	1.705490	Prob(F-statistic)	0.067773	

Source: Authors

APPENDIX 3

The next step is to determine the capital output ratios for both private and government capital.

Following Ghura (1997), consider the following equations representing the growth of both private and government capital stocks:

$$\frac{\Delta K_t^p}{\Delta K_{t-1}^p} = \frac{I_t^p}{K_{t-1}^p} - \delta^p \quad (5)$$

$$\frac{\Delta K_t^g}{\Delta K_{t-1}^g} = \frac{I_t^g}{K_{t-1}^g} - \delta^g \quad (6)$$

Where I_t^p denotes real government investment and $\left(\delta^p\right)$ the depreciation rate of private capital stock. Assuming that both private and government stocks are a constant share of real GDP, that is

$$K^p = \mu^p Y \quad (7)$$

$$K^g = \mu^g Y \quad (8)$$

where μ^p and μ^g are the respective fixed coefficients on private and government capital, one can rewrite equation (2) to obtain:

$$y = a' + \alpha' \left[\frac{I_t^p}{Y_{t-1}}\right] + \beta' \left[\frac{I_t^g}{Y_{t-1}}\right] + \gamma z \quad (9)$$

where $a' = \left(a - \alpha\delta^p - \beta\delta^g\right), \alpha' = \frac{\alpha}{\mu^p}, \beta' = \frac{\beta}{\mu^g}$

Using available data on investment, labour force, equation (2) is re-estimated as equation (9) and the coefficients of $\alpha' and \beta'$ are used to derive private and government capital output ratios μ^p and μ^g respectively using expressions in (7) and (8).

Estimation and Data

The equivalent of equation (9) above which is used for estimation purposes can be written as

$$GRGDP_t = a' + \alpha' PIY_t + \beta' GIY_t + \gamma' GLT_t + \varepsilon_t$$

where $GRGDP_t$ represents output growth, the variable PIY_t denotes real private investment as a share of lagged real GDP; GIY_t is the ratio of real government investment to lagged real GDP and GLT_t denotes labour growth and εt is an independently and identically distributed

Before estimating equation (9), the properties of the ratios of real investment to real lagged output for both private and government were tested for stationarity. The augumented Dickey-Fuller test (ADF) was used to test for unit roots in the data. Table 16 summarises the results of the stationarity tests for the variables.

Table 16: Unit root test on the variables

Variable	Lag length	ADF Test Statistic
PIY	0	-2.066
GIY	0	-2.028

Source: Authors

The tests revealed that both real private and real government investment as shares of lagged real GDP contained unit roots. The two variables were therefore detrended by regressing each variable on a constant, a time trend and its own significant lags. The residual from the regressions were then used as the detrended series in the subsequent analysis. The test results for stationarity in the new series are shown in table 17 below.

Table 17: Unit root test on the detrended investment variables

Variable	Lag length	ADF Test Statistic
PIY	0	-3.581199
GIY	0	-3.480891

Source: Authors

Both series were found to be stationary at the 10 percent and 5 percent significance levels. Equation (9) was therefore, estimated by way of OLS using the detrended series. Table 18 below summarises the results.

Table 18: Regression estimates for real output growth using investment to lagged GDP and labour force growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PIY	0.652821	0.050063	13.03998	0.0000
GIY	1.302848	0.046308	28.13457	0.0000
GLT	0.245346	1.537541	0.159570	0.8751
C	-0.003276	0.006372	-0.514118	0.6138
R-squared	0.986059	Mean dependent var	-0.002559	
Adjusted R-squared	0.985325	S.D. dependent var	0.019670	
S.E. of regression	0.002383	Akaike info criterion	-9.150704	
Sum squared resid	0.000108	Schwarz criterion	-9.051226	
Log likelihood	98.08239	F-statistic	1.717473	
Durbin-Watson stat	0.986059	Prob(F-statistic)	-0.002559	

Source: Authors

APPENDIX 4

Total factor productivity was estimated for the periods 1986 to 1991, 1992 to 1996 and 1997 to 2004. Estimating this equation requires the construction of data on capital stocks in order to estimate the long run model. For estimation purposes long run total factor productivity growth can be estimated from equation 10 below:

$$y = \alpha + \alpha KP_t + \beta KG_t + \gamma ALG_t + \varepsilon_t \qquad (10)$$

Where $tfpg$ total factor productivity growth, the variable KP_t denotes real private capital growth, KG_t denotes real public capital growth, LG_t labour growth augmented by the human capital stock; and finally, ε is the $i.i.d$ stochastic error component. The estimates of capital stock allow for the computation of total factor productivity because the growth of TFP is given by the estimated constant-the deterministic component of TFP plus the error term-the stochastic component of TFP that is generated from estimating equation 10 above. Productivity growth was estimated using equation (11) below.

$$tfpg = y - \alpha KP_t - \beta KG_t - \gamma LG_t = \alpha + \varepsilon_t \qquad (11)$$

where $tfpg_t$ is the total factor productivity growth[9] in period t.

The ADF test with a 0 lag returns a value of -3.722 while the critical value at a 5 percent
level of significance is –3.020 confirming that the series is stationary.

[9] TFP growth is empirically derived as the deterministic component α -the constant and the stochastic component ε_t -which is the residual in period t.

APPENDIX 5

Estimation of Determinants of TFP

The equivalent of equation (4), which is used for estimation purposes, can be written as

$$TFPKAP = C(1)*EX2GDPR + C(2)*DPR + C(3)*TOTR + C(4)*A2IGSR + C(5) \quad (12)$$

where TFPKAP represents total factor productivity, the variable EX2GDPR denotes the natural log of the ratio of exports of goods and services to real GDP, GDPR denotes the natural log of changes in inflation, TOTR denotes the natural log of changes in the terms of trade and A2IGSR denotes the natural log of the ratio of aid to imports of goods. The parameters C(1), C(2), C(3) and C(4) denote the respective coefficients while C(5) is the intercept.

Before estimating equation (12), some issues relating to the properties of the underlying data were verified. Testing for stationarity of the different time series to ensure that the variables used in the regressions were not subject to spurious correlation was done.
The augumented Dickey-Fuller test (ADF) was used to test for unit roots in the data. Table 19 summarises the results of the stationarity tests for the variables.

Table 19: Unit root test on the variables

Variable	Lag length	ADF Test Statistic
EX2GDPR	0	-2.503363
DPR	0	-1.316210
TOTR	0	-1.815498
A2IGSR	0	-1.895256

Source: Authors

The tests revealed that all variables had unit roots. The variables were detrended as follows. Each variable was regressed on a constant, a time trend and its own significant lags. The residual from the regressions were then used as the detrended series in the subsequent analysis. The test results for stationarity in the new series are shown in table 20 12) was therefore, estimated by way of OLS using the detrended series. Table 2

Table 20: Regression estimates for real output growth using capital stock accumulation and labour force growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EX2GDPR	0.067509	0.043724	1.543984	0.1434
DPR	-0.071920	0.035997	-1.997953	0.0642
TOTR	0.054219	0.027861	1.946083	0.0706
A2IGSR	-0.008686	0.027687	-0.313715	0.7581
C	-0.001900	0.005404	-0.351656	0.7300
R-squared	0.376730	Mean dependent var	-0.002199	
Adjusted R-squared	0.210525	S.D. dependent var	0.027115	
S.E. of regression	0.024092	Akaike info criterion	-4.401549	
Sum squared resid	0.008706	Schwarz criterion	-4.152616	
Log likelihood	49.01549	F-statistic	2.266657	
Durbin-Watson stat	1.308475	Prob(F-statistic)	0.110346	

Source: Authors

APPENDIX 6
Table 21: Value added at constant (1997/98) prices, percentage share of GDP

INDUSTRY GROUP	1982/83-1985/86	1986/87-1991/92	1992/93-1996/97	1997/98-2004/05
	Period average			
Agriculture	52.1	53.3	45.7	35.4
Mining & quarrying	0.2	0.2	0.4	0.8
Manufacturing	7.6	5.9	7.4	9.4
Services	40.1	40.6	46.5	54.5
Electricity/water	*0.6*	*0.7*	*1.2*	*1.4*
Construction	*3.5*	*4.7*	*6.5*	*8.7*
Wholesale & Retail Trade	*13.7*	*14.2*	*12.0*	*11.3*
Hotels & Restaurants	*1.0*	*1.2*	*1.7*	*2.7*
Transport/communication	*2.9*	*3.5*	*4.1*	*6.0*
Community services	*18.3*	*16.3*	*20.9*	*24.4*
TOTAL GDP	**100.0**	**100.0**	**100.0**	**100.0**

Source: UBOS

APPENDIX 7

Table 22: Value added at constant (1997/98) prices, percentage growth rates

INDUSTRY GROUP	1982/83-1985/86	1986/87-1991/92	1992/93-1996/97	1997/98-2004/05
	Period average			
MONETARY				
Agriculture	0.9	4.9	7.0	4.1
Cash crops	0.6	4.1	11.1	3.2
Food crops	1.6	5.8	7.7	4.7
Livestock	-1.8	3.4	3.8	3.6
Forestry	-1.1	6.8	6.6	6.5
Fishing	4.5	4.5	3.3	3.0
Mining & quarrying	-3.5	28.9	21.8	11.7
Manufacturing	-0.2	11.7	14.5	6.4
Formal	-1.2	13.0	14.7	6.6
Informal	2.1	8.7	14.6	6.3
Electricity/water	3.0	5.7	9.0	6.4
Construction	-4.0	12.7	15.0	9.7
Wholesale & Retail Trade	0.9	6.8	9.8	5.5
Hotels & Restaurants	-0.7	12.3	14.4	12.3
Transport/communication	1.0	6.1	10.5	12.7
Road	2.1	6.1	9.7	6.3
Rail	-0.7	6.6	5.3	4.1
Air & Support. Services	1.5	8.5	21.6	5.3
Communications	-3.5	5.1	11.2	32.2
Community services	2.5	6.3	6.5	5.1
General government	1.2	5.2	5.1	2.7
Education	3.3	4.0	5.4	6.8
Health	2.1	4.3	4.9	5.0
Rents	2.7	11.1	9.0	5.3
Miscellaneous	3.0	9.3	8.3	5.1
TOTAL MONETARY	1.0	6.7	9.0	6.3
NON-MONETARY				
Agriculture	1.9	2.3	2.2	2.6
Food crops	2.1	2.1	2.0	2.2
Livestock	-1.2	4.0	4.4	4.9
Forestry	2.8	3.3	2.6	3.8
Fishing	4.5	4.5	3.3	3.0
Construction	1.4	3.6	3.0	3.3
Owner-occupied Dwellings	2.1	2.8	6.2	7.1
TOTAL NON-MONETARY	1.9	2.4	2.7	3.4
TOTAL GDP	1.3	5.3	7.3	5.6

Source: Uganda Bureau of Statistics

APPENDIX 8

Table 23: Value added at constant (1997/98) prices, percentage share of GDP

INDUSTRY GROUP	1982/83-1985/86	1986/87-1991/92	1992/93-1996/97	1997/98-2004/05
		Period average		
MONETARY		4.7	6.5	8.7
Agriculture	22.2	22.6	23.5	19.8
Cash crops	3.1	2.4	4.7	3.3
Food crops	11.9	12.6	11.9	10.4
Livestock	4.4	4.4	3.5	3.2
Forestry	0.9	1.0	0.9	0.7
Fishing	1.9	2.2	2.4	2.2
Mining & quarrying	0.2	0.2	0.4	0.8
Manufacturing	7.6	5.9	7.4	9.4
Formal	5.7	3.9	5.1	6.8
Informal	1.9	2.0	2.3	2.6
Electricity/water	0.6	0.7	1.2	1.4
Construction	2.7	3.9	5.8	8.1
Wholesale & Retail Trade	13.7	14.2	12.0	11.3
Hotels & Restaurants	1.0	1.2	1.7	2.7
Transport/communication	2.9	3.5	4.1	6.0
Road	2.5	2.6	3.1	3.7
Rail	0.2	0.2	0.2	0.2
Air & Support. Services	0.2	0.4	0.5	0.5
Communications	0.0	0.3	0.4	1.7
Community services	15.5	13.3	17.7	20.6
General government	5.6	2.9	4.5	4.4
Education	3.8	3.3	4.3	6.2
Health	1.1	1.2	1.5	2.3
Rents	2.0	2.5	3.7	4.2
Miscellaneous	2.9	3.4	3.8	3.6
TOTAL MONETARY	66.3	65.4	73.9	80.0
NON-MONETARY				
Agriculture	30.0	30.7	22.2	15.6
Food crops	27.3	28.0	19.8	12.4
Livestock	1.3	1.4	1.2	1.8
Forestry	1.1	1.1	1.0	1.1
Fishing	0.2	0.3	0.3	0.3
Construction	0.8	0.8	0.7	0.6
Owner-occupied Dwellings	2.9	3.0	3.2	3.8
TOTAL NON-MONETARY	33.7	34.6	26.1	20.0
TOTAL GDP	100.0	100.0	100.0	100.0

Source: Uganda Bureau of Statistics

APPENDIX 9

Table 24: Foreign exchange inflows to Uganda- 1982 to 2004 (US$ million)

ITEM	1982-1985	1986-1991	1992-1996	1997-2004
	Period average			
Current Transfers, n.i.e.: Credit	79.5	264.8	502.1	741.8
Current Transfers: Debit	-0.1	-0.2	0.0	-197.4
Direct Investment Abroad	0.0	0.0	0.0	0.0
Dir. Invest. in Rep. Econ., n.i.e.	0.0	0.2	77.6	184.5
Portfolio Investment Assets	0.0	0.0	0.0	0.0
Equity Securities	0.0	0.0	0.0	0.0
Debt Securities	0.0	0.0	0.0	0.0
Portfolio Investment Liab., n.i.e.	0.0	0.0	0.0	0.6
Equity Securities	0.0	0.0	0.0	0.2
Debt Securities	0.0	0.0	0.0	0.4
Other Investment Assets	20.4	22.0	-18.1	6.4
Monetary Authorities				8.7
General Government	9.4	6.0	0.0	-2.4
Banks	0.1	-1.7	-11.8	-19.9
Other Sectors	10.9	17.7	-6.3	24.3
Other Investment Liab., n.i.e.	-4.1	80.2	60.4	150.7
Monetary Authorities	-23.9	-24.5	-0.1	0.0
General Government	16.3	128.1	96.8	175.5
Banks	-4.6	1.4	-4.6	-15.7
Other Sectors	8.1	-24.9	-31.7	-9.2
Reserves and Related Items	15.2	46.0	44.7	113.4
Reserve Assets	-4.8	2.1	-95.3	-72.3
Use of Fund Credit and Loans	27.4	-8.3	16.9	-28.4
Exceptional Financing	-7.3	52.2	123.1	214.1

Source: Bank of Uganda

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