OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

FAIR USE POLICY

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

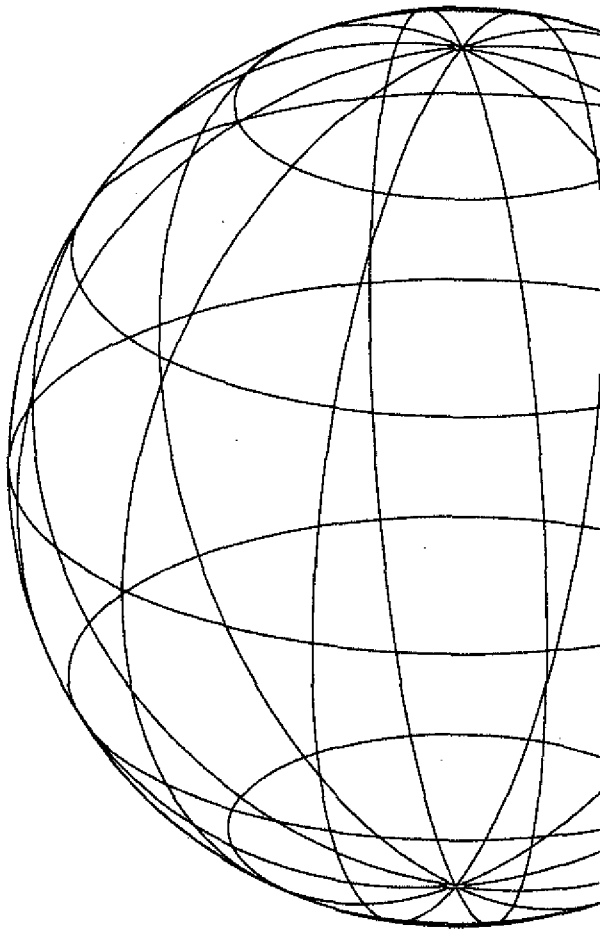
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

UNIDO RESEARCH PROGRAMME

Productivity Performance in Developing Countries

Country Case Studies

Uganda



UNIDO
UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO RESEARCH PROGRAMME

Productivity Performance in Developing Countries

Country Case Studies

Uganda

G. Ssemogerere

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna, 2005

Contents **Page**

List of tables

List of figures

Abbreviations

Art	Anti-retroviral Therapy (treatment for AIDS).
AERC	African Economic Research Consortium (Nairobi, Kenya).
AGOA	African Growth Opportunity Act (USA trade preference to SSA).
AIDS	Acquired Immunity Deficiency Syndrome.
CEM	Country Economic Memorandum, by World Bank.
COMESA	Common Market for Eastern and Southern Africa.
DLP	Growth in average Labour Productivity, or growth in (Q/L).
EBA	Everything But Arms (EU Trade Preference to SSA).
ERP	Economic Recovery Programme.
EPRC	Economic Policy Research Centre.
FDI	Foreign Direct Investment.
GDP	Gross Domestic Product.
GFKF	Gross Fixed Capital Formation.
GNS	Gross National Savings.
GOU	Government of Uganda.
IBRD	International Bank for Reconstruction and Development.
ICT	National Information and Communication Technology.
IPA	Investment Promotion Agency.
MFIs	Micro-finance Institutions.
MoFPED	Ministry of Finance, Planning and Economic Development.
MLSEs	Medium to Large Scale Enterprises.
MTAC	Management Training and Advisory Centre.
MTCSPS	Medium Term Competitive Strategy for the Private Sector.
MoTTI	Ministry of Tourism, Trade and Industry.
ODA	Official Development Assistance.
PEAP	Poverty Eradication Action Plan.
PERID	Public Enterprise Restructuring and Divestiture.
Pes	Public Enterprises (Parastatals).
RERP	Revised Economic Recovery Programme.
SMEs	Small and Medium Enterprises.
SMIL	Strategic Management of Inter-Sectoral Linkage.
SSMEs	Small-scale and Micro Enterprises.
TBs	Treasury Bills.
TOT	Barter Terms of Trade.
UCPC	Uganda Cleaner Production Centre.
UEB	Uganda Electricity Board.
UEPB	Uganda Export Promotions Board.
UDC	Uganda Development Corporation.
UIA	Uganda Investment Authority.
UIRI	Uganda Industrial Research Institute.
UMACIS	Uganda Manufacturers Association Consultancy and Information Service.
UMMA	Uganda Museums and Monuments Agency.
UNBS	Uganda National Bureau of Standards.
UNDP	United Nations Development Programme.
UNCST	Uganda National Council of Science and Technology.
UNIDO	United Nations Industrial Development Organization.
URA	Uganda Revenue Authority.
URC	Uganda Railway Corporation.

UTB	Uganda Tourist Board
UWA	Uganda Wildlife Authority.
UWEC	Uganda Wildlife Education Centre

Executive summary

Introduction

The purpose of this report is to analyze and interpret Uganda's experience with productivity change over the period 1961 to 2000. A broad interpretation of productivity trends is provided, followed by an analysis of their correlation with the overall economic performance. In analyzing the major determinants of productivity change, the factors behind productivity growth are identified. The key objective of the report, part of a broad research project by UNIDO entitled "Productivity Performance in Developing Countries," is to provide material to the public policy community on the impact of policy on the productivity process in Uganda.

Section 1 provides a broad interpretation of the data on trends in productivity in Uganda over a period of almost forty years. Section 2 assesses the country's strengths and weaknesses in the three groups of determinants of productivity analyzed. Section 3 presents a discussion, based on Section 2, of government policies that have an impact on productivity.

Trends in productivity in Uganda 1961 to 2000

Rapid growth in overall output occurred in three phases. The first phase covered the years following independence, 1963/66; 1967/69; and 1970/71. During this time, sound economic management kept the annual rate of inflation at 5%, gross national savings (GNS) as a percentage of GDP at 15 p.a., gross domestic investment (GDI) demand at 12% p.a. with exports to both the EAC and the rest of the world averaging 27% of GDP p.a.

A second phase of rapid growth in overall output was, in contrast, externally financed by ODA over the periods 1979/81, 1985/87 and 1988/90. In the first two periods, ODA financed the recovery from the civil war of Amin's era that lasted from 1971 to 1979. In the second period, ODA also financed the recovery from the guerrilla war against the Obote II regime. The third inflow in 1988/90 started an unprecedented stream of ODA, which initially financed capacity building to prepare for the SAPs regime of 1990/91-1996/97. ODA then protected the economy from an adverse TOT shock in 1990/92, and funding continued to fuel the recovery, until it peaked at US $ 871million in 1995.

The third phase consists of a weaker, but positive growth period over the years 1998/99, which were characterized by macro-economic stability and relative peace and security (except in the northern part of the country). This favourable environment attracted FDI, which rose from a record low of US $ 1.8m in 1995 to US $ 187.5 by 1998.

Overall, the factors fuelling growth episodes were as follows in order of relative importance:

(a) ODA was most prominent especially following the civil wars;

(b) Early growth following independence, in contrast, was associated with high gross national savings (GNS), plus excellent export earnings, which financed investment:

(c) Exogenous favourable TOT, though important in 1994/96 ranked third as a propeller of rapid growth;

(d) The post SAP policies of macro-economic stability and an enabling investment climate are just beginning to attract FDI and rank fourth as driving forces of rapid growth.

Slumps in output were associated with two driving forces: poor polices that precipitated civil wars (1964/66; 1969/70), actual wars (1971/79; 1981/86) and exogenous adverse TOT shocks which were a secondary contributor to slumps in the periods 1990/92, 1996/98, 1999/2000 and continued to 2002.

The trend in capital deepening was erratic and characterized by six periods of rapid growth, punctuated by sharp productivity slumps. The overall picture is that the driving forces were similar to those of economic growth. In order of importance, these were as follows: (a) ODA that financed the economic recovery from civil wars in 1980/83 and 1986/87; (b) the contribution of favourable economic policies immediately after independence in 1962/63, subsequently in 1966/69 and the more recent improvements in the investment climate 1998/2000, as indicated in the World Bank & UMACIS study (2004) and (c) the exogenous positive terms of trade shock that raised the overall profitability of investment and enhanced capital deepening over the period 1992 to 1995.

In contrast, the overall picture from periods of slump is that they are closely associated with the poor policies that precipitated the civil wars in 1971/79 and 1981/86, just as is the case with the slumps in overall output, economic growth.

Comparison of the contributions of Capital Deepening and the Growth in Labour Productivity to Economic Growth

The growth episodes of capital deepening started at least a year earlier 1962/64 compared to 1963/66 and 1967/69 compared to 1970/71. These were periods when overall output growth was propelled by GNS that financed the growth in capital deepening.

In the periods following the civil wars 1979/81, 1985/87, and 1988/90 continuing to 1995, the ODA inflows were particularly prominent. The 1994/96 favourable TOT was also prominent. These two factors propelled the overall growth of output, by which the capital formation process was driven.

In the most recent period, a rising inflow of FDI and rising GNS financed the capital deepening process, which in turn propelled overall output growth. This reversal back to the traditional role of investment propelling output growth that took place after independence up to 1970, was equally positive and interesting, as ODA tapered off.

Trend in Average Labour Productivity

Periods of rapid growth in average labour productivity were concentrated in the years following independence in 1962, 1964/65 and 1967/69, propelled by the inherited health and education infrastructure, rated the best in SSA at the time. The more recent positive trend, 1986/2000, although above zero, has yet to establish a sustained upward movement.

Slump periods in average labour productivity were less in the immediate post–independence period, 1962/63–1969/70. However, the civil wars of 1971-79 and 1981-86, together with economic mismanagement, led to a massive loss in overall labour quality accumulation.

Trends in Average Labour Productivity for the Manufacturing Sector, Compared to Trends in Manufacturing Output

Available data from Uganda for the thirteen-year period from 1987 to 2000 shows practically zero average annual growth in employment (0.4 % p.a.), compared to an impressive average annual growth in manufacturing output of 14.1%. The implication is that the trend in average labour productivity could not have been a relevant propeller of the trend in manufacturing output. Evidence from firm-level surveys indicates that manufacturing sector growth, especially in the modern MLSEs is capital–intensive, with newer capital in the recent 5 – 10 years. This follows from the need for enterprises to compete globally and is also consistent with the World Bank & UMACIS study (2004) which ranks Uganda's labour productivity as the lowest among its SSA neighbours in terms of value added per worker in US $ from an average firm size (Uganda 1,085; Tanzania 2,016; Zambia 2,680; Kenya 3,457).

The Labour Productivity Gap between Uganda and the "USA World Technology Frontier"

According to the UNIDO Productivity Database, the average labour productivity in Uganda declined from 3.29% points in 1961 to 2.84% points by 2000, a decline of 0.45% points, despite Uganda's tremendous real GDP growth of over 6.2% p.a. in the 1990s. The broad interpretation from the evidence of a net loss in average labour productivity for the economy and the near zero growth in employment of 0.4% p.a. for 13 years is consistent with the negative 0.45% productivity gap.

Trend in TFP for the economy

Our broad interpretation of the trend in TFP is based on the following pieces of information from the UNIDO Productivity Database 1961/2000, studies of the Ugandan economy over the period 1986/2002 and our own observations of capacity utilization in selected manufacturing establishments in1987/1998.

The general interpretation is that TFP has contributed positively to overall output growth, especially over the years 1986/87-2000 within the range 1% to 3% p.a.

Assessment of the major determinants of productivity

The objective of Section 2 is to assess the strength and weaknesses of the determinants of productivity in Uganda, in terms of: their orientation- i.e. whether they enhanced or negatively affected productivity, the channels or mechanisms through which the effects impacted on the overall output growth of the economy and the manufacturing sector and the intensity with which the impact was exerted. The determinants fell into three groups; (a) the creation, transmission, and absorption of knowledge; (b) factor supply and allocation and (c) institutions, integration and invariants.

To the best of our knowledge, there are no published studies on the determinants of productivity in Uganda or any organized time-series data to track down the trends in these determinants. This report, as the first venture into the subject, has pieced together evidence, based on different methodologies and time spans. Given the lack of background information, the assessment of each group of determinants is qualitative.

Creation, transmission and adoption of knowledge

The knowledge group of determinants was analyzed at three levels: creation, transmission, and adoption.

Uganda's participation in the creation of knowledge is minimal. Taking participation in R&D activities as a proxy for inputs into knowledge creation published, the data available for 1987/97 showed that Uganda had only 21 scientists and engineers and 14 technicians per million persons. The country's residents filed only seven patent applications, compared to the 101 average for SSA. The Draft Cabinet Paper (2004) on the latest policy proposals regarding productivity noted a "Lack of a well-defined industrial research and intellectual property rights policy; the bulk of patents and license applicants are foreign. Piracy is rampant, and there is no respect for local innovation, which would otherwise improve domestic capabilities." The most recent survey of 21 manufacturing firms by Hasunira (2004) also confirms that the level of formal R&D is low, revolving around minor alterations to imported machinery and fabrication of spare parts. Our overall assessment is that such low participation in the creation of knowledge activities was too weak a determinant to exert a positive impact on productivity growth.

Three channels were considered for the transmission of different types of knowledge. Firstly, in SSA, the best practices of indigenous knowledge are transmitted by culture and tradition across generations. While this is ongoing, Uganda did not show evidence of participation in the initiative before WTO/TRIPS to protect indigenous knowledge, especially in its communal form. This lack of protection is likely to intensify piracy and weaken the cultural transmission mechanism (Adede, A.O., 2002). Secondly, the literature on FDI shows that knowledge from this source is transmitted via joint ventures between local and foreign investors, backward linkages when local investors supply inputs and other sub-contracted services. Uganda has no specific policy or incentives to promote joint ventures, sub-contracting or backward linkages to FDI. Thirdly, as observed by Kakembo (2003), locally generated knowledge in academic and other specialized research institutions lacks an institutional mechanism to link producers (the research institutions and academia), users (business and industry) and policy-makers. The new policy put in place by the UNCST in 2000 is too recent to have made an impact on productivity growth.

Absorption of knowledge

The process of absorbing knowledge requires local capacity to select, process and modify/develop technology into an appropriate form to locally impact on productivity.
Ha-Joon Chang & Duncan Green (2003) and S. Lall (1995) documented numerous examples of newly industrialized countries that rapidly pushed out their absorption knowledge frontiers by generating stocks of human capital infrastructure from primary, secondary and vocational education to make their workforce highly receptive of new skills, especially in labour–

intensive manufacturing, and by putting in place incentives to promote "learning" and the modification of more complex and capital intensive technologies. In contrast, Uganda's stock of skills to absorb knowledge is severely limited. At the general skills level, only 10% of the population attained Primary 7 education, only about 3% has completed Senior 6 and above and just over 9% has vocational training.

Uganda's low participation in R&D and protection of intellectual property rights, the absence of incentives and an institutional infrastructure to transfer both locally produced and foreign knowledge and the scarce stock of human capital to absorb knowledge lead to the conclusion that knowledge acquisition, transmission and absorption have they have been weak and minimal in effecting productivity.

Determinants of accumulation of factors of production (factor supply), factor allocation,and the effect of each group of factors on productivity

Three groups of factor supply are considered: physical capital in plant, equipment and construction, labour quality/human capital and physical infrastructure, with a focus on electricity supply.

The capital accumulation process was erratic, inadequate in scale, biased towards construction rather than equipment and had a positive but weak impact on productivity. The ODA inflows, the major channel through which the accumulation took place, especially for public investment, was scaled down from 12.6% of GDP (2002/03) to 3.7% by 2023, to minimize its adverse effects on the macro-economic aggregates. Stronger impact of capital accumulation on productivity will depend on: how the Government of Uganda succeeds in raising tax revenue to finance public investment, reforming the financial sector to mobilize domestic savings and channelling the growing remittances from Ugandans working abroad through the formal banking system to augument savings. In addition, FDI has been rising since 1995, with new capital equipment that has the potential to effect technical efficiency and technological progress. These new changes, if successfully managed, may ultimately strengthen the physical capital accumulation process as a determinant of productivity.

Uganda's stock of human capital is particularly thin, even by SSA standards. Three determinants of quality labour/human capital accumulation are assessed in a historical perspective: political instability and economic mismanagement 1971/86, the current functioning of the labour market and the HIV/AIDs epidemic.

Political instability and economic mismanagement led to expulsion of skilled personnel of Asian origin. This was followed by a massive and prolonged brain drain of locally skilled personnel fleeing for personal safety reasons and leaving behind run down educational institutions staffed by unqualified personnel, lacking scholastic materials and equipment, and in disrepair due to neglect. Uganda's reliance on semi-subsistence agriculture, which employs 79% of the entire labour force, led to a neglect of labour market issues. This has resulted in combined rates of unemployment and under-employment of 61.9% and very low wage levels for unskilled labour. Most unskilled workers survive by moving between multiple jobs with a loss of time and productivity.

The HIV/AIDs epidemic is the most recent of determinant of loss in labour productivity to have become evident in the 1990s. Ten percent of the labour force is infected and 37 days per employee p.a. are lost from work for HIV/AIDs related reasons.

The net effect of the three determinants of human capital accumulation is a massive loss of skilled personnel with a highly negative impact on productivity.

The supply of physical infrastructure as a determinant of productivity with a focus on electricity

Geographically, Uganda is sufficiently endowed with the potential to meet its demand for hydroelectric power for the foreseeable future. On the river Nile alone, the potential is estimated at 2000 MW while current peak demand is 649 MW p.a. - i.e. only 32% of potential. Estimated growth in demand is 30-40 MW p.a., which translates into peak demand of 849 MW in 2010, or 42% of potential supply.

Despite the favourable, natural resource endowment relative to demand, electricity is the most crippling determinant of productivity which manifests itself in frequent power cuts of 38.6 days p.a., a loss of 6.3% production p.a. by an average firm and tariff rates that the business community considers uncompetitive. Historically power was supplied by the Uganda Electricity Board (UEB), as a statutory monopoly. Privatization replaced UEB with a vertically integrated monopoly of three companies for the generation, transmission and distribution of power. Current contracts to expand the power supply are not subject to competitive bidding and transparent award of contracts. If this remains uncorrected, the electricity supply will continue to negatively affect productivity as the planned supply at Bujagali Falls, together with current production, will only meet 35% of peak demand in 2010.

Changing Allocation of Factors across Economic Sectors to Boost the Sectoral Contribution to Productivity Growth

In Uganda, two sectoral allocations have been emphasized: one is to manufacturing, because it offers better potential to promote "learning by doing" in the production of differentiated products; and the second is the export sector, because of the greater "learning" opportunity it can provide from access to a larger global market.

Resource allocation to the manufacturing sector and productivity

The ERP 1987-1990/91 deliberately channelled foreign exchange to the manufacturing sector to import the required inputs to revive import substitutions after the civil wars, and to fight inflation occasioned by scarcity of essential commodities. The response of high output growth, measured by the Index of Industrial Production at 14.36% p.a. between 1987/2000, attests to the success of the resource allocation policy. The increase in capacity utilization in several manufacturing enterprises provides evidence that the resource allocation policy effected productivity positively, by raising technical efficiency via capacity utilization of existing plant and equipment. The effect was short-lived however, 1987/91-1995/98, as existing capacity was exhausted.

Resource allocation to the export sector and productivity

Trade liberalization, exchange rate and capital account decontrol during structural adjustment in the 1990s, improved resources allocation towards exports: by removing the implicit tax on exports (from a fixed exchange rate) and marketing inefficiency (from the monopolistic marketing boards). The study of "Productivity and Exports" from a sample of 139 firms by Gauthier (1998), covering the period 1995/97, indicates a highly positive productivity gap that emerged between exporting and non-exporting firms with: exporters output/per worker higher by 60%; TFP Index more than 12% for exporters; total cost, per unit of revenue, 46% lower for exporters; technological efficiency, 28% greater. These very favourable results were, however, not accompanied by a surge in exporting companies. New exporters were small, and sold their goods to the African markets. This situation was similar to that in Gabon, where comparable policy reforms were undertaken. The cost of export financing, market research, transportation and other infrastructural expenses proved higher than the increase in profitability from the SAP polices, constituting effective barriers to new entrants.

Effectiveness of the financial system in facilitating an efficient allocation of resources

An assessment of the supply side found that, Uganda's financial sector is shallow, with an average of 115,000 customers per commercial bank branch, compared to an average of 7,000 for COMESA countries. The sector is thin on the ground with 2/3 of the bank branches located in urban & peri- urban areas. The private sector competes for credit at high interest rates driven up by the Central Bank's borrowing to sterilize liquity from irregular and large inflows of ODA to finance the fiscal deficit. On the demand side, Kenya accesses more commercial bank credit: for working capital 23.5% and for investment 25.4%, compared to Uganda, which obtains only 5.7% and 11.6% respectively; retained earnings finance practically 80% of working capital and 71% of investment for Uganda, compared to the Kenyan figures of 45.8% and 44.6%. Of the firms presenting audited accounts to back up their loan applications for credit, only 52.3% Ugandan compared to 80% Kenyan firms qualified using this as a channel to express effective demand for credit.

About the only one-third of firms that access formal credit feature the characteristics of larger enterprises; foreign equity participation, export sales and a long-standing business track record. These characteristics determine the leverage, which firms exert on banks to access credit and this also weakens the financial sector as a determinant of productivity.

The SMEs, SSMEs and small agricultural holdings are practically excluded from modern commercial bank credit, as they are considered too risky and too scattered (costly) to serve. Since these categories of customers have important roles in Uganda's export-driven industrialization, 62% of which is agro-based, their exclusion further reduces the effectiveness of the financial system as a determinant of productivity by facilitating resource allocation across economic agents.

Institution, Integration and Invariants as Determinants of Productivity

Three business support institutions stand out: the UNBS, the UEPB and the UIRI. However, their commendable contributions are limited by the fact that they are understaffed (with only 30% of technical staff) and under funded.

Integration and invariants

Regarding integration, given the invariants of the small size of the Ugandan economy, its landlocked geographic location, and the shared resources with its neighbours, the EAC appears to be the efficient route to lower costs and raise productivity in the medium- term, although the static costs of trade diversion limits its impact on productivity in the short-term.

Discussion the policies affecting productivity

Policy framework

The Government of Uganda takes the Poverty Eradication Action Plan (PEAP) to be the overall framework to guide public intervention in the economy, with the objective to reduce poverty, an the objective to be achieved via structural transformation of the economy, led by private sector investment, to raise the productivity of the country's natural resources and its labour force, through export-led industrialization, that takes into account the country's invariant small size, and land- locked geography.

Our discussion of the policies that affect productivity within this planning framework is based on the determinants of productivity in section 2.0 and the methodology where for a new policy that has been only recently put in place, the discussion was not on the economic impact of the policy ex-post, but on its ex-ante likely strengths to be enhanced, and weaknesses to be remedied.

Policies that promote productivity directly

Whereas this was the area with the weakest determinants of productivity in section 2.0, there are new policies with emerging strengths that can be enhanced to promote R&D, for example, the policy to expand the UIRI as the "nerve centre" to champion R&D, to the regional levels in order to make its facilities more broadly accessible.
However, there are weaknesses that cut across many institutions that need to be resolved immediately for the way forward particularly under-funding which prevents the institutions to retain 70% of their technical staff, implement programmes and cover essential logistics.

Policies that promote economic growth in general with implications for TFP

Discussion of the policies promoting accumulation of physical capital acknowledged the need to raise public investment to boost the productivity of private investment in order to raise the impact on TFP. Additional policies are proposed to reform the financial sector to raise the (GNS/GDP) percentage and streamline the incentives for private sector accumulation of equipment.

Policies to enhance accumulate "labour quality" include redesigning the incentives to change investment in higher education to produce a large quantity of output of graduates in science based subjects, and improve the overall quality of science education. Additional policies discussed cover, how to improve curricular, testing and certification procedures for

polytechnic institutions being expanded at the sub-county level for the creation of "quality blue collar skills" of which Uganda has meager supply, and including "functional" skills in the curriculum of universal primary education (UPE).

For the accumulation of electricity, the policies discussed focused on how enhancing competitive bidding and open award of contracts procedures can raise the supply of electricity and lower its unit cost.

For the financial sector, the discussion focused on how to enhance existing and newly launched policies, which are struggling to integrate an underdeveloped and segmented financial sector. The extent to which these policies succeed in facilitating an efficient allocation of resources: economy-wide, to the manufacturing and export sectors, and for SSMEs will determine how they affect TFP.

Emerging overall perspectives for the way forward

These include three areas in need of special policy attention: institutional reform, incentives for the private sector and the renegotiations for developmental regionalism with the EAC.

New areas suggested to enhance productivity

These include broadening the scope of R&D to guide policy, strategic management of intersectoral linkages to raise levels of employment and specialization and enhancement of the complementary role of agriculture.

UNIDO's role

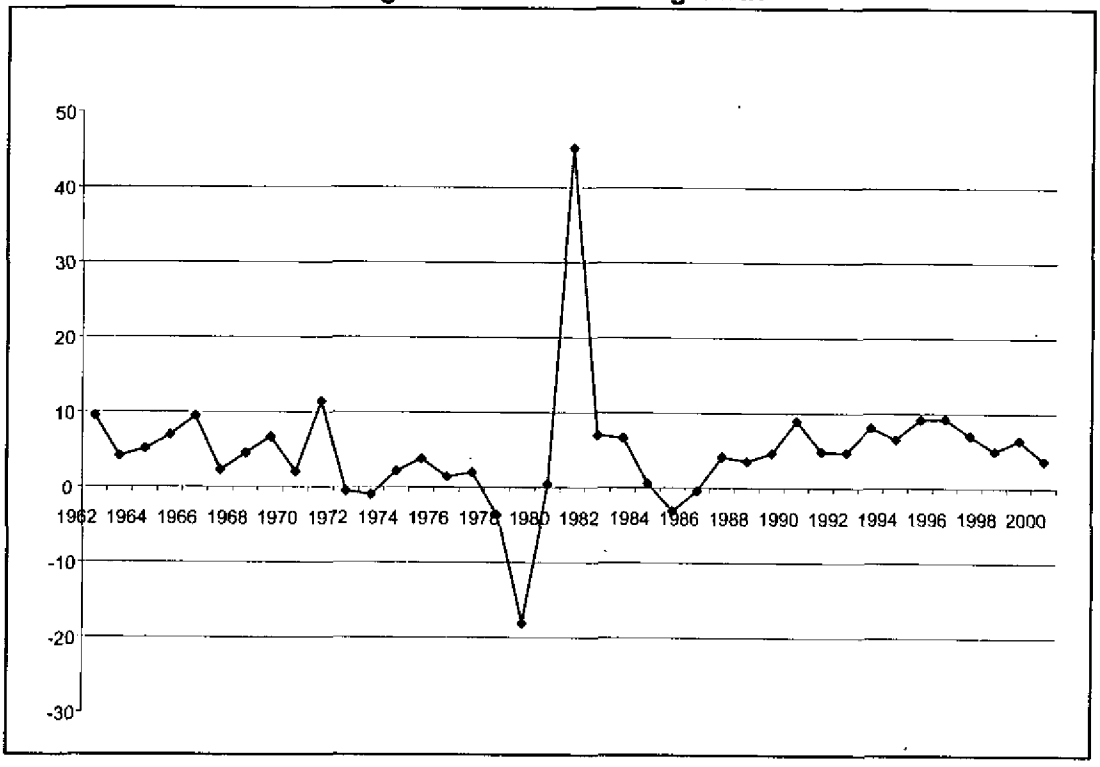
UNIDO's role needs to be broadened to assist Uganda to take on the new policy challenges to promote productivity growth.

I. Productivity change in Uganda over the four decades since independence, 1962 - 2000

1.1 Trend in overall output growth

Following Figure 1 (derived from the UNIDO Productivitiy Database), the phases are broken down according to timing, duration, percentages, and comments on the driving forces of each episode.

Figure 1 Trend in GDP growth



Source: UNIDO Productivity Database

(a) Episodes of rapid growth in overall output

In Table 1, eight phases of rapid growth in overall output are identified:

Phase I after independence witnessed a 5.36% growth over 3 years, from the sound economic polices inhereited:, for example: (GNS/GDP)% averaged 15%, enough to finance GDI, whereas (GDI/GDP)% averaged 12%, inflation was kept at only 5% p.a.; (Exports/GDP)% both to the EAC and R.O.W averaged 27% p.a.

Phase II witnessed even higher economic growth of 8.35% from a combination of the implementation of Work for Progress: Second Five Year Development Plan 1966/71 and favourable TOT of which the index 1960=100 registered 102 and 103 in 1970 and 1971.

Phase III is an outlier, where the result of 63.4% was due to the massive inflow of ODA to rehabilitate the economy after Amin's overthrow. The ERP in the period 1981/83 was directed at the restoration of key infrastructural facilities, aid programmes, import support and techinical assistance.

Phase IV, at the start of the NRM Government, started a historically unprecidented ODA inflow to Uganda: first for relief and rehabilitation; then technical assistance that prepared the country for the SAP in 1990/91-1996/97.

Phase V marked a continuation of heavy ODA inflow, which partly cushioned the economy against the adverse TOT shock, which was severe in 1992.

From phase VI onwards, however, growth began to taper off at 2.67% in the period 1994/96;and then by only 1.47% from 1998 to 1999.

ODA peaked at US $ 871m in 1995, triggering phase VII.

Phase VIII relied on the rising inflow of FDI in response to the improved economic enviromnment from the SAPs; but this is too recent a phenomenon, to have registered an appreciable impact on economic growth.

Table 1
Phases of rapid growth in overall output

Phase	Period (Start- End)	Duration (Yrs)	Growth Score GDP (%)	Driving Forces behind Each Growth Phase
I	1963/66	3	5.36	Uptake of good polices following independence
II	1970/71	1	8.35	Work For Progress: 2nd FY Development Plan & favourable terms of trade shock.
III	1979/81	2	63.4	Outlier; inflow of ODA after civil war
IV	1985/87	2	7.22	ODA for relief, rehabilitation after guerilla war
V	1988/90	2	5.39	ODA ERP (1987/88-1989/90)
VI	1992/93	1	3.35	ODA near peak level, at US $ 741.2m.
VII	1994/96	2	2.67	ODA peaked at US $ 871m.; TOT improved
VIII	1998/99	1	1.47	FDI stepped up to US $ 187.5m (new capital stock)

Sources: UNIDO Productivity Database; historical commentaries from Work for Progress, Second Five-Year Development.Plan 1966/71; IBRD, Uganda CEM 1982; ERP 1981/83; Revised ERP 1982/84; ERP 1987/88-1989/90; Bigsten & Kayizzi-Mugerwa (1999): Background to the Budget (Various Issues.)

An overall assessment of the rapid growth episodes shows the following features:

(i) ODA was the most important driving force behind phases III, IV, V, and VI.
(ii) The phases of rapid growth occurred in the early years, i.e. periods I, II, III, IV,V. the sharp tapering off to only 1.47% in 1998/99 is a cause for concern which will be discussed in Sections 2 and 3.
(iii) The exogenous favourable TOT shock, though powerful, ranks third as a driving force behind rapid growth.

b) Slump Periods in overall output

There are nine periods of slump:

The first slump from 1966 to 1967 was precipitated by a constitutional crisis when the governing Uganda Peoples Congress and Kabaka Yekka (UPC/KY) political alliance was dissolved. The Obote I Regime abrogated the Post-Independence 1962 Constitution and substituted it with a 1966 Draft, which was quickly revised into the 1967 Constitution. The changes amounted to a constitutional coup. Sir Edward Mutesa, the Kabaka of Buganda, who was President and Nominal Head of State was deposed and replaced by the then Prime Minister, Dr. Apollo Milton Obote, who became Executive President. The overall effect on the economy, from a loss of confidence in constitutionalism and rule of law, and the ensuing violence in Mengo local government in Kampala to oust President Mutesa, are largely responsible for the negative growth in output of -7.18%.

The second slump, 1969/70, followed a change of ideology. Three policy documents introduced the Marxian-oriented ideology to replace the mixed-economy orientation inherited on independence. Many parastatals were created to manage the "Commanding Heights of the Economy". The key documents were The Move to the Left: The Common Man's Charter, 1969 and the Nakivubo Pronouncements, 1970. Since this was during the Cold War, some private sector agents responded with capital flight, which negatively affected economic growth with a reduction of - 4.62% in just one year.

Table 2
Phases of slumps in overall output

Phase	Period (Start- End)	Duration (Yrs)	Slump in GDP (%)	Comments on Driving Forces behind each Slump
I	1966/67	1	-7.18	Constitutional Crisis from the 1962 to the 1967 Constitution.
II	1969/70	1	-4.62	Move to the Left, Common Man's Charter e.t.c.
III	1971/73	2	-10.4	Amin's Economic War, Expulsion of Asians
IV	1975/76	2	-4.38	Economic mismanagement.
V	1977/79	2	-20.13	Civil war to overthrow Amin
VI	1981/85	4	-48.38	Guerilla war to overthrow Obote II Regime
VII	1990/92	2	-4.72	Slump in TOT 1990/91=100, to 83.69 in one year.
VIII	1996/98	2	-4.28	ODA starts to taper off; TOT begins to deteriorate
IX	1999/2000	1	-2.27	TOT Deterioriation from 1990/91=100 to 86.81 by 2000, and 68.07 by 2002.

Sources: Republic of Uganda 1967 Constitution; Move to the Left & Nakivubo Pronouncements 1970; Common Man's charter 1969; Background to the Budget (Various Issues); UNIDO Productivity Database.

A third slump spanned over three periods, 1971/73; 1975/76; and 1977/79, covering Amin's Regime. This was characterized by, mismanagement of the parastatals, a massive brain drain of skilled personnel for personal safety reasons and an exodus of business owners of Asian origin whose property was summarily expropriated in the 1972 Economic War. Mismanagement led to a loss of taxable capacity and a phase of printing money to finance the budget. This fuelled inflation, misaligned the nominal exchange rate, led to parallel markets and smuggling. These negative factors were aggravated by the collapse of the East African Community over the 1974/77 period that disrupted trade in manufactured exports and the customs revenue base from the common external tariff. The periods of slump culminated in a civil war that ousted Amin from power in 1979. The overall effect on economic growth by 1977/79 was highly negative.

The fourth slump occurred from 1981 to 1985 during the guerrilla war against the Obote II regime, It was marked by intense guerrilla activity targeting key infrastructural and, particularly, electrical installations as well as security and economic institutions, notably police stations, cooperative unions processing and marketing agricultural produce and commercial banks and resulted in an overall slump in output.

A fifth slump arose from the exogenous adverse TOT shock that spanned the years 1990/92 during which international coffee prices fell at a time the crop contributed over 70% to Uganda's export revenue, and export duty 66% to the recurrent fiscal budget. The TOT deterioration, therefore, led to loss of real income and adversely affected economic growth.

The recent slump in phase VIII was associated with another adverse TOT shock, this time combined with the coffee wilt disease that started in 1993/94 and became most severe by 1997. Although less prominent as a foreign exchange and tax revenue source by that time, coffee remained a key source of cash for crop farmers and their contribution to economic growth was adversely affected.

Overall, slumps were associated with two factors: poor policies that precipitated civil wars and exogenous adverse terms of trade shocks, in that order of relative importance. During the ninth slump period, the deterioriation in TOT worsened from 1990/91= 100 to a mere 68.07 by 2002.

1.2 Trend in capital deepening or change in (K/L) ratio and contribution to economic growth

The trend in capital deepening is depicted in Figure 2, which shows that the overall trend was erratic, with no steady increase in capital deepening. Instead, the four decades witnessed phases of sharp rapid growth, punctuated by periods of decline.

Table 3 summarizes the sharp upswings of rapid growth by duration and percentage increases in capital deepening, with comments on driving forces over in six periods.

Table 3
Phases of rapid growth in capital deepening

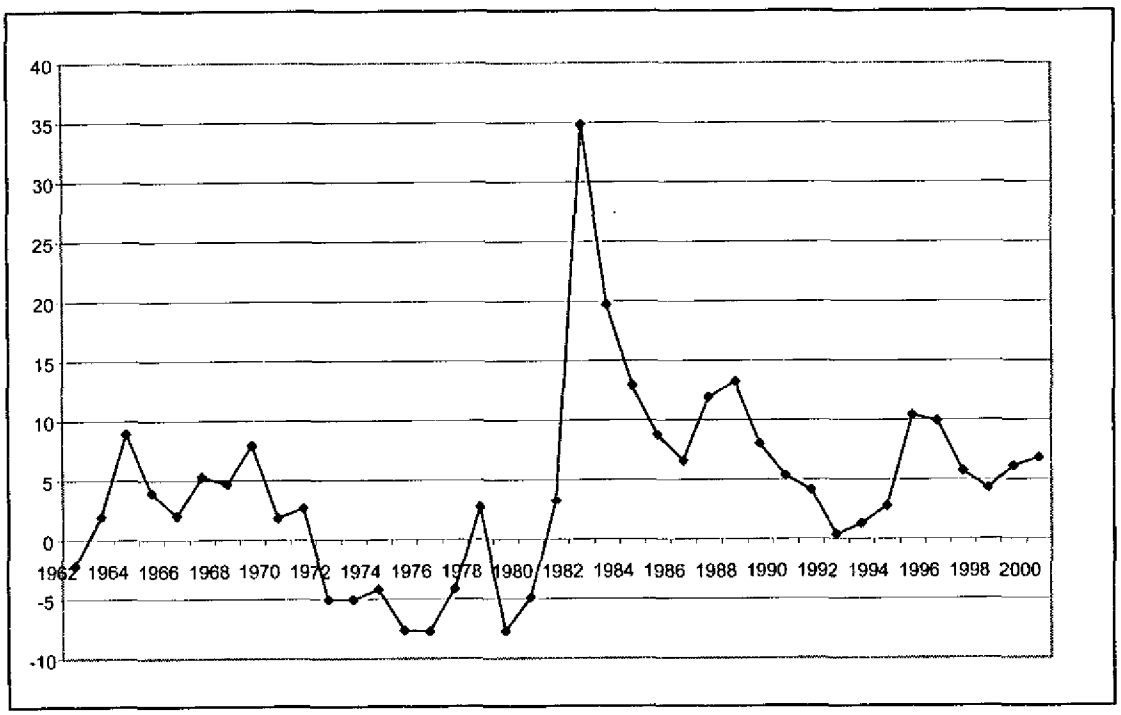
Phase	Period (Start-End)	Duration (Yrs)	Growth Scores in Capital Deepening (%)	Driving Forces behind each Phase
I.	1962/64	2	11.11	Policy Implementation Following Independence
II.	1967/69	3	5.92	Work For Progress, Second Five Year Development Plan 1966/71
III.	1980/83	3	39.33 Outlier	ODA financing of the Recovery Programme, 1981/83 formalized in July 1981.
IV.	1986/88	2	6.67	ODA financing of the Economic Recovery Programme 1987/88-1989/90
V.	1992/95	3	10.03	TOT export commodity price boom
VI.	1998/00	2	2.54	Favourable economic policy environment.

Sources: UNIDO Productivity Database and historical commentaries from: Work for Progress: Second Five Year Development Plan 1966/71; IBRD, Uganda: Country Economic Memorandum 1982; Economic Recovery Programme 1981/83, and Revised Recovery Programme 1982/84; Economic Recovery Programme 1987/89; Background to the Budget (various issues); IBRD & UMACIS, Investment Climate Assessment Survey (Revised 2004).

The two years immediately after independence brought the first phase of rapid growth in capital deepening, at 11%, propelled by the implementation of favourable policies that supported macro-economic stability, a well-maintained physical and social infrastructure and an open trade regime that integrated Uganda into the East African Community, with Kenya and Tanzania (IBRD, Uganda CEM 1982).

The second phase of three years witnessed a lesser but also positive growth of 5.92% in capital deepening, largely propelled by the policies that supported Uganda's Work for Progress. These policies were embodied in the Second Five Year Development Plan 1966/71, which focused on structural transformation to raise the share of manufacturing in real monetary GDP from 11.1 % in 1966 to 13.6% by 1971. Gross Fixed Capital Formation (GFKF) as a percentage of real GDP was to increase 16-21 % and originated from both local and foreign-based private sector agents, working in collaboration with the Uganda Development Corporation (UDC), a government parastatal set up to harness risky venture capital.

Figure 2
Trend in capital deepening



*Source:*UNIDO Productivity Database.

A third but brief phase of 3 years, 1980/83, was marked by the all-time outlier of an increase in capital deepening of 39.36%. This was financed by ODA from the Bretton Woods Institutions, including the IMF, to restore macro-economic stability and essential infrastructure to resume growth from the disruptions of a decade of Amin's dictatorship and the 1978/79 civil war.

A fourth phase that saw a 6.67% increase in capital deepening lasted two years, 1986/1988. Like the third phase, it was financed by ODA to support economic recovery from the five-year guerrilla war. The ODA financing included import support for essential inputs to revive import substitution industries and the restoration of the physical and social infrastructure.

During the fifth phase between 1992 and 1995, a 10.03% growth in capital deepening was largely propelled by a favourable exogenous terms of trade shock (TOT). This consisted of exceptionally favourable international prices for Uganda's export crops - especially coffee - which contributed over 70% to Uganda foreign exchange earnings at the time.

The sixth and most recent phase of rapid growth in capital deepening in 1998/2000 brought a 2.54% increase, largely fuelled by a favourable policy environment of openness to trade, a competitive exchange rate, macro-economic stability and the privatization of parastatals. These performance indicators were achieved during the SAPS period 1990/91-1996/97 and maintained subsequently. They are also beginning to attract a large inflow of FDI, with newer and more productive capital equipment.

The overall picture of phases of rapid growth in capital deepening indicates that ODA to finance economic recovery from the civil wars extended over the periods 1980/83 and 1986/87, was the most important driving force. However, most of this ODA financed essential infrastructure to support the resumption of growth, rather than ongoing capital deepening to raise productivity, especially in the private sector.

The second most important driving force was the contribution of favourable economic policies in 1962/64, 1966/69, and more recently, 1998/2000.

Compared to economic growth, the process of capital deepening process started at least a year earlier: 1962/64 compared to 1963/66 and 1967/69 compared to 1970/71. The early start is associated with the periods when the economy relied on its own domestic savings to finance investment, which propelled growth. In the latter 3 periods, ODA and favourable TOT appear to have been the factors igniting DY. Rising economic growth then drove the capital-formation process, in this reverse order.

The most recent period seems to be similar to the first and second when capital deepening was stronger and enhanced DY. A second similarity here is the share of (GNS/GDP) which had risen from 7.7% to 11.8% by 2003.

(b) Periods of Slump in capital deepening and their effects on economic growth

The slumps in capital deepening were propelled by very similar factors to those of economic growth, except for leads and lags in some years.

The first slump occurred in 1964/66 and started two years early. Decline in capital deepening in this case pulled down economic growth.

The second slump in capital deepening coincided with the slump in economic growth over the same period 1969/70. However, the decline in capital deepening was more severe at -6.10% compared to -4.62% for economic growth.

The third slump similarly spanned the nine years of Amin's regime, but was in one continuous phase in respect of capital deepening (unlike economic growth, which experienced brief interludes of growth). However, the overall drop in capital deepening of -10.45% was less than the steep decline in economic growth of -20.13,

The fourth slump in capital deepening started two years later in 1983/86, compared to the slump in economic growth, which spanned over the period 1981/85. The decline in economic growth was also much greater at -48.38, compared to that of capital deepening at -27.23% – a trend propelled by the guerrilla war.

The fifth slump arose from the deterioration in TOT, but was more severe for capital deepening at -13.19%, compared to economic growth at - 4.72. Deterioration in TOT severely affects Uganda's capacity (as an agricultural country) for capital accumulation.

The most recent slump in capital deepening was also associated with another adverse TOT shock, which unwound slowly up to 2002. The decline of -6.13 in capital deepening was again more severe, compared to that of - 2.27 in economic growth.

Tables 4
Phases of slump in capital deepening

Phases	Period (Start– End)	Duration in Years	Decline in %	Driving Forces behind each Slump
I.	1964/66	2	-6.92	Constitutional Crisis from Post-Independence 1962 to the 1967 Constitution
II.	1969/70	1	-6.1	Leftist policies of 1969 and 1970
III.	1971/79	9	-10.45	Amin's Dictatorial regime & Civil War 1971/79
IV.	1983/86	3	-27.23	Guerrilla War, against Obote II's regime, started Dec. 1981.
V.	1988/92	4	-13.19	Deterioration in TOT
VI.	1995/98 and again in 2000	4	-6.13	Deterioration in TOT continued to 2002.

Sources: Republic of Uganda: Post-Independence 1962 and 1967 Constitutions; Move to the Left and Nakivubo Pronouncements 1970; Common Man's Charter 1969; Background to the Budget (Various Issues), UNIDO Productivity Database.

An overall assessment, comparing the slump episodes in economic growth and capital deepening, reveals the following features:

(i) The adverse TOT shocks affect capital deepening more severely than economic growth in Uganda as an agricultural country. Unfortunately, during TOT booms windfall income is severely taxed, to avoid inflation. This policy stance needs to be re-examined as it adversely affects the contribution to capital deepening from domestic sources, especially from cash-crop producers.

(ii) A second observation is that, during the first two phases, capital deepening dragged down economic growth. At this time, domestic sources were the largest contributors to capital formation. However, this situation was reversed in the fourth phase when capital deepening -

having been cushioned by ODA after Amin's rule - only started to decline later and to a much lesser extent in 1983. In addition, during this period, international coffee prices were favourable, particularly in 1985/86, cushioning capital deepening, although the country officially recorded losses from smuggling.

1.3 Trend in average labour productivity

The review of the trend in Average Labour Productivity is divided into two parts:
(a) Phases of rapid growth and slump in capital deepening for the economy as a whole;
(b) Trend in capital deepening for the manufacturing sector.

(a) Phases of growth and slump in average labour productivity

These phases are summarized by dates, duration in years, scores in percentage and key driving forces behind each episode in Tables 6 and 7, for the economy as a whole.

(i) Phases of growth in average labour productivity, for the overall economy and economic growth

Average labour productivity data opened with a highly positive score of 5.56% in1982, as shown in Figure 2, followed by two phases of rapid growth (Table 5), with scores 4.98% and 9.44%, respectively. These phases were propelled by the excellent health and education infrastructure, rated the best in SSA at the time, by the CEM, (1982).

The 1979/81 upsurge of 61.96% in average labour productivity growth is the spurious outlyer phase II, as reflected in its short and unstainable duration of three years Possible driving forces were ODA to finanace the Economic Recovery Programme 1981-83 after the civil war that overthrew Amin's Regime and the passing of the 1983 Act to return, with compensation, the expropriated properties to their fromer Asian owners. This latter measure may have restored some confidence and motivation to work in this community.

Table 5
Phases of rapid growth in average labour productivity (DLP)

Phase	Period Start- End	Duration (Yrs)	Scores in Productivity (%)	Driving Forces behind each Episode
I	1963/66	3	4.98	Colonial inheritance of a small core of skills
II	1970/71	1	9.44	Work of Progress: 2nd Five Year Dev. Plan 1966/71
III	1979/81	2	61.96	ODA to finance post-Amin war recovery.
IV	1985/87	2	6.48	ODA to finance post Guerrilla War recovery
V	1988/90	2	4.64	ODA for capacity building in preparation for the SAPs.
VI	1991/93	2	4.08	ODA for capacity building, moving to peak in 1995.
VII	1994/95	2	2.91	Start of reform in education system e.g. private financing of higher education, then
VIII	1998/99	1	1.32	UPE (1997); reforms so far show emerging but still weak contributions to DLP

Sources: UNIDO Productivity Database; driving forces have similarity with those summarized in Table 1 on the periods of rapid economic growth.

The fourth phase in 1985/87 with a positive result of 6.48% coincided with and reinforced economic growth. This was a period of initial inflows of ODA to finance relief and resettlement of persons displaced by the guerrilla war.

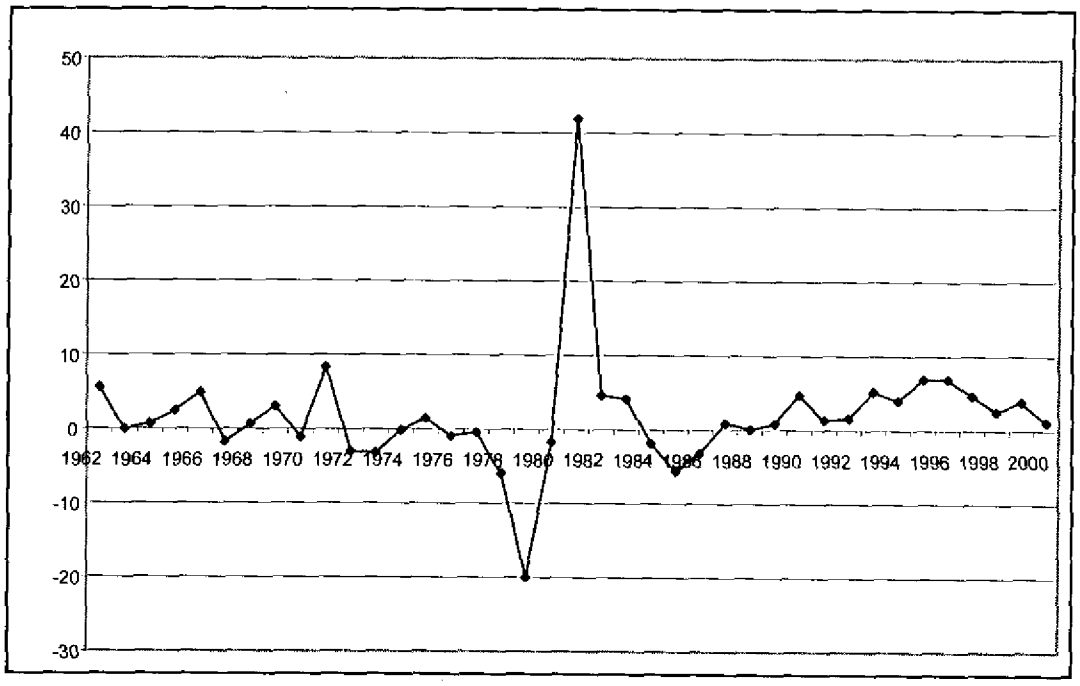
The fifth phase in 1988/90 with a growth of 4.64% reflects the strong ODA inflow, starting with technical assistance to finance capacity- building for the SAPs that ran from 1990/91 to 1996/97. This also coincided with and reinforced economic growth.

The sixth phase, 1991/93, can be attributed to the liberalization of key prices: the exchange and interest rates, export crops and the start of privatization of PEs. These measures were heavily supported by an inflow of ODA, which kept rising until it peaked at US$ 871.89m in 1995. These factors combined led to a more efficient allocation of existing labour skills and the return of some exiles, which collectively boosted average labour productivity, independently of economic growth.

The seventh phase in 1944/95 saw the start of a process of education reform that consisted in attracting the private sector into financing education by building more schools and sponsoring students. This was accompanied by preparations for a system of government-funded universal primary education (UPE), with the first enrolment starting in 1997. Serious attempts to combat HIV/AIDS also started around this time.

The eighth phase shows a much weaker result of only 1.32% to DLP. This is cause for concern, given that investment in education and primary health care yield results, but only in the long-term, as does investment in measures to combat HIV/AIDS.

Figure 3
Trend in average labour productivity (DLP)



Source: UNIDO Productivity Database

Overall, our assessment indicates that phases of rapid growth in DLP occurred in the earlier years, starting with a score of 5.56% in 1962. The process was boosted by ODA inflow from 1979/81 to 1991/93 for post-war rehabilitation, resettlement, attracting exiles back to Uganda, capacity building to manage SAPs and privatization of PEs. It is important to stress that all these entailed better utilization of existing skills, four of the phases (II, III, IV, V) coincided with and reinforced economic growth, thus also promoting more efficient utilization of existing resources.

The specific capacity building initiatives from programmes to finance primary health care, universal primary education, and capacity-building for overall macro-economic management were more recent, starting gradually in 1988/90. The DLP results from these recent propelling factors are still weak, with a clear upward trend in Figure 3 yet to emerge.

(ii) Phases of slump in average labour productivity, for the economy overall and effect on economic growth

Table 6 and Figure 3 show nine episodes of slump in DLP .

As the driving forces behind the slumps in labour productivity in Table 6 are closely connected with those for economic growth in Table 2, the broad interpretation here is focused on when slumps in labour productivity are independent of or coincide with and trigger slumps in economic growth.

Four phases of slump (II, VI, VIII and IX) coincide exactly in time. During these, economic growth and growth in labour productivity moved practically parallel to each other. They cover the periods 1969-70, with comparable negative scores (-4.62% for economic growth

and -4.15% for growth in labour productivity), 1981-85, again with comparable scores (-48.36% in economic growth and -47.52% for growth in labour productivity), 1996-98 (with comparable scores (-4.28% for economic growth, and -4.37% for growth in labour productivity and, lastly, 1999/00 (with the scores -2.27% for economic growth and -2.76% for growth in labour productivity).

Table 6
Phases of slump in average labour productivity

Phase	Period (Start-End)	Duration (Yrs)	Scores in Productivity (%)	Driving Forces behind each Phase
I.	1962/63	1	-5.54	Friction from independence handover. This slump started two years before the slump in economic growth in 1966.
II.	1969/70	1	-4.15	Slumps in growth in labour productivity and economic growth coincided, were of equal magnitude, propelled by the move-to-the-left crisis.
III.	1971/74	3	-11.52	The phase started the massive loss of human capital (from the expulsion of Asians, followed by a brain drain of local skilled personnel for personal safety reasons).
IV.	1975/79	4	-20.44	This started two years earlier than the slump in economic growth of 1977/79. Both slumps were of equal magnitude, leading to the 1978/79 Civil war that overthrew Amin.
V.	1981/85	4	-47.52	The slumps in economic growth and growth in labour productivity coincided with practically equal magnitudes, propelled by the negative effects of the guerrilla war.
VI.	1990/91	1	-3.37	The slumps coincided, but the economic growth slump exceeded that of growth in labour productivity and lasted longer, both were propelled by adverse TOT.
VIII.	1996/98	2	-4.37	This slump in growth in labour productivity coincided with that in economic growth, with comparable magnitude as ODA started to taper off.
IX.	1999/00	1	-2.76.	Slumps in growth of labour productivity and economic growth coincided with equal magnitudes. Long-term human capital investment in primary health care, UPE, and HIV/AIDS control have still to pay off.

Sources: UNIDO Productivity Database. Other corresponding explanations of driving forces close to those of the economic growth slump are summarized in Table 2. Of the eight slumps in labour productivity, six coincided with the slumps in economic growth.

In another set of slump periods (I, III, and V), the discrepancies between the start and end of each phase are minor (by at most two years) and the scores in slump are comparable negatives (i.e. phase I: -7.18% in economic growth and 6.68% in growth of labour productivity), phase III: (-10.4% economic growth and -11.52% growth in labour productivity) and phase V (- 20.13% economic

growth and -20.44% growth in labour productivity). These slumps also practically follow the same pattern.

As seven of the of the nine slumps in growth of labour productivity move closely in line with those in economic growth, they are broadly interpreted to have been self-reinforcing. An improvement in economic growth will need to pay close attention to policies championing a related positive movement in growth of labour productivity, particularly since the two variables have moved so closely, i.e. practically parallel to each other since 1991, with a firm upward trend yet to emerge.

b) Trend in DLP for the manufacturing sector

Section 1.3 (b) is divided into two parts:

(i) a brief description of the key features of Uganda's manufacturing sector, that have implications for growth in labour productivity;
(ii) an analysis of the trend in average labour productivity for this sector, using the limited data available as proxies.

(i) Key features of Uganda's manufacturing sector, with implications for average labour productivity and output growth.

The manufacturing sector is defined to include the items, as weighted, in the Index of Industrial Production, 1997/98 = 100 (Table 7). Uganda's manufacturing sector is still shallow and in its early stages of development, with limited opportunities for product innovation and differentiation to raise average labour productivity. The Index of Industrial production was compiled in 1988, with the base 1987/88 = 100: this provided a continuous time-series data set up to the year 2000, which we have used to trace the trend in average labour productivity over 13 years.

A redefinition of the weights in 1997/98 gives rise to some useful structural comparisons for items 3 and 4. Nonetheless, the greater weights of food processing, beverages and tobacco have increased rather than declined. The weight of metal products, though doubled still remains low at 10%. Therefore, growth in manufacturing depth as a basis for labour to "learn" productivity-enhancing measures in Uganda is still far in the future.

Table 8 uses the thirteen-year continuous time series to trace growth in employment, compared to growth in output, from which the trend in average labour productivity is inferred.

The manufacturing sector grew from 4% to 9% of GDP over the years 1987/2000. On average, output as measured by the Index of Industrial Production, grew at 14.1% p.a. for the thirteen-year period. This very rapid growth was in response to efficiency improvements, from privatization of PEs since 1993/94, improved access to foreign exchange for imported inputs to revive production of essential commodities (financed by ODA Special Import Programmes 1 & 2 in 1988/89), upgrading of physical infrastructure, especially electricity; longer production runs due to improved security and increased demand for output due to high economic growth, partly enhanced by favourable TOT. Collectively, these changes led to

improved capacity utilization and technical efficiency.

Employment, on the other hand, stagnated at an average annual rate of 0.4%, which constitutes practically zero demand for labour. The forces behind this stagnation included the adoption of more capital-intensive modern technology through privatization the scrapping of more labour-intensive older technologies, either due to lack of spare parts or repair and maintenance skills and computerization which started in Uganda in the 1990s and, finally, the preference for semi-automated processes to reduce production errors from less skilled labour etc. (Lutwama, 2004).

(ii) Average labour productivity trend in manufacturing, relative to output growth

Uganda has no published data on labour productivity for the manufacturing sector. The discussion in this report is based on fragmented evidence from a masters' dissertation by Lutwama on Constraints to Employment Growth in the Formal Manufacturing Sector (2004), reporting interviews with 50 manufacturing establishments, and the World Bank & UMACIS (2004) study.

Table 7
Output composition of Uganda's manufacturing sector (By weight in the index of industrial production 1997/98 =100)

Item	Weight in Index (1997/98 =100)	Comparable weight in Index (1987/88 =100)
Food-processing	39.29	20.70
Beverages and Tobacco	18.63	26.10
Textiles, Clothing & Footwear	4.56	..
Paper, Publishing & Printing	5.19	..
Chemicals, Paints, Soap, Form Pads	8.21	12.30
Bricks, Cement	5.60	4.30
Metal Products	10.52	5.30
Miscellaneous	7.00	3.70
All Items	100	100

Source: Background to the Budget 2004/05: For comparison, Statistical Abstract 1996.

The evidence rates average labour productivity in Uganda as the lowest, even by her neighbours' standards in SSA. The comparable figures for value-added per worker are, for an average firm size: Uganda; US$ 1085; Tanzania; US$ 2016; Zambia US$ 2680 and Kenya US$ 3457.

The value-added per worker, however, improves by other measures such as farm size, market orientation for output and foreign equity participation. The comparable figures in US Dollars are 587 for small and micro enterprises, compared to 3,330 for large enterprises, 2,901 for exporting firms, 1,117 for non-exporters and 2,747 for firms with foreign equity participation,

compared to 1,182 in the case of purely local firms -World Bank & UMACIS, (2004) p. 46. These issues are discussed in Section 2, and the policies to promote them in Section 3.

1.4 The Labour productivity gap between Uganda and the "USA world technology frontier"

According to the UNIDO Productivity Database, average labour productivity in Uganda declined from 3.29 in 1961 to 2.84 by the year 2000, a drop of 0.45%. Despite the substantial real GDP growth that averaged 6.2% p.a. in the 1990s, the 0.45% decline is consistent with our broad interpretation of the periods of slump in Table 6, These collectively led to a massive decline in human capital (expulsion of skilled Asian personnel in 1972 and a prolonged brain drain of local skilled personnel for personal safety reasons between 1972 and 1986).

According to the Government White Paper on the Education Policy Review Commission (1991), two additional related factors made average labour productivity even more difficult to sustain:

Firstly, education institutions were malfunctioning due to disrepair, lack of qualified staff, materials, and inspection standards.

Secondly, those who remained at work could not freely "learn", either for want of technically qualified staff, investment in modern equipment or job insecurity, which did not provide a conducive "learning environment".

An assessment of the groups of determinants of human capital decline is given Section 2.

Table 8
Employment, output, and real annual wage bill in selected manufacturing establishments

Number of Manufacturing Establishments	Employees (Number)	Employment (Annual Growth Rate %)	Index of Industrial Production (1987= 100)	Output (Annual Growth Rate %)	Annual Real Wage Bill/UG.Shs.mWage Shs.m
[1]	[2]	[3]	[4]	[5]	[6]
79	17,669	..	100.0	..	3,005
96	18,729	6.0	123.7	23.1	4,103
92	17,491	-7.0	145.2	17.4	4,272
109	17,884	2.2	155.5	7.1	5,291
118	16,145	-1.0	178.2	14.7	4,629
123	16,086	-0.4	191.2	7.3	4,985
121	15,402	-4.2	215.6	12.8	7,225
135	13,426	-12.8	260.3	20.7	8,117
132	13,692	2.0	330.8	21.1	10,316
132	13,828	0.9	394.2	19.2	12,010
120	14,539	5.1	456.5	15.8	11,626
124	16,205	11.5	508.0	11.3	17,598
123	15,245	-6.0	551.0	8.5	18,782
122	16,596	8.9	541.1	-1.8	36,810

Sources: Statistical Abstracts (96, 97, 98, 99, 00, 01) and Background to the Budget 2002/03. The selected establishments are in the formal sector, employing five or more persons. The parentheses indicate a lack of good comparable data.

1.5 Trend in Total factor productivity growth

The broad intepretation of the trend in productivity growth is based on the UNIDO productivity Database, studies of the Ugandan economy over the period 1986/2002 and the authors' own observations of capacity utilization in the manufacturing sector.

Recent work on the Ugandan economy includes a study edited by Collier and Reinnikka (2001), entitled Uganda's Recovery: The Role of Farms and Firms. It summarises a wide range of empirical evidence, arguing that Uganda's spectatular growth (by SSA standards) of 6.2% of real GDP p.a. for over a decade between 1990/91 and 2001/02 was largely contributed by TFP: from gains in the efficicent utilization of existing resources. This was in response to the SAPs reforms and improvement in security (except in Northern Uganda). Investment played a minor role until after 1995 and, in particular, FDI inflows with modern capital equipment to raise technical efficiency has only been building up since 1998. The study warns, however, that the future contributions of productivity to economic growth must come from new productivity-centered investment.

Continuing on the subject of TFP, a summary of growth projections by Bevan et.c (2003) notes that "From 1986 to 1991, TFP contributed just under 1% p.a to output growth. From 1992 to 1997, the contribution rose to 3% p.a., then fell back to around 0.5% in recent years." P.10.

The World Bank & UMACIS (2004) study using the stochastic production frontier methodology shows an overall change in technical efficiency (a component of productivity growth) of 0.51%.

The list of studies examined here is not exhaustive, but demonstrates, that the trend in TFP and its techinical efficiency component, has contributed positively to economic growth since 1986, and that the future contribution to growth must come from new productivity-centered investment .

Observation of the manufacturing sector shows that substantial growth was generated from improved capacity utilization of existing plant and equipment. This was in response to improved availability of foreign exchange from ODA that financed the ERP 1987/98, longer production runs as security became less of an issue, privatization of PEs and the return of the confiscated properties to their Asian owners. Table 9 provides illustrative data on improved capacity utilization. (Siggel & Ssemogerere 2004). However, improvement in capacity utilization was exhausted by 1998 as pre-guerrilla war equipment aged and was scrapped. The current opportunity for capacity utilization is from the new vintage of equipment installed in the past 5 years 1998/2003, especially for larger firms which can mobilize enough inputs and access output markets. However, this new vintage still only contributes a small share to investment. This observation, therefore, also flags the importance of analyzing productivity growth, its components and their contributions to future output growth

Table 9
Average annual capacity utilization rates of selected manufacturing enterprises (% p.a.)

ISIC Code	[1] Sub- Sector	[2] Installed Capacity	[3] Capacity Utilization Rates % p.a.	[4]	[5]
			1987/91	1992/94	1995/98
1520	Processed Milk	47,450 llts	39.4	53.7	59.3
1533	Animal Feeds	28,060 mit	54.3	87.5	135.4
1920	Footwear	5,093 pairs	7.3	9.2	28.5
2422	Paints	4,811 lts	6.3	27.7	51
2694	Cement	507,500 mt	3.6	9.3	42.8
2710	Iron Sheets	20,000	6.3	75.4	149.7
2893	Hoes	3,600 pieces	17.3	17.5	19.8
3140	Motor Batteries	50,000 pieces	27.9	83	113.2
3699	Number Plates	24,000 pairs	49.9	40.7	95.3

Source: Republic of Uganda. Background to the Budget, Annual.

1.6 Overall Interpretation of Trends in productivity

Combination of the qualitative findings yields the following picture:

a) Overall features of Growth Episodes

Regarding growth, ODA was the most important propelling factor behind economic, labour productivity and capital deepening growth. The ODA inflow in the two outlier periods 1979/81 and 1985/87 was directed at infrastructural reconstruction, macro-economic stability and re-starting post-war production. Until the recent past, the focus of this ODA was not specifically on capital formation or labour quality accumulation and this limited the otherwise positive contributions of capital deepening and labour productivity growth to economic growth.

A second contributing factor to the dynamic phases of economic growth, and particularly via capital deepening, was the positive TOT shocks. Uganda, as an agricultural country, has relied on windfall income from favourable TOT shocks in terms of export revenue for capital accumulation.

Favourable policies, particularly since the SAP eras, 1990/91-1996/97, and persistence in pursuing macro-economic stability, have contributed to efficient allocation of existing resources and to an, improvement of the investment climate, which is now beginning to attract considerable FDI. More recently, human capital accumulation policies have been put in place, although it is too early yet to see their systematic benefits.

Regarding the contribution of capital deepening to economic growth, in the early years when (GNS/GDP) financed, capital deepening led economic growth. However, this trend was reversed in the 1970s and early 1980s (propelled by ODA) led capital deepening.(?) In the most recent past, however, as (GNS/GDP) increases, the early pattern of capital deepening leading economic growth is re-emerging. This indicates a need for policies to strengthen GNS, and its contribution to financing investment.

Whereas periods of growth in capital deepening were practically parallel and enhanced economic growth, rapid capital deepening growth occurred shortly after independence up to 1971. Apart from during the 1979/81 outlier period, capital deepening scarcely reinforced economic growth. The human capital accumulation measures are quite recent, from the letter part of the 1990s.

b) Interpretation of Slumps

Slumps in economic growth, capital deepening and growth in labour productivity moved together closely, except for a few leads and lags. The most important causes of slumps were poor policies that precipitated economic and political mismanagement and then culminated in civil wars that destroyed the economic growth, capital deepening and labour productivity growth processes.

A second contributory factor to slumps was adverse TOT shocks, which require diversification in the economy to reduce their negative impact and severity.

Relating the contribution of capital deepening to economic growth slumps, adverse TOT shocks affect capital deepening more severely, which then resulted in slower economic growth.

When national savings is the source of capital formation, a slump in capital deepening affects economic growth more severely: in the reverse case, ODA cushions economic growth and the negative contribution of the capital deepening slump on economic growth is reduced.

The labour productivity gap from the UNIDO Productivity Database, indicating a 0.45% loss in DLP since 1961, is broadly consistent with the slump periods in DLP and the near zero demand for labour in the manufacturing factor over the thirteen years from 1987/88 to 2000.

Data problems limited the analysis of productivity growth and its components on a time-series basis. However, other available evidence indicates that productivity growth has positively contributed to economic growth over the years 1986/87 to 2002/03. Secondly, Uganda's future sources of growth have to rely on productivity enhancement of investments, including total factor productivity growth.

c) Overall interpretation for the way forward

Our overall conclusion is that UNIDO pioneering research on the contributions of the different trends in productivity to economic growth is both timely and most relevant for Uganda's emerging new policy agenda focusing on expansion, structural transformation and poverty reduction. This is discussed in Section 3.

II. An assessment of the determinants of productivity in Uganda

The objective of Section 2 is to assess the determinants of productivity in Uganda in terms of the following: their direction - i.e. whether they enhanced or negatively affected productivity; the channels or mechanisms through which the effects impacted on overall output, economic and manufacturing sector growth; the intensity of the impacts and why the determinants may have prevented other would be relevant factors from effecting productivity.

The determinants focused upon by this section on productivity growth are:

2.1 Creation, Transmission, and Absorption of Knowledge;
2.2 Factor Supply and Allocation;
2.3 Institutions, Integration and Invariants

To the best of our knowledge, there are no published studies on the determinants of productivity in Uganda, or any organized time-series to trace trends of these determinants. Therefore, in this study, as the first venture into the subject, has to piece together scattered pieces of possible evidence, based on different methodologies and time-spans. Given this limited background information, the assessment of each determinant is qualitative.

2.1. Creation, transmission, and absorption of knowledge

Endogenous growth theory identifies three sources of human capital/knowledge that impact on productivity:

(i) general knowledge infrastructure at primary, secondary and vocational schooling levels in terms of basic numeracy, literacy and functional skills, that enable a population to readily pick up specialized expertise;

(ii) "learning by doing" opportunities at work, particularly under pressure of competition following economic liberalization and from the inflow of FDI;

(iii) outright investment in research and development (R&D) specifically to create knowledge (Agénor 2000).

In Uganda, none of these three sources played a major role in boosting productivity over the period 1961/62-2000; the factors accounting for this are assessed at three levels: creation, transmission, and absorption of knowledge.

2.1.1. Creation of knowledge

The creation of knowledge in the SSA context originates from two sources: research and development (R & D) and the transmission of best practices from culture and tradition.

a) Research and development

Creation of knowledge is assessed with respect to participation in R & D activities, protection of intellectual property rights and financing - i..e the inputs approach to studying R&D.

(i) Participation in R & D activities

Table 10 provides the available data on R & D undertaken in Uganda, compared to that in other LDCs and SSA, over the period 1987/97.

Table 10
Comparative Data on Production & Protection of Knowledge Indicators, 1987/97

Location of knowledge	Scientists & engineers in R & D per mill. persons	Technicians in R & D per million persons	Expenditure on R & D (% of GNI)	Patent applications Filed by residents	Patent applications Filed by non-residents
	-1.000	-2.000	-3.000	-4.000	-5
LDCs	..	..	0.470	9.241	1,105,167
SSA	..	..	..	101.000	642,294
Uganda	21.000	14.000	0.570	7.000	67,603

Source: World Development Indicators, 2001.

Both columns (1) and (2) show the very limited participation of Ugandan scientists and engineers (21 per million persons) and technicians (14 per million persons) in R & D. As indicated in column (4) Ugandan residents filed only 7 applications for patent protection, which compares poorly with the 101 average for SSA and 9,241 for other LDCs residents.

Column (5) suggests that whatever knowledge is created and considered worthy of patent protection in Uganda, is largely attributable to non-residents, just as it is in SSA and other LDCs. On the participation criterion, therefore, Uganda (especially its residents) is marginal in the creation and protection of knowledge, even by SSA and other LDC standards.

(ii) Financing R & D activities

As indicated by the average ratio of Gross National Income (GNI) spent on R & D of only 0.57% over a ten-year period, 1987/97, financing of creation of knowledge has not been a priority. Although this may be partly due to poverty (other LDCs expenditure on R & D are even lower - i.e. 0.47% of GNI), the question of priority remains. After years of turmoil from the late 1960s to the mid-1980s, Uganda was just embarking on a development policy in 2002/03 to promote growth, structural change and poverty reduction. This was the policy paradigm in which the creation of knowledge was to become a priority to raise factor productivity, as suggested in the PEAP (2004).

b) Indigenous knowledge

The ongoing controversy over the protection of Trade Related Aspects of Intellectual Property Rights (TRIPS) before the WTO indicates that SSA countries possess indigenous knowledge from which the best practices are transmitted by culture and tradition across generations, and merit protection at community level because of their potential contribution to productivity. This relates for example,to the production of herbal-based medicine and nutrition supplements, which are becoming important in the search for alternative therapy for the HIV/AIDS epidemic. Whereas other SSA countries are taking measures to protect indigenous knowledge (Adede, A.O. 2002), there is no published evidence of the extent of Uganda's engagement in this area (Katembo, F. 2003, P.18).

(c) Uganda's legal framework to protect and promote the creation of knowledge

The country's legal framework to protect and promote the creation of knowledge covers three levels: national, regional, and international.

At the national level, a Patents Protection Act was passed in 1991 and the Patent Regulations for its implementation in 1993. The Registrar awards patents for an initial period of 15 years, with a possible 5 years extension if requested one month before expiry of the original term. In 2002, an Industrial Properties Protection Bill was tabled before parliament to protect both local and foreign investors' innovations and is in the process of becoming law.

At the regional level, Uganda is a co-signatory of the Harare Protocol on Patents and Industrial Designs, signed on December 10th 1985 to grant patents in 13 SSA countries and to be administered by the African Regional Industrial Property Organization (ARIPO) which was established under the Lusaka Agreement of 9th December 1976.

At the international level, a Patent Amendment Bill was tabled in parliament to enable Uganda to enter into agreements under the Patent Cooperative Treaty, when the country becomes a designate state under the WTO, but has yet to become law. Therefore, Uganda is just putting in place the legal framework to promote and protect the creation of knowledge.

2.1.2 Transmission of knowledge mechanisms to effect productivity growth in Uganda

Two channels or transmission mechanisms of knowledge to effect productivity are considered: one for locally produced knowledge and a second for knowledge from FDI.

(a) Transmission mechanisms for locally produced knowledge

The locally produced knowledge is generated from universities (such as Makerere, the oldest with research establishments for industry, technology, etc. and other research institutions.

Table 10 indicates that locally produced knowledge is modest in quantity and its transmission to boost productivity is hampered by constraints that Kakembo tried to group into three categories:

(i) lack of the substantial investment by the private sector in plant and equipment to test and modify knowledge from laboratory-level for commercialization purposes;

(ii) lack of inter-sectoral linkage between the producers of knowledge (the research and educational institutions), its potential users (industry and other relevant business arenas) and policy-makers to promote prioritization of the knowledge and its application to implement national productivity growth (Ministry of Public Service, Mo TTI and MoFPED);

(iii) lack of sufficient operational human resources to whom the knowledge could be transmitted (Table 10, columns 1 and 2).

Although both the creation and transmission of knowledge to enhance productivity in today's MDCs is in the preview of the private sector, S. Lall (1995), in his review of a large number of LDCs where the private sector is nascent, demonstrates that the public sector undertakes this role and justifies the intervention on two externality grounds: firstly, the long gestation period between effecting the investment and recouping the earnings presents too high a risk for the private sector and, secondly, the nascent private sector is unable to raise the required lump- sum financing.

(b) Transmission mechanisms for knowledge from foreign direct investment

According to the World Bank & UMACIS study (2004), the most recent inflow of FDI in the last five years or so consists of more productive and higher-quality equipment which is becoming fully utilized as the investment climate improves. This presents Uganda with a unique opportunity to promote the transmission of knowledge to boost productivity via the FDI mechanism.

Current economic literature suggests that knowledge from FDI is most readily transmitted either through joint ventures between local and foreign firms or backward linkages between foreign and sub-contracting local firms to provide inputs (Smarzynska, Beata K. 2002).

The joint-venture channel transmits productivity directly by facilitating the retooling of existing or the installation of higher-quality and more productive equipment and the creation or upgrading of human skills in the joint venture enterprise.

The backward linkage mechanism transmits productivity indirectly by requiring the efficient supply of high-quality inputs by the local sub-contracting firms to the foreign investors. Other transmission mechanisms, such as assess to training for local labour directly through FDI or improved competition between local and foreign firms in the same field, are rated less effective. They are either unaffordable or tend to crowd-out local firms (Obwona & Mutambi, 2004).

An examination of the FDI promotional policies administered by the Uganda Investment Authority (UIA) since 1991, reveals a lack of incentives to promote joint ventures and backward linkages.

A UIA-sponsored study by Stanbic Bank (2004) on the decision-making processes of South African investors indicates that they (unlike their MNC counterparts whose investments are oriented towards standardized products and processes globally) seek local partners to pursue specific small and medium-sized projects in production, engineering and trade, with investment values within a range of US$ 10 m. This presents an opportunity for Uganda to boost the joint-venture component in its FDI profile, since the South African investment inflow into Uganda is rising., However, the UIA has yet to put specific incentives in place to promote such joint ventures.

2.1.3 Absorption of knowledge

The process of absorbing knowledge requires the local capacity to select, process, modify and/or improve technology in a form conducive to enhancing productivity growth.

Ha-Joon Chang and Duncan Green (2003) and S. Lall (1995) documented numerous examples of newly industrialized countries that rapidly pushed out their absorption knowledge frontiers by generating stocks of human capital from primary, secondary and vocational education to make their workforces highly receptive of new skills, especially in labour-intensive manufacturing and by putting in place incentives to promote "learning" and modification of more complex and capital-intensive technologies.

In contrast, the meagre data available in Tables 11 and 12 illustrate Uganda's severely limited stock of skills to absorb knowledge. At the level of general skills, only 10% of the population has attained primary 7 education (row 3 last column, about 3% has completed senior 6 and above (rows 5 and 6) and less than 10% attained vocational training (row 8). The levels of education attainment are much lower for women (F), compared to men (M). Such a meagre stock of human capital makes it difficult for the Ugandan workforce to readily pick up general skills to enhance productivity.

Table 11
Education attainment of the population aged 10 years and above (%)

	Category	M	F	T
1	No education	8.1	19.1	13.9
2	P1-P6	56.2	55.5	55.8
3	Primary 7	12.5	9.4	10.9
4	S1-S3	18.9	13.9	16.3
5	S4-S6	1.8	0.9	1.3
6	Above S6	2.5	1.2	1.8
7	Total	100.0	100.0	100.0
8	Vocational training (%) of labour force	11.7	8.0	9.8

Source: Uganda Bureau of Statistics: Labour Force Survey 2002/03

Furthermore, even if the UIA devised appropriate incentives to promote "learning" and the adaptation of complex technology, Table 12 (rows 1-3) indicates that the workforce with a calibre to " learn" constitutes only 5.6% of the entire actively employed labour force.

The next level of human capital which could be upgraded to raise the receptive capacity of general skills (rows 4 -7) constitutes only 8.2% of the workforce. The relatively large category of 14.2 % of the workforce (row 8) has a severely limited capability to absorb knowledge. The skills in this category relate to operations in the informal sector. The Section D sub-total constituting Uganda's largest stock of human capital, 78.4%, concerns emploment in semi-subsistence agriculture, fisheries and basic trades.

Uganda's low participation in R&D activities and protection of intellectual property rights, the absence of incentives and institutional infrastructure to transfer both locally produced and foreign knowledge via FDI. This, together with the extremely scarce stock of human capital to absorb knowledge lead the overall assessment in Section 2.1 to conclude that knowledge acquisition, transmission and absorption have not been important group of determinants of productivity in this country.

2.2 Factor supply, allocation and impact on productivity

Section 2.2 assesses the influence exerted by factor supply and allocation on productivity, including their intensity and the channels through which the influence was exerted. The assessment is divided into four sub-sections: accumulation production factors (factor supply), allocation of factors across the sectors, particularly manufacturing and exports, the effectiveness of the financial system in facilitating an efficient allocation of resources and an overall evaluation of the impact of the determinants of factor supply and allocation on productivity and growth.

Table 12
Main occupation of generally active employed persons aged 10 years and above (%)

	Category	M	F	T
1	Managers& Administrators	2.3	0.1	0.2
2	Professionals	2.1	0.9	2.5
3	Associate Professionals	3.9	2.0	2.9
A	**Sub - total (1-3)**	**6.3**	**3.0**	**5.6**
4	Clerks	0.4	0.5	0.4
5	Market-oriented Agricultural Production	2.9	1.6	2.2
6	Crafts and Related Workers	7.2	2.8	4.9
7	Plant Machine Operators & Assembly Workers	1.5	0.1	0.7
B	**Sub - total (4-1)**	**12.0**	**5.0**	**8.2**
8/C	**(Sub-total C)** Services and Sales Personnel	15.0	13.6	14.2
9	Subsistence Agricultural & Fishery Workers	52.9	74.6	64.2
10	Elementary Occupations	13.9	3.8	8.6
D	**Sub - total (9-10)**	**66.8**	**78.4**	**72.8**
	Total (A+B+C+D)	**100.1**	**100**	**100.8**

Source: Uganda Bureau of Statistics, Labour Force Survey 2002/03, Table 8.4

2.2.1 Accumulation of production factors (Factor Supply) and the impact of investment in each factor on productivity growth

Three production factors are considered under this sub-section: physical capital, labour quality and infrastructure, with a focus on electricity.

(a) Physical capital

Accumulation (or supply) of physical capital is defined as Gross-Fixed Capital Formation (GFKF).

The process of GFKF was erratic, with growth and slump periods over the years 1962/2000, due to Uganda's volatile history of civil strife and economic mismanagement with relative stability only in the 1990s. This erratic process generated only a limited amount of GFKF, which peaked at 18.2% of GDP in the 1990s, a percentage below the 26.1% benchmark required to accelerate growth and structural transformation (Bevan, etc 2003). The four major sources and types of economic agents contributing to the GFKF process are covered here and in Table 13.

(i) The Private sector

Since the SAP policy regime 1990/91 to 1996/97, described in the key policy documents (the Medium Term Competitive Strategy for the Private Sector 2000/05 MTCSPS and the Way Forward I & II 1990 & 1991), Ugandan economic policy has been oriented towards private sector driven growth. In response, the process of capital formation is increasingly led by the private sector; the overwhelming importance of structures relative to equipment have circumscribed the impact of this process on productivity. Three factors account for this outcome.

Firstly, the history of insecurity and economic mismanagement discouraged capital formation in equipment far more severely than that in construction (for example the erection of single-occupancy dwellings continued in the non-monetary, semi-subsistence economy. This was not possible for equipment in the monetary sector). A return to peace and improved economic management led many entrepreneurs to upgrade structures, firstly by rebuilding residential accommodation for occupancy and renting and adding extra floor space to business premises before purchasing new equipment.

Secondly, the behaviour of financial institutions discourages private capital formation in equipment. The majority of Ugandan firms, 75%, are locally owned as sole proprietorships or partnerships without limited liability status as they cannot raise share capital for financing plant and equipment on the emerging stock exchanges. Borrowing from risk-averse commercial banks, especially after the closure of four insolvent banks in the mid-1990s, is too expensive for profitable investment in equipment. Commercial banks demand collateral of over twice the value of the loan which are mostly short-term up to only one year. Investment tends to be confined to construction projects which can be completed gradually and financed by limited savings.

Additionally, commercial banks only pay 2-3% interest on savings deposits. These rates compare poorly with the rate of inflation averaging 5% p.a. and render the real returns on financial savings negative. Such potential savings are confined to real estate and residential housing construction, boosting the construction component of private capital formation at the expense of equipment.

Thirdly, despite the openness of the current and capital accounts, financial institutions lag behind in devising instruments to mobilize remittances from Ugandans working abroad. Empirical results from an MA dissertation using informal research methods indicate that remittances sent home to relatives and friends are allocated to education (43%), housing (29%), family business (9%) and the rest to land purchase, medical care, transport etc. Remittances are sent informally instead of through the banking system and this cannot boost gross national savings, which remain too low, as shown in column (1) of Table 13. Some of the major reasons discouraging use of formal channels include the high banking charges (19.74%), slow transaction speed (14.47%) and the complexity of filling out transmission documents (11.80%). Remittances in smaller amounts are more likely to be invested in construction and are not available in a lump-sum to purchase equipment. Therefore, despite the openness of the trade regime, remittances are more likely to finance non-tradables.

The constraints from history, performance of financial institutions and the delayed harnessing of private remittances collectively explain the small share of gross national savings in GDP (Table 13, column 1). This share of GNS/GDP stands at an average of 5%, below the SSA average of 20%.

(ii) Official development assistance (ODA), contribution to capital formation, productivity and output growth

The contribution of ODA inflows to capital formation in Uganda's history has been unprecedented since 1986 and is largely responsible for the outlyer in Figures 1, 2, and 3 in Section 1. It constitutes the key source of financing public investment.

Table 13
Economic aggregates affecting gross fixed capital formation (1986/2003)

Year	Gross national saving (% of GDP)	Official development assistance (ODA), US $ M	Terms of trade (TOT) Index, 1991 = 100	Foreign direct investment (FDI), US $ M
	(1)	(2)	(3)	(4)
1986	..	208.25	265.18	20.00
1987	1.40	313.00	179.90	28.00
1988	2.70	422.39	139.00	10.00
1989	2.50	530.53	122.87	13.00
1990	1.60	695.74	100.59	5.30
1991	2.40	691.24	100.00	1.00
1992	2.70	741.20	83.69	2.00
1993	2.60	633.94	131.67	4.00
1994	3.20	79.5.72	208.06	4.60
1995	3.50	871.89	204.90	1.80
1996	4.20	738.78	189.97	113.40
1997	4.10	624.47	199.98	158.00
1998	7.10	608.10	179.92	187.50
1999	6.50	467.80	163.04	176.60
2000	7.70	473.40	86.81	133.40
2001	8.20	481.70	73.46	197.10
2002	9.60	574.80	68.07	192.00
2003	11.80	614.10	73.19	210.60

Sources: Republic of Uganda, Background to the Budget (Annual); Bank of Uganda, Research Department; International Financial Statistics. The much higher FDI inflows for 2001/03 in the Background to the Budget 2005/06 are not consistent with the earlier data of 1996/2000 and this inconsistency is not explained.

An upsurge in ODA followed the end of civil wars of 1978/79 and 1984/85. Since 1986, ODA inflow has become more systematic, first as relief aid to resettle displaced populations, then as technical assistance to build capacity for macro-economic management, plus foreign exchange to enable the purchaseof inputs for capacity utilization in the manufacturing sector to revive production of essential commodities. The ODA also financed the reopening and repair of the physical and social infrastructure (roads, schools, hospitals, etc.) and became the major source of financing public investment overall, to supplement the limited government tax revenue capacity.

However, the contribution of ODA, while desirable, is controversial. First, large ODA inflows cause exchange rate appreciation that implicitly taxes exports, limiting the country's capacity to earn own foreign exchange to import machinery, and equipment to boost

productivity (IMF Presentation, 2004). Secondly, sterilizing the effect of expanded liquidity in the economy made possible by ODA budgetary support, forces government to sell treasury bills (TBs). Such sales bid up interest rates and crowd out of the credit market to the private sector.

Uganda's long-term strategy is to reduce the ODA/GDP ratio from the current 12.6% to a 3.7% benchmark by 2023 (Bevan, etc. 2003). This confronts the Ugandan government with the hard task to develop alternative sources of financing public investment.

(iii) Terms of trade

An improvement in terms of trade (TOT) provides windfall income, which, in Uganda, is either taxed to control inflation or left in the hands of the private sector to boost both consumption and investment.

However, the recent sharp fall in TOT, especially since 2000 (column 3 of Table 13) calls for policies that carefully manage commodity booms, not only to raise investment, but also diversify the economic structure and make it less vulnerable to subsequent adverse TOT shocks.

(iv) Foreign direct investment

FDI supplements investment by domestic firms, and boosts the foreign exchange component of the capital formation process.

Historically FDI has been estimated at an average inflow of US$ 2.5m p.a. after independence in the 1960s (CEM 1982). However, the first two years of Amin's regime, 1971/72, witnessed a massive capital flight, especially in 1972 when business owners of Asian origin were summarily expropriated. The outflow that year alone was US$ 11.9 million. Subsequently, FDI inflows tapered off, averaging US$ 2 million p.a. in 1973/79. In 1980/84, the FDI inflow practically dried up, due to the insecurity generated by the guerilla war under the Obote II regime.

The inflow of FDI was only restored when the guerilla war ended and an average inflow of US$ 22 million p.a. was recorded the years 1985/89, partly complemented by ODA inflows to revive the social and physical infrastructure and improve access to foreign exchange to manufacture essential consumer goods under the ERP 1987/88–1989/90.

The early 1990s however, witnessed a sharp decline in FDI, despite the generous tax holiday and tariff exemptions under the 1991 Investment Code administered by the newly created UIA. Exchange rate liberalization, by removing the implicit subsidy on imported capital and other inputs, reduced the profitability of FDI, leading many licensed investors to import consumer goods for sale rather than productive inputs (CEM 1995) thus limiting the effect of FDI on productivity. The upward surge in the FDI inflow only resumed in 1996 at an average of US$170 million p.a.

From the perspective of capital deepening, the late 1990s to 2003 showed potential: the latest capital inflow is contributing to efficiency improvements in the production process. This new

era also provides a "learning by doing" opportunity for technological change. (World Bank & UMACIS, 2004).

(v) Overall assessment of the impact of the physical capital accumulation process on productivity and economic growth

The erratic process which generated only 18.2% GDKF/GDP compared to the benchmark of 26.1% required, had only a limited impact on productivity growth. The accumulation process was overwhelmingly oriented towards construction (76.53%) rather than equipment (23.43).

Furthemore, private-sector led growth - by leading to a premature reduction in the proportion of public investment compared to private investment - circumscribed the effect of GFKF on productivity. Uganda, as an LDC, needs a higher proportion of public investment (closer to 50%) to raise overall productivity (Khan, etc. 1990).

Of the determinants of GFKF, ODA inflow (Table 13 column 2) was the strongest, particularly in the financing of public investment. However this inflow is being scaled down from 12.6% to 3.7% of GDP to minimize its adverse effects on macro-economic aggregates.

FDI inflow has been taking second place as a determinant of productivity since 1995, with new capital equipment driving efficiency and technological change. The TOT as a determinant is exogenous - diversification of the export base is required to reduce its adverse impact on GFKF. The GNS/GDP column 1 in Table 13 was the weakest in this group of determinants and the performance of financial institutions was ineffectual in the mobilization of GNS.

2.2.1 (b) The supply of quality labour and impact on productivity

Section (b) presents the determinants of quality labour supply. Three groups of determinants are assessed: the period of instability from 1970 to the mid-1980s; the current status of the labour market and the HIV/AIDS epidemic.

(i) Political insecurity and economic mismanagement as negative Determinants of quality labour supply

Insecurity and economic mismanagement between 1970 and 1986 led to a shortage of quality labour with the summary expulsion of the skilled Asian community, followed by a brain drain of local skilled labour. The impact on productivity was extremely negative.

Starting with the economic war in 1972, the entrepreneurial and middle- level skills of the Asian community were lost when Amin summarily expelled them and expropriated their property. An Action Programme for the Crash Development of Manpower to fill the vacuum, was not implemented. Instead, following the military takeover in 1971 and the economic war 1972, excessive powers were given to soldiers to keep internal law and order and run many large expropriated businesses. This created both economic chaos and insecurity, triggering a brain drain of the few skilled indigenous personnel in the civil service, which was accelerated

by the dismantling of the East African community in 1977. The brain drain constituted a second prolonged and larger round of loss of quality labour.

The local civilian entrepreneurs who had taken on the smaller Asian expropriated businesses were unable to "learn-by-doing" on the job due to threats from the military (if successful) or disruption by the proliferation of parastatals (from 8 to 20). The result was insecurity of tenure which led to asset stripping, disrepair and neglect of businesses (Bigsten & Kayizzi-Mugerwa 1999).

The contested general election results of 1980 that returned A. M. Obote to power provided a fresh excuse for some former bush exiles to wage a systematically organized guerilla warfare that penetrated both urban and rural areas until January 1986. During that period of insecurity, the quality of educational institutions deteriorated from lack of equipment and scholastic materials, disrepair, overcrowding, recruitment of untrained teachers and lack of supervision (Government White Paper on Education Policy Review Commission 1991).

On-the-job "learning" was limited by the shrinkage of private sector waged employment. The public sector, which became the bloated employer, had no capacity to improve labour quality and corrective action was only taken during the SAP period in 1993.

In the rural areas, agricultural extension services dwindled due to low pay and a lack of workers as continued insecurity displaced farmers in some areas (e.g. Luwero Triangle) on a massive scale and they reverted to subsistence production. These changes reduced by 14% monetary and by 8% non-monetary agriculture. Workers were either unemployed due to displacement, on the run from insecurity or under-producing at a subsistence level, leaving most of the land idle.

The overall assessment is that the 1970s and early 1980s were characterized by loss (or an inadequate supply) of quality labour from expropriation and expulsion of the Asian community and the brain drain of the local educated. The slump periods in Table 6 show very large percentage losses in average labour productivity between 1971/74 and 1981/85 of -11.52, -20.44 and -47.52, respectively.

(ii) Current functioning of the labour market as a determinant of quality labour supply and productivity

The current high level of unemployment of crisis proportions does not provide incentives to nurture quality labour supply and has a negative impact on productivity.

The creation of employment was of low priority in the semi-subsistence Ugandan economy, while a number of factors collectively created unemployment. These included population growth relative to fixed arable land, instability, particularly due to the guerilla warfare in the early 1980s that displaced many people, the retrenchment of the bloated civil service in the 1990s under SAPs and the restructuring of the parastatals into private enterprises (from 1993/94) that caused redundancies and an orientation towards capital-intensive activities to compete globally.

The current combined estimated rate of unemployment and under-employment is put at 61.9% by the National Employment Policy Proposal (2004). This is a figure of crisis

proportions, reflecting 7 million persons living below the poverty line and earning less than one US dollar per day in the current labour force of 11.3 million (aged 15 – 64 years) of the total population of 25.2 million .

With the unemployment rate at 61.9%, there is no incentive for employers to raise wages for unskilled labour. The Labour Force Survey 2002/03 reported that only 10% of the employed earn more than 200,000 Ug. Shs. per month (i.e. US $ 117.6at the current exchange rate of 1,700 Ug. Shs per US $). The World Bank & UMACIS study (2004) puts the average wage rate for unskilled labour in the manufacturing sector at US $ 57 per month, lower than Nigeria at US $ 70 and Kenya at US $ 100. A low-paying labour market cannot generate high-quality labour. At least 25% of those employed hold second jobs to make ends meet. The time lost moving between jobs daily is not invested in concentrated skills acquisition and improvements to raise productivity and low wages leave no savings for workers to privately finance evening, weekend, or other informal educational activities to improve their skills. Furthermore, the crisis unemployment level at 61.9% leaves labour no bargaining power over employers to observe the ILO Core Labour Standards, despite the fact that legislation is already in place. Instead, the wage-paying sub-sector employs only 14.4% of the entire labour force - as illustrated in Table 14 (the remainder is self-employed (50%) or unpaid household workers (36%). The labour market is generating a phenomenon called "casualization" where the bulk of wage labour is classified as "casual" and hired and fired at the whim of the employer, with no job-security, employment benefits or injury compensation. More significantly, employers in Uganda, according to the World Bank & UMACIS (2004) study, generally do not honour bonus or overtime payments.

Table 14
Paid employment by sector and job insecurity from casualization of labour

Employer	Job Security	% of Labour Force
Government	Permanent	2.5
Government	Temporary	0.5
Government	Casual	0.2
Private Sector	Permanent	2.0
Private Sector	Temporary/Casual	9.2
Total Wage Employment in the Formal Sector		14.4

Source: Labour Force Survey 2002/03

(iii) The impact of the HIV/AIDS epidemic on labour productivity

While there is no dispute that the HIV/AIDS epidemic (referred to as "AIDS") adversely affects human capital accumulation and productivity, there is no documented evidence readily available. Within these data limitations, the assessment is non-technical for the lay reader and divided into two sub-sections: (a) the prevalence and scale of the AIDS epidemic and (b) AIDS as a determinant of productivity loss.

Prevalence and scale of the AIDS epidemic

Whereas there is unanimous acknowledgement that the prevalence of AIDS is of epidemic proportions, the difficulties in establishing the exact magnitudes of the problem are equally accepted. Hutchinson (2001) attributes this to the fact that most individuals in the early to mid-1990s were neither tested nor did they come in contact with the health system. While intensive sensitization campaigns are encouraging more clinical visits since the late 1990s, testing for infection remains voluntary and is conducted in both public and private clinics (which requires time to compile national results). The clients tested prefer anonymity, with disclosure obtained only in cases where concrete assistance is expected.

Most estimates put the prevalence of AIDS at 8-10% of the workforce. For example, an early study of AIDS covering 560,000 workers in the Uganda Railways Corporation over the period 1988/92 estimated that 10% of these workers were already infected. Officially (in 2004) the Ministry of Health data suggested that 1.5-2 million Ugandans of a population of 25.2 million (i.e. 8%) aare infected with AIDS.

The World Bank UMACIS (2004) estimated that an average of 24.7% of workers in their survey had been ill within the last 30 days of the interview. Although all the sick leave cannot be directly attributed to AIDS, it still suggested the prevalence of AIDS and other opportunistic infections, particularly tuberculosis.

Judging from these fragments of evidence, this study suggests that 8-10% of the Ugandan workforce is infected with AIDS – a level of infection that cannot be overlooked in terms of its impact on productivity.

The loss of productivity arises from:

- the morbidity rate from AIDS and opportunistic infections which reduce the concentration of the patient at work;

- frequent absence of the patient from work for medical care, counselling sessions, laboratory monitoring and pharmacy waiting lines to fill prescriptions;

- time lost from work by next-of-kin to care for the sick, attend funerals and care for the surviving dependents, which Deininger etc. (2002) note to have adverse effects on income, consumption and investment, which collectively reduce productivity;

- time lost by the employers due to labour turnover as a result of death or incapacitation, requiring replacement with expatriates in some cases and orientation and training. The study of Uganda Railway Corporation workers estimated the AIDS-related labour turnover to be about 15% p.a.

Overall, when all lost time is aggregated, AIDS has a substantial negative impact on productivity. The World Bank & UMACIS study (2004) estimated the aggregate lost time in its sample at 37.2 working days per worker per.annum, leading to a warning that "Although we do not have comparable data across Africa in this area, it does appear that the health status of the workforce is a serious issue that needs to be addressed immediately,"

(v) Overall assessment of the determinants of quality labour supply and their impact on average labour productivity and growth

The determinants are evaluated in terms of direction of impact, the channels through which their impact was exerted, and its intensity .

In terms of direction of impact, the brain drain meant a prolonged loss of local skilled labour, which was not easy to replace since the prevailing insecurity and economic mismanagement left behind run down educational institutions and a poor working environment. The expulsion of the Asians led to a final and dramatic loss of skills: the crash programmes to retrain replacements were never implemented. The functioning of the labour market, characterized by massive unemployment, still fails to provide adequate remuneration, job security, and motivation which are essential for building human capital. The HIV/AIDS problem weakens labour resources, leading to loss of productivity. Overall, Uganda has experienced a large net loss in average labour productivity.

With regard to intensity of impact, historically the brain drain had the most negative effect, especially given the insecure environment in which it occurred. This made it impossible to replace the labour force due to the fact that training institutions and the workplaces themselves also deteriorated with the exodus of skilled personnel.

The expulsion of the Asians, though brief, caused a crisis in the economy in 1972 which continued until the overall private sector investment confidence was gradually restored over the SAP period 1990/91-1996/97. The intensity of the negative impacts on the functioning of the labour market with massive unemployment, and the HIV/AIDS epidemic is still being felt and the overall cumulative effects will only emerge over time as they are addressed. Given the negative determinants, the available pieces of evidence indicate that Uganda's accumulation of quality labour is low, even by SSA standards.

The impact of the poor-quality labour accumulation on the productivity trend was also assessed in Section 1.2 (b (ii), indicating that Uganda ranked lowest in value added per worker among its neighbours. Section 1.4 showed a gap of 0.45% from the US World Productivity Frontier, over the last 40 years, despite rapid output growth at 6.2% p.a. in the decade from 1987/88 to 1997/98.

Overall, therefore, the combined evidence indicates that the poor supply of quality labour has not been an important determinant of productivity in Uganda.

2.2.1 (c) The supply of physical infrastructure as a determinant of productivity, with special reference to electricity

The major infrastructural facilities affecting productivity growth in Uganda include electricity, telephone and road networks, water supply and sewage disposal. To date the poor electricity supply is the most serious constraining determinant of productivity and this is expected to continue in the foreseeable future up to 2010,.

This sub-section has confined the assessment of infrastructural supply to electricity for the following reasons:

(i) electricity installations were specifically targeted during the guerilla warfare of the early 1980s. The repair, maintenance and subsequent expansion of the electricity supply has proved more expensive and vulnerable to vandalism compared to other infrastructural facilities due to the adverse historical background;

(ii) the reliability and adequacy of the electricity power supply was still the major infrastructural constraint to Uganda's enterprises both in 1998 and 2003, when the average firm went without power for 84 and 39 days p.a. respectively;

(iii) The electricity supply is crucial to raising the marginal product of capital and labour. A reliable electricity supply allows the exploitation of economies of scale from multiple working shifts and longer production runs on installed plant and equipment as it lowers unit costs and improves competitiveness of producers.
Integration into the global ICT networks is contingent on quality electricity supply.

Table 15 presents the performance indicators from two company surveys in 1998 and 2003, showing Uganda's limited competitiveness in terms of a quality electricity supply. Improvements are indicated in column 2 compared to column 1, although column (2) falls far short of the Chinese competitive indictors in column (3).

Improvements in power supply performance indicators are largely due to privatization of UEB into three companies for the generation, transmission and distribution of electricity. This allowed an injection of private investment capital to boost the power supply. However, the Uganda Electricity Transmission Corporation and the Uganda Electricity Distribution Corporation, as the sole providers of electricity, constitute a vertically integrated private monopoly and benefit from a three-year period protection from entry by competitors in order to recover their investment. This monopolistic structure has led to incrementally higher electricity tariffs and slow improvements in load shedding.

Table 15
Performance indictors of electricity power supply: Improvements in 2003, compared to 1998; and comparison with China

	Indicator	1998	2003	China
		(1)	(2)	(3)
1	Frequency of Power Breakdowns (Days p.a.)	84.0	38.6	..
2	(%) of Production Lost by Firm (average)		6.3	1.8
3	Firms owning Generators (%) at Extra Cost	41.0	35.3	17.0
4	Days to obtain Electricity connection	84.0	38.3	18.2

Source: World Bank & UMACIS (2004)

Economic theory suggests that competitive bidding for the award of contracts and competition for current supplier are necessary to ensure a good economic performance of public utility firms (at price = minimum long-run average and marginal costs). Regulation

cannot assure P=MC at minimum LAC, since the regulated power suppliers are the sole source of data on the P, MC and AC performance indicators, on which the regulating agency relies for its decisions.

The need for competitive bidding is illustrated by the following example. In April 2005, Uganda contracted Agrekko International to supply 50 MW of low-speed diesel thermal power, plus additional power purchased from Kenya. However, the East African weekly newspaper (July 18-24, p.2) noted that even these two purchases will not enable Uganda to meet her projected annual load growth of 30-40 MW. Meanwhile, lack of competitive bidding is forcing Uganda to pay higher charges from Agrekko, compared to what Kenya paid in 2000 under a similar power purchase agreement with Agrekko of Dubai, Cummins of the USA, and Diez Germany to supply 150 MW under a World Bank supported emergency power project. The Kenyan price was US$0.51 per kw.p.h. to cover both generation and distribution charges. In Uganda's case, the quoted price of US$0.45 per kw.p.h is deceptive as it excludes generation charges which the country pays, irrespective of whether the generators are actually working or idle. Additionally, Uganda procures diesel directly from Agrekko at higher charges than could have been obtained through a competitive bidding process, as Kenya availed of. Uganda was also charged a US$1.01 million opportunity cost for the fifteen-day transit time of the generators to the current site.

Currently, the estimated impact of the electricity supply on productivity growth, although positive and increasing, is still inadequate as it only provides 48-74% of what is required at peak periods. The efficiency of the private sector channel, compared to UEB, needs to be enhanced to ensure an efficient economic performance.

2.2.2 Changing allocation of factors across the board to boost the sectoral contribution to productivity growth

In Uganda, two sectoral allocations have been emphasized, manufacturing, because of its greater potential to promote "learning-by- doing" in the production of different commodities, and the export sector, for the greater "learning" opportunity it can offer through access to a larger global market.

(a) Resource allocation to the manufacturing sector

The ERP, 1987/88-1990/91, deliberately channeled foreign exchange to the manufacturing sector to import the required inputs to revive import substitutions. This approach was adopted partly to revive overall economic growth after the civil wars and partly to fight inflation due to the scarcity of essential commodities.

The response of high output growth, measured by the Index of Industrial Production in column (4) of Table 8 attests to the success of this resource allocation policy. The average growth rate was 14.1% p.a.

The increase in capacity utilization in several manufacturing sub-sectors between 1987/91 and 1995/96 (Table 9) provides evidence that the resource reallocation positively affected productivity, by raising the level of efficient utilization of existing plant and equipment.

Future productivity growth in the manufacturing sector, however, depends upon access to credit to purchase both local and imported inputs, a subject which will be examined in 2.2.3 covering the effectiveness of the financial sector.

The future of manufacturing prosperity also depends on the agricultural sector. Uganda's manufacturing sector is agro-based, as indicated by the weights in the Index of Industrial Production in Table 7 in which the first three rows added up to 62.48% of the weights in 1997/98.

Given its landlocked geographical location, Uganda must procure supplies locally in order to ensure a steady flow of quality inputs from the agricultural sector. to manufacturing. This requires specific policies focused on the supply of these inputs and which, for example, raise agricultural productivity.

(b) Resource allocation to the export sector and productivity

Trade, exchange rate and capital account liberalization during the structural adjustment period in the 1990s were expected to improve resource reallocation to exports - by removing the implicit tax on them (from a fixed exchange rate) - and marketing inefficiency (through the marketing boards).

The minute fragments of information from a study on "Productivity and Exports" by Gauthier (1998), covering a sample of 139 firms and the period 1995/97, indicates that a highly positive productivity gap emerged between exporting and non-exporting firms. The indicators were as follows:

Exporters' output/per worker: + 60%;
Exporters' TFP index: + 12%;
Exporters" total cost per unit of revenue; - 46%;
Exporters' technological efficiency: + 28% .

The very favourable indicators were accompanied by a surge in exporting companies. However, the export volume expansion was confined to large existing exporters to already established markets in MDCs. New exporters were few in number, smaller in size and sold their output to the East African markets. This trend is similar to that observed in Gabon, where similar policy reforms were undertaken. The cost of export financing, market research, transport and other infrastructural expenses costs proved higher than the increase in profitability from the SAP policies, effectively constituting barriers to new entrants.

2.2.3 Effectiveness of the financial system in facilitating an efficient allocation of resources

Assessment of Uganda's financial system is focused on only a few selected issues as are considered most important for productivity growth. On the supply side, the focus is on (a) the size and development of the financial sector and (b) the allocation of credit to macro-economic indicators versus the private sector. On the demand side, the assessment is focused on (c) the cost of various sources of credit to the firm and (d) the ability of the borrowing firm to meet the requirements for its loan application. Comparisons are mostly drawn between Uganda and Kenya, its neighbouring and sister country in the East African community and the SSA region.

(a) The size and depth of Uganda's financial System and effectiveness in facilitating fficient allocation of resources

Uganda's history of turmoil favoured a retreat to semi-subsistence transactions, whereby non-monetary agriculture, for example, constituted 56% of real GDP by 1987. Monetary transactions were on a cash basis with M2/GDP of only 10%, below Tanzania (35%) and in Kenya (40%) by 2002. Formal financial institutions provide services to only 10% of the urban and 5 % of the rural population.

Commercial bank coverage is shallow, with an average of 115,000 customers per branch, compared to an average of 7,000 in COMESA countries. Two-thirds of the bank branches network are located in urban and peri-urban areas.

Such a thin and shallow financial system has limited outreach to potential customers and a tendency to ration out access to SMEs to reduce transaction costs. This limits effectiveness in resource allocation to promote productivity growth. Table 2.8 shows the distribution of loans and advances to the private sector, with almost 50% in favour of trade and services, followed by the manufacturing sector. Limited credit facilities for the agricultural sector affects the agro-based supply networks for manufacturing.

Overall, the effectiveness of the financial system in facilitating resource allocation is limited to about one-third of the firms that can access formal credit. The reasons for limitations in this determinant of productivity are set out in sub- sections (b) – (d).

(b) Allocation of credit for macro-economic stability versus the private Sector

Uganda operates a large fiscal deficit, nearly 50% of which is financed by ODA inflows, whose impact on liquidity has to be offset by the sale of Treasury Bills. These sales drive up interest rates and crowd out private sector lending. Between 2000/01 and 2003/04 the Background to the Budget 2004/05 (pp 10-11) reported an increase in the TB & Bonds stock to GDP ratio at market prices of between 5% and 9.3%, while interest rate payments as a percentage of total government expenditure grew from 3.7% to 8.1%.

Table 16
Distribution of loans and advances to the private sector (%)

Sector	Jun-00	Jun-02	Change
Trade & other services	47.1	46.5	-0.6
Manufacturing	31.2	32.4	1.3
Agriculture	10.3	10.2	-0.1
Transport, Electricity, Water	6.3	6.2	-0.1
Building & Construction	4.8	4.2	-0.6
Mining	0.4	0.4	0.0

Source: Background to the Budget 2004/05

Crowding the private sector out of commercial bank credit was exacerbated by the instability of the banking system which led to the closure of four commercial banks in 1998/99. Capital adequacy was tightened from 16% of the ratio of total capital to risk-weighted assets to 24%. Efficient credit management was enforced, leading to a reduction of non-performing assets as a percentage of total private sector credit from 12.4% to 3.6% between 2000 and 2002. The overall result was greater a risk-consciousness on the part of commercial banks. Most of these banks maintain a 25-30% loan/deposit ratio and prefer to buy the lower-risk TBs, rather than more risky lending to the private sector. This reduces the effectiveness of the financial system as a determinant of productivity through the channel of facilitating resource allocation.

(c) The cost of various sources of credit to the firm (underlying the demand side)

Table 17 shows the major sources of financing for working capital and investment available to Ugandan and Kenyan firms. Row 1 indicates that retained earnings are the cheaper and more important source of financing of both working capital and investment in, both countries, with much higher percentages in Uganda (79.95 and 71.06), compared to Kenya (45.84 and 44.61). The higher cost of local commercial bank credit partly reflects the "crowding out" of Ugandan firms in favour of credit to the government (via TBs), for both working capital and investment at 5.65 and 11.64% compared to 23.5 and 25.36% for Kenya where the cost of bank credit is lower.

Table 17
Major sources of financing for working capital and investment needs in percentage of each source

	% of Working Capital		% of Investment	
	Uganda	Kenya	Uganda	Kenya
1 Retained Earnings	79.95	45.84	71.06	44.61
2 Local Commercial Banks	5.65	23.50	11.64	25.36
3 Trade Credit	5.31	15.34	0.48	3.07
4 Family and Friends	1.35	1.15	2.06	0.82
5 Informal Sources	0.36	0.00	1.46	0.00
Sub-Total	92.62	85.83	86.70	73.86
Other Sources	7.38	14.17	13.30	26.14

Source: World Bank & UMACIS (2004) Preliminary Results

Row 3 illustrates trade credit as a source of financing, whereby traders are the borrowers for purchases of inputs which they retail to firms on credit. The effectiveness of this channel, used in a higher percentage of transactions in Kenya (15.34 and 3.07%), compared to Uganda (5.31 and 0.325), the greater variety of financial intermediaries in facilitating resource allocation in Kenya, compared to Uganda.

Rows 4 and 5 show inefficient sources of financing. They provide together 1.72% of working capital and 3.52% of investment finance in Uganda compared to 1.15 and 0.82%, respectively, in Kenya where no informal sources feature.

The overall assessment on the supply side is that Uganda's financial system is more costly and less efficient in facilitating resource allocation to promote productivity growth, compared to that of Kenya. This assessment is tentative, however, given the fact that Kenya's data is preliminary.

(d) Ability of the borrowing firm to meet the requirements for loan applications

The World Bank & UMCIS study (2004) indicates that only 59% of Ugandan firms presented externally audited accounts and,,of these, 47% were able to access bank credit as the audited accounts addressed the problem of reliable information from the applicant. However, the figure of 32.3% of Ugandan firms in the sample accessing credit compared so unfavourably to the nearly 80% of the firms in the Kenyan sample that other constraints on the demand side were implied.

By size of firm, 7.4% of micro-enterprises access credit compared to 72.9%. By ownership, 63.5% of foreign-owned firms access credit compared to only 24.1% of purely locally owned enterprises. In terms of age, 66.7% of the older firms established in the 1960s access credit, compared to 21.1% of the newer firms established from 2000 onwards. Therefore, size, ownership, and age represent additional constraints on the demand side. Additionally, 26.3% of the surveyed firms would have liked to borrow and could present effective quality loan applications ,but were constrained by the excessive paper work and collateral required.

A separate study on Credit Accessibility and Investment Decisions in Uganda's Manufacturing Sector by Mugume & Obwona (2001) suggests that there is systematic leverage that takes "trust and social interaction" of the applicant firm with banks to supplement collateral. Whereas the authors cite this leverage among foreign-owned banks and firms, the fact that credit access varies systematically according to firm size, ownership, age, and exporting status, suggests that information asymmetry and credibility leverage or discrimination may be more important determinants of credit access across firms than is acknowledged in existing studies.

2.3 Institutions, integration and invariants

Section 2.3 presents an assessment of the effect of institutions, integration and invariants as a group of determinants of productivity growth in Uganda. Sub-section 2.3.1 presents the key business support institutions and assesses their effectiveness in enhancing productivity growth. Sub-section 2.3.2 describes Uganda's invariants as a small open but landlocked economy and sub-section 2.3.3 assesses the effectiveness of the East African Community (EAC), the SSA regional and the global integration mechanisms to promote productivity growth.

2.3.1 Institutions to support business and implications for productivity

In an underdeveloped country such as Uganda, institutions that support business to confront externalities, speed up the learning process, and correct errors in order to pursue a dynamic comparative advantage are particularly desirable. In the words of Douglas North, (1997).

"Essential to efficiency overtime are the institutions that provide economic and political flexibility to adapt to new opportunities, induce innovation, encourage risk taking and creative activity, encourage trial and eliminate errors." Pp. 3-4.

Uganda has three key statutory but semi-autonomous institutions to support business, the three best examples of which are described below for illustrative purposes: the Uganda National Bureau of Standards (UNBS), the Uganda Export Promotion Board (UEPB) and the Uganda Industrial Research Institute (UIRI).

(a) The Uganda National Bureau of Standards (UNBS)

According to the MoTTI Statement to Parliament, Vote 015 (2004/05), the UNBS was created to perform the following functions:

- Develop weights, measures, and standards to promote fair trade;
- Provide quality and safety assurance to protect consumers from sub-standard, hazardous and shoddy products and services through testing and certification procedures;
- Develop regional standards to promote trade in the EAC and COMESA, including harmonization of codes or practices.
- Serve as the International Inquiry Point for the WTO agreements on technological barriers to trade.

The UNBS is also a member of the International Standardization Organization (ISO).

(b) The Uganda Export Promotion Board (UEPB)

The UEPB was private-sector initiated, then set up in 1996 as a statutory but semi-autonomous organization to carry out the following functions:

- Conduct market search, product development and adaptation to suit market requirements, then disseminate the results to exporters through the Board's Information System;
- Conduct human resource development by training exporters to meet the changing market standards and regulations in an increasingly sophisticated international trade system; the UEPB, with assistance from the Commonwealth Secretariat, has drawn up a proposal for a Uganda Exporters Training School to formalize training, which is slated to be run by the Management Training Advisory Centre (MTAC);
- Collaborate with other development partners to promote trade, such as the CBI (Netherlands Centre for the Promotion of Imports from Developing Countries into the EU);
- Set up EPVs (Export Promotion Villages) to gather quality agricultural output from semi-subsistence scattered farmers for commercial consignments for export;
- Collaborate with UNCTD (to promote the Bio-Trade-Project) and ITC (International Trade Centre) to promote trade;
- Set up a Register of Exporters that can be used to assess Uganda's capacity as a supplier country.

(c) Uganda Industrial Research Institute (UIRI)

The UIRI is the progeny of the East African Industrial Research Organization that was broken up with the EAC in 1977. The UIRI was formally opened in 1997 to assume the following functions:

- Conduct research to develop, acquire and adopt appropriate technology, particularly for SMEs;
- Develop entrepreneurial skills, to assist trainees to stand on their own;
- Provide and supervise analytical laboratories to provide services to businesses in the areas of analytical chemistry, microbiology, and mineralogy;
- Provide engineering and carpentry workshops for the UIRI's own use, and for contracting out to businesses;
- Develop pilot plants such as that for ceramics, which cover research, design, and production of high quality products. Other Food-Science pilot plants have also been set up for processing dairy, meat, cereal, fruit and vegetable products.

(d) Assessment of the effectiveness of the UNBS, UEPB, and UIRI as determinants of productivity growth

Collectively, the three institutions can support business in the following areas:

- Market search and strategies for market access;

- Development of new products, new production processes, adaptation and commercialization of developments to meet market requirements;
- Train manufacturers, exporters, and other entrepreneurs for relevant business skills;
- Provide infrastructure (laboratories, engineering plants and equipment) for businesses to test for quality, standards and measures, to comply with regulatory requirements in Uganda, and overcome technical barriers to entry into export markets.

In order to perform these functions effectively, however, the institutions need more budgetary support. The lack of sufficient funding is undermining their contributions to boosting productivity growth.

2.3.2 Three invariants that impact on Uganda's integration arrangements with implications for productivity

The three invariants that have the most important implications for integration and productivity are size, geographic location and common or shared resources.

(a) Size

Uganda is a small economy with real GDP in constant 1997/98 prices of Ushs.9,836,291 which ,at the current exchange rate of Ushs.1,700 per US$, translates into only US$5,786 million. Uganda's purchasing power, as measured by real per capita income, is only US$224. The purchasing power parity estimate is US $ 320. Although the population total is 25.4 million, the economy is small and this requires the country to undertake many different economic activities within an integrated framework to benefit from economies of scale and advantages associated with a larger economy.

(b) Geographic location

Uganda is completely landlocked, borderen on the east by Kenya on the the south by Rwanda, to the west by Burundi and The Democratic Republic of Congo and Sudan to the north. Historically Kenya, Tanzania and Uganda have run their major road networks under a "gentleman's agreement" which required each country to maintain its own section of road up to each neighbour's border. The railways and harbours were administered by the East African Common Services Organization. Since the break-up of the EAC in 1977, Uganda relies on the goodwill of its neighbours, particularly Kenya, to access the seaport of Mombasa and, occasionally, that of Dar-es-Salaam in Tanzania. The reversion to the EAC integration scheme in April 2004, presents the most efficient option for Uganda to handle this geographical invariant.

(c) Common or shared resources

Uganda shares Lake Victoria with Kenya, (east) and Tanzania (south). Efficient management of this resource, including low-cost water transportation and fisheries, is easier to achieve with regional integration.

2.3.3 Integration and productivity

Sub-section 2.3.3 (a) presents the arguments on the relationship between integration and productivity and (b) traces the mechanisms (channels) through which Uganda can maximize the impact of integration on its productivity.

(a) Arguments on the relationship between integration and productivity

For a small economy, integration is the route to enhanced productivity by exploiting economies of scale and operating large-scale enterprises jointly within integration scheme. Integration also allows competition in a larger regional, compared to a small national market. This improves efficiency and lowers unit costs.A larger rather than a small domestic market is a more attractive destination for FDI. Policy coordination across a larger geographic area covers more natural resources and allows greater movement of capital and labour for optimal allocation than permitted by the confines of a small economy. Increasingly, heavy overhead investment in infrastructure, such as telecommunications, is more efficiently undertaken at regional level. The cost of negotiating a common position at international fora such as the WTO, EU, etc. is lower than when undertaken unilaterally by a small country.

"Developmental Regionalism", an emerging subject covering the relationship between integration, productivity and the pursuit of other development objectives such as protection of the environment, economic viability that improves with a large common resource base, etc. is summarized by Hettene (1996).

(b) Integration mechanisms (Channels) to maximize possible productivity gains

(i) Regional integration

Uganda signed an EAC Customs Union Agreement in April 2004 with Kenya and Tanzania,to allow free movement of goods between the three countries and maintain a common external tariff.

However, Uganda had the most liberalized trade regime at an average tariff rate of 11% compared to Kenya 18% and Tanzania 34%. The common external tariff should have been set at 11% or preferably less, as recommended by the WTO, which endorses integration as a step towards free trade. Unfortunately, the average weighted common external tariff cannot fall below 20%. At this level, Uganda will switch its source of imports (trade diversion) from the lowest-cost world producer on which it has been levying a unilateral tariff of 11% to higher-cost EAC partners (who need protection above 11% and from whom tariff revenue cannot be collected). The cost of this trade diversion from the lowest-cost world producer to higher-cost EAC partners is estimated to be within the range of US$ 274-318 million or 4.7% - 5.5% of real GDP and constitutes a substantial static efficiency loss. Importers in Uganda are already lobbying against the higher EAC external tariff which unfortunately cannot be lowered unilaterally.

Nonetheless, the following considerations suggest that, over time, Uganda's integration with its EAC neighbours is likely to increase efficiency and productivity through the following channels:

- A common package of incentives that would make the EAC a more attractive destination for a larger volume of FDI, part of which can be expected to locate in Uganda.
- Construction, repair and maintenance of shared infrastructural networks including the East African harbours, railways, major road networks, etc. The historical experience of the East African Common Services Organization strongly suggests that efficiency gains from an integrated approach to running a regional infrastructure of geographically contiguous countries can lower costs and raise productivity, by reducing the time of compliance with three to one set of procedures and by lowering overhead costs, etc.
- Lower negotiation costs in terms of the technical assistance and capacity required at the international fora such as the EU, WTO, etc.

As they are implemented, these measures can trigger major important determinants of productivity as a group.

(ii) Sub-Saharan Africa (SSA) integration

Given the diversity of countries in SSA, differences in initial conditions, geographicl distances and a poor infrastructural network, the gains from Uganda's integration into SSA arrangements require more careful selection of channels to effect productivity. The following are emerging examples:

- An African Peer Review which may impede the recurrence of political turmoil and economic mismanagement.
- Shared technical assistance which may lower the cost of reaching a common position in international fora on food security, FDI and trade issues, particularly market access, etc.

(iii) International integration

Uganda, under SAPS, substantially liberalized its current and capital accounts and the exchange rate. These mechanisms integrated the country into the world economy with substantial efficiency gains that partly account for the high GDP growth rate during the 1990s.

However, further integration into the world economy, to be more beneficial to Uganda, requires a streamlined development policy from, for example, business support institutions such as the UNBS, UEPB, UIRI. These institutions have potential integration channels through product development, diversification, technological adaptation, transfer, and standardization.

2.4 Overall assessment of the determinants of productivity

Four groups of determinants were assessed.The first group of determinants for the creation, transmission and absorption of knowledge were so weak that for practical purposes their contribution was nearly zero (or irrelevant). This is understandable in in the context of Uganda as the period covered by this report spans over the economic and political turmoil and subsequent structural adjustment to elimiate massive distortions and restore efficiency in resource allocation and utilization. However, since 2002/03 Uganda has embarked on a new paradigm of economic growth, via export-led industrialization. UNIDO's work is timely to inform policy-makers that productivity issues are central to the successful implementation of this paradigm.

The second group of determinants on accumulation were divided into three categories. The determinants of physical capital accumulation were positive in orientation, but their contribution to capital deepening - averaging 18.2 of GDP - was not sufficient. In order to exert the required influence for the projected structural change, the process of capital deepending needs to be stepped up to the benchmark of 26.1% of GDP i.e. by over 40%.

The determinants of accumulation of quality labour were highly negative in orientationand Uganda experienced a net loss in human capital. In terms of intensity, the brain drain between 1966 and 1986 had the most prolonged negative impact. The expulsion of skilled Asians in 1972 was a short-lived shock, but its intensity was due to the adverse image created until SAP policies gradually restored confidence in the 1990s. The functioning of the labour market with massive unemployment of 61.9% and recently the HIV/AIDS epidemic are also negative determinants of human capital accumulation and their full intensity,and channels through they impacted are just beginning to be analyzed

Accumulation of electricity is positive, but so grossly inadequate that it is exerting the most negative effect on productivity growth. Currently, only 48-74% of power requirements during low and peak periods is being supplied. The monopolistic channels through which power is supplied, together with the lack of competitive transparent bidding for power supply contracts, need immediate reform to make electricity a positive determinant.

The allocation of factors across sectors had a highly positive impact on output and on productivity indicators in the manufacturing and export sectors. However, the impact was short-lived, as was the case in Gabon under trade liberalization. Similar experiences were reported for Nigeria by Chote etc.(2002) and by Onjala (2002) for Kenya.

The positive impacts need to be strengthened by reforms of the financial sector to ease constraints due to the lack and the high cost of finance.

Furthermore, SSMEs and the agricultural sector practically excluded from the financial sector need to be integrated to increase the its effectiveness in promoting productivity, particularly given the importance attached to export-led industrialization which is agro-based, and dominated by SSMEs.

The group of determinants related to the contribution of institutions, integration and invariants to productivity were positive in orientation, but need to be strengthened by reforms that reduce transaction costs, assist business and are coherently integrated into the new development paradigm to maximize their impact on productivity.

III. Disucssion of policies affecting productivity

Introduction

This section is devoted to a discussion of government policies that impact on productivity, based on the previous analysis in Section 2.

Sub-section 3.1 introduces the overall planning framework within which specific policies are expected to impact on productivity.

Sub-section 3.2 presents the policies that directly promote productivity (especially policies that affect the creation, transmission, and absorption of knowledge).

Sub-section 3.3 discusses the policies that promote economic performance (efficiency and growth) in general, with implications for TFP, including policies that affect factor accumulation and allocation across the entire economy, the manufacturing and export sectors, in particular.

3.1 Overall planning framework to guide public intervention in the economy and the relationship of this framework to productivity

A suitable policy framework within which productivity can be promoted is already in place. The Government of Uganda considers the Poverty Eradication Action Plan (popularly known as the PEAP) to be the overall planning framework to guide public intervention in the economy with the overriding objective of reducing poverty to at most 10% of the head-count ratio (i.e. Po or percentage of the population below the national poverty line) by the year 2017.

The objective of poverty reduction is to be achieved through the astructural transformation of the economy, led by private sector investment to raise the productivity of the country's natural resources and its labour force through export-driven industrialization, that takes into account the country's invariant small size and landlocked location.

The agricultural sector is expected to play a complementary role to the industrial sector by providing food for the labour force, raw materials for the predominantly agro-based manufacturing sector and a domestic market, which is expected to act as a flexible ground for "learning"and a source of exports as the quality of output improves and the scale of production expands.

The services sector is expected to provide the physical infrastructure to support production (e.g. the communications and transportation networks and energy supplies, including electricity), financial services to facilitate an efficient allocation of resources across the entire economy and to the key sectors (i.e. manufacturing and exporting), social services, with a focus on health and education - crucial for human capital formation.

Uganda's impressive record of 6.2% real GDP growth p.a. in the 1990s was due to the recovery, rehabilitation and efficient utilization of existing capacity. Comprehensive policy analyses and projections indicate that the contribution to growth of existing capacity is exhausted, (Collier & Reinikka 2001; Beven, etc. 2003). If the country's objective is to raise

real GDP growth above the level of 7% p.a. required to ensure poverty reduction to 10% by 2017, it must focus its new policy agenda not only on asset accumulation (physical capital, human skills, social and physical infrastructure) but also,and in particular, must engage in the intensive acquisition of expertise to ensure the productivity of these assets and competitiveness in the globalized environment. Ways in which this new agenda can be implemented are discussed in Section 3 of this report with a view to drawing the attention of policy-makers to the importance of productivity and its enhancement.

3.2 Policies that promote productivity directly by fostering the creation, transmission and absorption of knowledge

Overall approach

The assessment of the determinants of the creation, transmission and absorption of knowledge as they effect productivity in Section 2.1. concluded that most of these determinants were either very weak or absent.

It follows that, although the discussion should focus on the economic impact of the policies, this approach is problematic in the case of Uganda where the impact was either absent or minimal.

Recently, however the Government of Uganda has been putting policies in place to address the vacuums or remedy the weaknesses assessed in Section 2.1. These policies are too new to show any impact as yet. For example, the UIRI became operational in 1997, the UNCST was established in 2000 and the UCPC project started in 2001, while the overall policy framework is still a Draft Paper to Cabinet (2004). Nonetheless, it is useful to brief discuss not the direct impact of these policies ex-post, but rather their likely effectiveness ex-ante. The purpose of the assessment is to identify the possible strengths to be enhanced and the weaknesses to be immediately eliminated and to suggest additional policies conducive to promoting provitivity.

Origin and justification of policies to directly promote productivity

In general, the policies to directly promote productivity are well conceived and fit into the overall framework described in Section 3.1 and the probable emerging technical capabilities of the country for their implementation. The policies are championed by the MoTTI, as outlined in the White Paper to Cabinet entitled "Policy Framework for Industrialization in Uganda 2004 – 2009", henceforth referred to as The Draft Cabinet Paper (2004). The policies have two objectives that most directly address productivity: (1) "To promote acquisition, adaptation and development of appropriate production technologies" (P.18) and (2) "To promote research and development". (P.20).

The focus of the objectives is on small-scale and micro enterprises (SSMEs) which employ one to four persons and contribute the bulk of output in grain-milling, apparel, furniture and metal fabrication. The justification is that these enterprises, according to the Uganda Bureau of Statistics (2003), constitute practically 80% of the activities of Uganda's entire manufacturing sector. Given their prominence, structural transformation of the economy is hardly possible without raising the productivity of SSMEs.

Current status of technology, productivity and R&D to be addressed

"Current productivity levels in SSMEs are rated pathetic: the technologies utilized are obsolete, with frequent breakdowns of machinery and equipment. Maintenance culture is virtually non-existent; it is not even part of the existing curriculum in technical training institutions that prepare the SSME entrepreneurs," (Draft Cabinet Paper, 2004, p. 12).

For the SSMEs in food-processing, the machinery embodies locally fabricated technology which is manual or only semi-automated. This limits production volume (with no economies of scale) and there is also an inability to ensure a consistent quality of output. Productivity, therefore, is low and output uncompetitive.

The most prevalent source of technology in Uganda is that embodied in high-quality imported machinery and equipment that is adapted and re-tooled to suit local conditions, as discussed in Section 2.1.2 (b). MLSEs can access information and raise the financing to import the up-to-date machinery directly or can participate in foreign joint ventures which facilitate the re-tooling of the factories and provide training for workers. In the case of SSMEs, however, access to information on external markets from appropriate technology can be procured is extremely limited. Besides, even if this information were accessible, the SSMEs cannot raise the necessary financing to procure the machinery and equipment and have no access to the formal credit institutions, as they are considered to be high-risk borrowers.

Research and development (R&D) activities at enterprise level are ruled out for most private enterprises in Uganda, and particularly SSMEs, due to the high cost of establishing the research facilities and hiring competent personnel.

R&D initiatives tend to be undertaken by institutions of higher learning, as indicated in Section 2.1.2. (a). The dissemination and adaptation of innovative activities require linkages between potential users in the business community, the R&D institutions, and the policy-makers who provide the incentives. This would enable the private sector to prioritize the application of knowledge according to national objectives.

The low level of patent applications (Table 2.1) further suggested that the effectiveness of the legal framework to stimulate R&D via protection of intellectual property rights was in need of reappraisal - as noted in Section 2.1.1 (c): According to the Draft Cabinet Paper (2004, pp 28-29). "The bulk of patents are foreign. Piracy is rampant and there is no respect for local innovation to improve domestic capabilities."; Prior to implementation, the law governing property rights needs to be simplified to encourage local participation - especially of SSMEs - and protect innovations in general.

The specific policies for R&D and appropriate technology to directly impact on productivity

The specific policies are intended to be administered through three institutional channels as follows:

(a) The Uganda National Council of Science and Technology (UNCST);

(b) The Uganda Industrial Research Institute (UIRI);

(c) The National Information and Communication Technology Mechanism (ICT).

The policies cover the following general areas:

- Design and publication of guidelines for technology acquisition and adaptation;

- Promotion of technological fairs and dissemination of appropriate technology with deliberate inclusion of indigenous sources;

- Creation of demonstration centres to increase awareness on technology application, including inter-sectoral linkages;

- Promotion of ongoing research to create demand for innovation and technology upgrading, especially within the private sector and development of new products for both domestic and export markets;

- Streamlining of activities of research institutions to create synergies and reduce overlap and optimize utilization of resources;

- Strengthening of existing research facilities and laboratories to broaden their range of activities;

- Creation of technology transfer resource centres;

- Development and application of indigenous technologies;

- Propagation of a culture of maintenance of machinery and equipment.

Institutionally, many of the R&D measures are being implemented by the UIRI. The UCAC project started in 2001 and is hosted by and incorporated in the UIRI, funded by the Government of Uganda with UNIDO participation. The rest of this subsection is devoted to appraising the strengths and weaknesses of the institutional mechanisms through which the policies are to be implemented.

(a) Uganda National Council of Science and Technology (UNCST)

The UNCST is regarded as one of the key R & D institutions in Uganda (Hasumira, 2004). It was established in 1990 as a statutory corporate body under the MoFPED, to replace the National Research Council (NRC).

The mandate of the UNCST is to guide and coordinate research and experimental development of science and technology (S&T) for integration into the national development process by the GoU. This mandate, if strengthened, can eliminate what Kakembo described in sub-section 2.1.2 as a vacuum in linking producers and users of knowledge and policy-makers for its application to effect national objectives.

The UNCST started operating in 2000 through eight specialized committees: (i) Agriculture

and Allied Sciences, (ii) Medical and Veterinary Sciences, (iii) Industrial and Engineering Sciences, (iv) Natural Sciences, (v) Physical Sciences, (vi) Information and Communication Sciences, (vii) Social Sciences and (viii) Humanities. However, to date the only reported output has been research reports in various disciplines with no demonstrable linkage between creators and users of knowledge and the policy-making process – an area which needs to be addressed and strengthened.

The UNCST launched an Innovation Fund in 2002 to provide financial support to research activities by individual local scientists. While this is a welcome initiative to encourage local scientists' participation in the creation of knowledge, the outputs still need to be fed into the country's overall development agenda to have an impact on productivity.

Furthermore, the MoTTI launched an Innovation and Industrialization Fund in 2004 to promote creativity in industrial development. The MoTTI is to set up criteria for the qualification of applicants, performance indicators for successful applicants who become users/ beneficiaries and exit rules for successful graduates or project failures .

Since both funds have the objective of promoting local participation in the creation of knowledge, the MoTTI and the MoFPED need to coordinate their criteria to avoid duplication and to have the two funds reinforce the ultimate objective of boosting productivity.

(b) The UIRI and the hosted UCPC

The UIRI was created to be the "nerve centre" for scientific and technological R&D. It started operating in 1995 as a department within the MoTTI, was given semi-autonomous status in 2002 and is one of the eight statutory institutions affiliated to the MoTTI.

UIRI's use of a range of technologies offers SSMEs a choice. In ceramics, for example, it uses manual, mechanical or casting methods to produce, test and certify the viability of a range of ceramic products including flooring and tiles, electronic insulators, decorative flower pots, kettles, cups, bowls, plates, etc. Given the UIRI range of products and technologies, SSMEs can opt for an initial "learning process" commensurate with their productive capacity, marketing ability and financial means and can then graduate to more complex undertakings as resources and experience are acquired.

UIRI not only certifies the industrial viability of its products locally, but has also made arrangements with an internationally accredited analytical laboratory in South Africa to test a sample of electrical insulators, where the products are certified to meet international standards. These practices give UIRI trainees the opportunity to "learn to compete" in production for the international market - a critical experiment for the export-driven industrialization agenda.

The newly housed UCPC project adds R&D and technologies that enhance environmental sustainability, while ensuring profitability at enterprise level.

In order to enhance the capacity of the UIRI to create, transfer and disseminate knowledge that impacts directly on productivity, the following measures are suggested: firstly, the facilities of UIRI need be expanded from Kampala to the regions to improve access for

economic agents and, secondly, the number of departments need to be increased.[1] Currently it operates the following departments:

- Ceramics Technology;

- Value- added meat products, and FAO-funded research into the production of low-cost meat;

- R&D capacity-building to improve traditionally fermented African dairy products;

- Support services to help industries to set up cleaner production systems that are privately profitable and environmentally sustainable (part of the UCPC project pending incorporation).

The key constraint to UIRI expansion is the need to increase the local contribution for the funding of programmes, logistical support and technical staffing levels.

(c) The ICT mechanism

The ICT mechanism is being put in place to address one of the key constraints, especially for SSMEs, to accessing information on sources of high-quality machinery and equipment with technologies that can be modified to suit local conditions to raise productivity. This constraint is particularly severe, given that R&D at enterprise level in Uganda consists of using imported machinery solely for retooling, adaptation and the fabrication of spare parts.

The Government of Uganda needs to widen access to the ICT mechanism to spread its utilization - particularly by SSMEs to which information may be readily available, especially in rural areas.

(d) UNBS

Narrowly defined, the mandate of the UNBS is that of a regulatory body. However, in the process of performing its duties, as noted in sub-section 2.3.1 (a), the UNBS engages in R&D activities that impact directly on productivity and entail the following:

- testing and certification practices that improveme quality and performance standards of products and processes.

- technical training in advisory services to potential clients to prepare for and maintain standards; the technical training and advice also transmit knowledge to the clients, which raises productivity;

- standardization and quality assurance which enable clients to access large markets, raise the volume of transactions and lower unit costs.

The main outstanding areas that need to be addressed to enhance UNEB's contribution to productivity in the performance of its duties include:

[1] The following areas could also be covered by UIRI: switches, fuses, coils, and conductors.

(i) The establishment of a centre equipped with internationally certified laboratories and related equipment. This centre would be used by the UNBS to more effectively perform its work and would also be a learning facility available for rent to the nascent private sector to train in quality control and standards This type of facility would boost economic productivity

(ii) The Standards Council, which was suspended due to lack of funds in 2002, needs to be restored to enable the UNBS to institutionalize and operationalize its procedures on an ongoing basis.

(iii) The UNBS operates in three areas: building materials electric cables and domestic appliances and food products.

In order to enhance its impact on productivity, the UNBS needs to expand its areas of operation. However, expansion and improvement of services requires more resources than are currently available.

(e) The UEPB

From the assessment of the business support institutions in sub-section 2.3 (c),(ii), the UEPB performed the following functions related directly to R&D that can be strengthened to enhance productivity:

- market research, product development and adaptation to suit the market requirements and dissemination of the results to exporters;
- training of exporters to meet the changing market standards and regulations in the increasingly sophiscated international trading system: this can also facilitate the transfer knowledge to improve products and processes to raise exporters' productivity.

The major constraints to strengthening the functions of the UEPB are again related to inadequate funding from the meagre local budget.

(f) Intellectual property rights protection measures

As noted in sub-section 2.1 (a), the institutional mechanisms to administer the protection of intellectual property rights are so weak that, according to the Draft Cabinet Paper (2004), p.16 – without a well-defined industrial research policy (as is the case today) – it is difficult to fight intellectual piracy. Failure to do so, however, will make it impossible to stimulate local innovation to improve productivity.

According to Hasumira's study (2004), potential applicants are particularly secretive due to suspicions that the patent application process might leak the new technology information to potential competitors before protection is granted. The potential applicants also complain that the process is too stringent to encourage local applications and the administrative charges of the patent office constitute a financial barrier.

The following measures are needed for this institution to enhance productivity growth:
(i) an industrial research policy within which creation of knowledge is focused,and protected from piracy:

(ii) an information campaign on the benefits of patent protection directed at potential applicants to overcome the culture of secrecy and reluctance to pay administrative charges.

3.3 Policies that promote economic growth in general, with implications for TFP

The discussion here closely follows Sections 2.2 and 2.3. It first examines the policies that affect accumulation of both physical and human capital, plus accumulation of infrastructure (electricity) and then discusses the policies affecting the allocation of resources across the entire economy, manufacturing, SSMEs and the export sector. The overall focus is on the impact of policies on TFP.

(a) Policies for resource accumulation with implications for TFP

(i) Physical capital accumulation policies

The trend in the magnitude and composition of the determinants of GFKF summarized in Section 2.2 (a), (v), noted four constraints. Firstly, the physical volume of GFKF was inadequate and peaked at 18.2% of GDP during the period – well below the 26.1% benchmark required for structural transformation. Secondly, the public sector composition of total GFKF within the declining range of 47-24% was far less than the required level of close to 50% to work together with private sector capital investment to maximize TFP in an underdeveloped country like Uganda with little infrastructure and public goods. Thirdly, the composition of private capital formation was biased towards construction, ranging between 54% and 80% of total private capital, compared with the share of equipment which was ranging between 46% to 20%. Fourthly, the financial sector only managed to mobilize 5% of GNS/GDP, which was inadequate to finance investment and well below the SSA average of 20%.

The policies in place to address the problems in the above group of determinants are summarized in the PEAP (July 2004) and proposed in the Draft Cabinet Paper (2004). The first constraint of the inadequate volume of GFKF is addressed by trade and investment policies. The projected total investment is to reach 26.2% of GDP by 2013/14, with the private sector component at 21%. Total investment will have to increase at 7.5% p. a. (PEAP, P.54) in order to achieve this projection. Three policies are planned to effect the 7.5% growth rate of investment. Firstly, the Government of Uganda is to reduce financing of the fiscal deficit from short-term treasury bills. This would curb interest rates, which crowds the private sector out of the credit market. Secondly, the Government is to maintain liberalized current and capital accounts and promote the stock exchange to attract investment, especially FDI. Thirdly, the proposed restructuring and reform of commercial banks is expected to motivate them to offer more products to attract private savings.

Regarding the constraint on raising the proportion of public investment in GFKF, the PEAP outlines the difficulties of financing public investment as ODA is scaled down. The Ugandan economy with large semi-subsistence agricultural and informal sectors, offers few opportunities to raise income tax. The small share of consumer expenditure in large establishments that keep records also limits the collection of taxes, such as VAT. Despite

these difficulties, the Ugandan Government intends to raise revenue to at least 22 – 23% of GDP, part of which, it is hoped, will fund public investment. The higher revenue is expected from VAT, excise duty, and improved tax administration.

With respect to the third constraint on raising the proportion of equipment relative to construction in private GFKF, the Government is reluctant to restructure the incentives administered by the UIA for greater allowances on equipment. Currently this issue is only addressed by a depreciation allowance in three areas: computer and data-processing equipment (45%), scientific research and training expenditure (100%).

Whereas from the experience of the 1991/97 period, investment incentives in the UIA were used to evade taxes, they need to be re-designed as the most direct instrument to change the composition of private accumulation. Vigilant fiscal administration of these incentives by the URA is required and would benefit the entire economy.

(ii) Policies for the accumulation of high-quality labour

Although still largely to be implemented, the formulation of policies to bring about the required quality skills composition and level of labour accumulation is more direct and stands a better chance of producing results.

The low level of high-quality labour accumulation was recorded in the limited stock available in Tables 11 and 12. This reflected the periods of slump in average labour productivity loss under the negative determinant of DLP from the civil strife and economic mismanagement, malfunctioning of the labour market and the HIV/AIDS problem reviewed in Section 2.2 (b), (i), (ii) and (iii).

One of the first policies at the onset of the SAPs era entailed the Government's encouragement of the private sector to mobilize resources for higher education, while freeing public investment for other infrastructure and public goods in critical shortage in the early 1990s. Table 18 indicates the highly positive response of private sector in the form of investment in higher education institutions.

Unfortunately, the response intensified rather than improved the unfavourable composition of skills relative to what the Government of Uganda had intended. Regarding the output composition of skills, more Arts/humanities graduates were produced than scientists, engineers and technicians, as illustrated by comparing rows A and B of Table 19. Sub-total A reflects the greater private profitability of investment in arts and humanities, compared to investment in disciplines in sub-total B, which require the investor to provide expensive laboratory equipment, consumables and a testing infrastructure before the higher institution is accredited. Precisely these latter disciplines, however, are of direct relevance for the creation, transmission and absorption of knowledge for productivity growth.

Table 18
Investment in higher education institutions by ownership (%)

	Category of Institution	Private	Public	Total
		(1)	(2)	(3)
1	Universities	82.1	17.9	18.1
2	Commercial Colleges	83.7	16.3	31.6
3	Management Institutions	83.3	16.7	11.6
4	National Teachers' Colleges	8.3	91.7	7.7
5	*Health Institutions*	28.6	71.4	8.0
6	Technical Institutions	..	100.0	3.9
7	Others			18.1

Source: National Council for Higher Education: A Report on a Survey of Uganda's Higher Institutions of Learning. Note columns (1) + (2) = 100, for each row. The entire column (3) = 100

In a near urgent response, the Government has declared its intention to limit financial support to current and future students of science, technology and engineering, and stop support in the area of arts/humanities. This is based on the argument that sub-total A (Table 3.2) reflects excessive enrolment in disciplines only marginally relevant to economic growth, structural change and raising productivity.

However, the Government's reaction has sparked off an angry debate from private sector investors and parents/guardians on an inequitable distribution of public resources. This case has provided a most valuable learning experience that policies to be implemented by the private sector need well-structured incentives consistent with the desired national objectives. Incentives currently reinstated by the Government have sent a clear signal of the desirability to orient the output of university graduates more towards scientific subjects. The public, however, remain to be convinced that this reorientation of incentives is necessary.

Table 19
Enrolment in academic programmes in higher education institutions by selected disciplines (% of Total enrolment at each level)

	Academic Level/ discipline	Certificate	Under-graduate Diploma	Bachelors Degree	Postgraduate Diploma	Masters Degree	PhD
	Humanities	29.9	31.6	56.2	82.5	48.5	n.a
	Business Studies	37.8	33.7	17.1	5.0	10.7	5.9
	Management	6.9	13.1	2.4	n.a	1.6	
A	Arts/ Humanities Sub- Total	74.6	78.4	75.6	87.5	60.8	5.9
	Agriculture	0.0	0.9	2.4	0.0	n.a	n.a
	Engineering	9.3	7.0	6.7	n.a	n.a	n.a
	ICT	9.4	6.9	5.0	n.a	n.a	n.a
	Medicine	1.2	2.9	4.5	12.5	n.a	n.a
B	Sciences, Technology, Engineering, Sub-Total	24.3	19.0	23.4	12.5	38.5	35.3
	Others	1.0	2.9	1.0	0.0	0.8	0.0
	Total Enrolment	99.9	100.3	100.1	n.a	n.a	n.a

Source: National Council for Higher Education (2004). The State of Higher Education: A Report of a Survey of Uganda's Higher Institutions of Learning. n.a. = not available

Furthermore, the following additional measures were enhanced to strengthen quality labour accumulation in the desired quality and skills proportion for productivity growth:

• Provision and enforcement of standardization, testing certification and curricular development as public goods, to reduce the inequitable access to these services by SSMEs unable to meet the cots;

• Implemenation of planned Government measures to encourage private sector employees to tie wage negotiations to labour productivity, and to observe core ILO Labour Standards already in place;

• Creation of polytechnical and other tertiary institutions at each sub-county level, equipped and inspected to ensure output of graduates with high-quality technical skills across the country;

• Improvement of the publicly-funded universal access to primary education to reduce the 71% drop-out rate, 46% of which is due to lack of interest, by including functional literacy and numeracy in the curriculum to prepare UPE graduates to pick up modern and changing simple skills at work to raise productivity.

Eventually a policy on universal access to anti-retroviral therapy needs to be put in place to curb the productivity loss from the 10% of the labour force already infected with HIV/AIDS.

(iii) Infrastructural accumulation: Electricity

The assessment of the electricity supply in Section 2.2.1, (c) concluded that a shortage of power is a negative determinant of productivity. Section 3.3, (iii) discusses whether the current policies on electricity supply are likely to alleviate the power shortage in a timely manner.

Uganda is well-placed to accumulate more hydro-electric power. According to the PEAP (2004), the current production of electricity is estimated at 317 MW p.a., of which 300 MW is generated from the River Nile. The country's hydro-power potential from this river is estimated at 2,000 MW, which compares very favourably with current production and suggests potential for Uganda to increase its output.

In the meantime, however, whilst the installed capacity on the River Nile is estimated at 300 MW p.a., the effective capacity is only 220 MW due to the low level from Lake Victoria. If the planned additional capacity of 80 MW p.a. at Kiira is installed by 2010, the total effective power supply by then year will be 300 MW. Unfortunately this output will still fall far short of the estimated demand, which currently ranges from a low of 411 MW p.a. to a peak of 649 MW p.a. and is estimated to grow by an additional 30 to 40 MW p.a. - i.e., 150 to 200 MW by 2010. Accordingly, the total demand projected by 2010 will range from a low of (411+150) - i.e.,561 MW - to a peak of (649+200) - i.e. 849 MW. The estimated supply in 2010 of a mere 300 MW will only satisfy 53% of the power needed when demand is low and as little as 35% at peak! This constitutes a crippling constraint on productivity.

A new power distribution company, UMEME, has raised the tariffs sufficiently to provoke public demonstrations by the business community who argue that the new charges will make Ugandan enterprises uncompetitive in the overall economy and in the manufacturing and export sectors.

The extra supply of thermal power of 50 MW procured from Aggreco International and noted in sub-section 2.2.1, (c), is neither cost-effective nor does it adequately alleviate the power shortage.

Only 16% of small firms own power generators as a contingency measure to curb losses from power cuts, as compared with 77% of large and 44% of medium-sized firms. Any power disruption, therefore, is relatively more damaging for SSMEs than for large and the medium-sized firms.

Alternative sources of electricity from the current mainstream grid are considered in Uganda's Rural Electrification Strategy 2001-2010. These include solar, wind, biomass and hydro sources. The current comparative cost figures are US cents 6.7/KWh on average on the major grid and US cents 24/KWh from a smaller generation unit. This implies that until hydro electric power is decentralized and delivered at lower unit costs, the proportionate cost disadvantage to SSMEs cannot be offset in the near future.

Policy measures should be enhanced to include competitive bidding and transparent awards of contracts in order to improve the quality and lower the cost of the current power supply and speed up the accumulation of affordable power - particularly for SSMEs - to avert the looming crisis.

(b) Policies for the financial sector, factor allocation and implications for TFP

The financial sector should allocate resources across the entire economy to maximize returns in the socially most profitable uses of these resources. In the case of Uganda, however, existing efforts are struggling to reconcile an underdeveloped financial sector with poor services, and disconnected in terms of sectoral outreach with the limited impact on productivity from this group of determinants, as discussed in sub-section 2.2.3.

Ultimately, the current policy supports a rapidly growing and private sector led micro-financed sub-sector under the MTCSPS to charge what it takes to service small-scale customers (at a profit to the micro-finance institutions, MFIs). Credit to micro customers ranges within 50,000 – 300,000 Ug. Shs. or US$ 30 – US$ 175, at the exchange rate of 1700 Ug. Shs per US $), on short terms of three to six months and at annualized interest rates of 35% - 50% p.a. This expensive credit is available only to businesses in the urban and peri-urban informal sector with a rapid enough turnover to meet the short-term repayments. More expensive outreach to rural areas is only gradually being encouraged through donor-funded subsidies to the MFIs that dare to serve these areas. Mobilization of savings for lending, at lower interest rates, compared to retailing funds borrowed from commercial banks, is only emerging under the Financial Institutions Act (2004). However, only 10% of the best run MFIs qualify to take public deposits.

Small agricultural holdings, the largest employer of about 79% of the total labour force, is outside the financial sector, due to the high cost of reaching small-scale scattered farmers and the high risk plus large variation in gestation periods of agricultural enterprises. Available credit is for crop finance to and market produce. Micro credit flows to agriculture for the production and purchase of variable inputs, but only as a residual from profits made by customers in other enterprises in the informal sector.

A new policy intervention known as the Strategic Agriculture Project, initiated by the Government of Uganda in January 2002 and expected to run until 2007, is introducing a Commodity Exchange and Warehouse Receipts as collateral to reduce the risk of agricultural lending. The project, when expanded beyond the nine out of fifty-two districts and when studies for the required infrastructure to be financed by 2 m Euros from the EU are completed, will address a critical gap in agricultural sector financing. Given the fact that over 60% of Uganda's manufacturing sector is agro-based, covering this gap should contribute positively to TFP.

New financial sector policies are in the process of developing credit sources that are more suitable for medium to long-term industrialization activities, compared to commercial bank loans with short terms of at most one year. The sources include the Liberalization of the Pension Scheme (National Social Security Fund – NSSF), promotion of the capital market to raise equity capital (already started on a limited scale) and the restructuring and privatization of the previously parastatal-owned Uganda Development Bank. Judging "ex-ante", if these

policies are successfully implemented, they can raise TFP, particularly for MSEs in the manufacturing sector.

For the exports sector, the mechanisms for providing medium-term financing, administered by the Bank of Uganda through Selected Financial Institutions (SFIs), include the Export Promotion Fund, the Export Credit Guarantee Scheme and Export Refinancing Scheme. These schemes, however, are only accessible to MLSEs exporters, and complement the already leveraged commercial bank credit.

The SSME sector is not catered for under the current financial policies. Micro finance is too small, too expensive and of too short a duration to finance procurement, installation and investment in equipment to raise TFP for these enterprises. Given the prominence accorded to SSMEs in the export-driven industrialization strategy, the omission of financial policies for this sector represents a serious weakness, even "ex-ante" and needs to be immediately corrected.

(c) Policies for integration and implications for TFP

Uganda's small size and landlocked geographic location invariants impose constraints to productivity growth. These invariants also limit the country's attractiveness for FDI without the prospect of supplying the EAC. Despite its bold steps at unilateral liberalization, Uganda's landlocked location implies high transportation costs for port access and handling and clearance of goods is better managed in an integration scheme with Kenya and Tanzania.

Regarding export-driven industrialization, Uganda needs the EAC for investment in industries that process its raw materials in order to compensate for its limited market size, especially for the new small exporters who have to overcome several barriers to access the EU and European markets - as noted in sub-section 2.2.2 (b). The same new exporters need policies to push for market access into the soft Middle East, North African and COMESA markets.

For large established exporters to the EU and other MDC markets, Uganda needs to ensure that the preferential access is fully exploited for the EBA, EU/ACP and AGOA preferences. The JITAP report (2001) noted that Uganda's preference quota under the EU/ACP previously went unfilled in the 1990s. This type of supply problem should be avoided, while aggressive market access and integration policies are negotiated within the EAC for greater bargaining power.

3.4 Emerging overall perspectives for the way forward

a) Three areas emerging from the policy discussions need to be highligted for attention by policy-makers:

i. Institutional reform is crucial, including technical assistance, and adequate funding, especially for the core institutions to boost productivity. There is need for prioritization both of activities and budget to ensure the formulation and implementation of programmes and the attraction and retention of technical personnel.

ii. A second area to be highligtened concerns the mobilization of the private sector response to enhance productivity growth. Cases of overlay private GFKF in structures (?), compared to equipment, and that of private investment in higher education institutions oriented away from science subjects, indicate that the private sector response to policy can be important and bring additional resources. However, well-structured incentives and monitoring processes are required to ensure that the response is consistent with national objectives.

iii. Uganda's invariants of its small-size and landlocked economy make regional integration with its neighbours in the EAC the efficient route for development. However, the reaction of the business community to the high common external tariff suggests the need for renegotiation to minimize the cost of trade diversion, while also highlighting more opportunities for participation in developmental regionalism to effect productivity growth, including the development of common resources, infrastructure etc.

b) New areas for additional policies to enhance productivity

Three additional areas to enhance productivity are suggested; a redefinition of R&D, strategic management of linkages and reinforcement of the complementary role of agriculture.

(i) A Practical definition of R&D to guide policy in LDCs

A study by Bigg etc. (1995) argues that R&D activities in LDCs such as those of SSA substantially differ from those in MDCs. They lack formalized procedures for innovation, specialized budgets and sophiscated laboratories. A practical approach to identify and foster R&D in these countries has to take into account and use concepts that cover a broad range of technological initiatives: the modification of imported equipment and processes for practical application, differentiation or re-design of local products, copying, re-engineering or experimenting with foreign machinery in a "learning" process and the fabrication of spare parts.

Biggs, etc (1995) cites examples of R&D activities from Ghana, Kenya and Zambia and the informal R&D activities in Uganda, particularly among SSMEs, may be better suited to these for promotion purposes.

Some practical approaches suggested include:

- A survey to document, classify and rank a broad assortment of technological initiatives in the country to provide a guiding information base;

- Regular promotion exercises including formal recognition and competitions for awards at R&D fairs for newcomers who are then encouraged to progress to more complex R&D.

- Stimulation of greater use of public facilities - e.g. UIRI facilities, which include machinery, laboratories and technical personnel, at a fee affordable by the private sector, especially SSMEs. On our tour of the UIRI, we found the facilities underutilized, despite the moderate user fees .

(ii) Strategic management of inter-sectoral linkages for productivity growth

MLSEs tend to form vertically integrated monopolies to supply their own inputs, process and market the outputs to control quality, meet production schedules and avoid errors of unskilled suppliers. *Unfortunately this tendency not only puts consumers at a disadvantge with higher* prices, but also causes inefficient utilization of plant and equipment, thus limiting the impact of MLSEs on productivity.

Possible initiatives for the proposed strategic management of inter-sectoral linkages include the following:

• Incentives to encourage FDI and MLSEs to procure inputs from SMEs to stimulate backward linkage;

• sub-contracting SMEs to retail simple products and provide repair, maintenance, and cleaning services; this would leave MLSEs capacity for greater specialization;

• capacity-building programmes for SMES to handle contracts and absorb technology from MLSEs and FDI to improve the quality of work.

This proposal could contribute to boosting both employment and labour productivity. Uganda's massive unemployment and underemployment rate is 61.9% and its labour productivity the lowest in SSA. At the same time, the Government objective is to reduce poverty by raising labour productivity as stated in Section 3.1.

(iii) Strengthening the complementary role of agriculture

Within the overall planning framework for export-driven industrialization described in Section 3.1., agriculture is expected to play a complementary role by providing food for off-farm labour, raw materials for the predominantly agro-based manufacturing sector and a domestic market for experimenting with possible improvements in the quality and scale of output in preparation for exporting.

In order to play the expected role, agricultural productivity needs to be boosted. According to Nabbumba and Bahiigwa (2003), "Available evidence indicates that "... farmers achieve between 13 and 33 percent of yields attainable at research stations... with crop yields in the range of 13-49%...p.1" The following proposals are focused on selected areas which need attention.

- To assist owners of small agricultural holdings , autonomous cooperatives should be revived and expanded as legal entities, which can acquire property and raise collateral to back up loans for purchased inputs; education should be provided for their members to improve the quality of output and organize marketing in bulk to achieve economies of scale. These activities will raise productivity, but are currently neither undertaken systematically nor on an adequate scale .

- Assistance should be provided to small holders to handle contracts in a monopoly/monopsony setting in which,associations of small holders (as monopolies) confront sole buyers (estates, contract farmers or exporters, as monopsonies). These bilateral monopoly arrangements have been growing rapidly since the liberalization and privatization of marketing boards and efficient outcomes of contracts with small–holders have yet to emerge.

- Organic farming should be promoted together with the certification required for marketing, as small holders cannot afford modern technologies at current prices. Using organic technology, a small holder could raise output by 30-40% on Uganda's good soils, compared to traditional technology. Organic practices can be taught from extension staff at research stations and by some NGOs. If carefully applied, these practices are scientifically sound, an opinion widely held in Uganda.

With organic farming practices, small holders could make their own unpurchased inputs (pesticides, manure) and sell the output at a 20-25% price premium, compared to inorganic products. This would boost small holder income, reduce poverty and raise productivity.

(iv) Land tenure should be secured for small holders to enable them to invest in medium to long-term productivity enhancement practices such as terracing to control soil erosion and tree planting to protect the environment.

Historically, the near universal access to land under the previous land tenure systems provided employment to 79% of the entire labour force in small agricultural holdings.

Unfortunately, since the 1995 Constitution, the near universal access to land has been threatened with extinction, without leaving small holders a viable alternative for long-term investment in productivity enhancement. Eviction without compensation, sale under duress, loss of land and property from bulldozing small holdings when owners delay in evacuating and conversion of private to communal land titles are all becoming too common, with no due legal process or restraint. Land tenure security protection and due process are measures necessary to induce investment in agricultural productivity.

c) The role of UNIDO reviewed

Promoting productivity growth is a new policy area in Uganda. It is most fortunate that UNIDO's pioneering work on the trends and determinants of productivity in LDCs has come at this time and fits in a supportive way into Uganda's overall policy framework for export-driven industrialization as outlined in the Draft Cabinet Paper (2004) and Section 3.1 of this report. UNIDO's recommended role is to highlight the importance of productivity and suggest how best to promote it as Uganda's new policy agenda is implemented.

(i) Starting the dialogue with the Government of Uganda on UNIDO's current growth projects within the MoTTI, UNIDO can suggest ways of enhancing productivity growth. Current projects include the Uganda Integrated Programme (UIP); and theUganda Cleaner Production Centre (UCPC).

(ii) Innovations can be added, perhaps within a broader framework of a "New UNIDO Country Programme for Uganda", to cover the following areas:

- strengthening of the key institutions to effect productivity growth;

- basic data collection (in small surveys or a country-wide census) to gather and analyse data to guide policy decisions, especially on R&D. There are hardly any data or policy studies in this area;

- Intensifed capacity-building skills to promote productivity;

- Co-ordination with other donors with similar objectives to enhance productivity growth.

References

Adede A.O. (2002), Streamlining Africa's Response to the Impact of Review of Implementation of the Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement Geneva: International Centre for Trade and Sustainable Development (ICTSD).

Agénor, Pierre-Richard (2000), The Economics of Adjustment and Growth. New York: Academic Press.

Agnosin, M. (1997), Export Performance in Chile: Lessons for Africa. UNU/WIDER Working Paper No.144.

Bakenegura, R. N. and E. Mugenyi (2004), "Issues in the Implementation of Sector Policies at Local Level in Uganda: Agricultural Extension". Paper presented at a one-week course on Basic Principles of Decentralization, organized by the Uganda Management Institute, Kampala

Bayigga, M. P. (MD., 2004), Challenges of Access to Anti-Retroviral Therapy in Uganda: A Focus on the Cost of Therapy. MA Dissertation submitted to Southern African Political Economy Study Series.

Belshaw D.G.R and W. R Stent (1979), "An Overview of the Agricultural Sector," ed. Commonwealth Secretariat, The Rehabilitation of the Economy of Uganda: Vol. 2 Sectoral Issues. Chap. 1.

Bevan, D. etc. (2003), Poverty Eradication Action Plan Revision 2002/03 MoFPED.

Biggs etc. 1995 to be sent to UNIDO.

Bigsten, A and S. Kayizzi – Mugerwa (1999), Crisis, Adjustment and Growth in Uganda: A Study of Adaptation in An African Economy. London: Oxford University Press.

Chang, Ha-Joon and Duncan Green (2003), The Northern WTO Agenda on Investment: Do As We Say, Not As We Did. Geneva: South Centre/CAFOD.

Chote, Louis N. and A. F. Adenikinju (2002), Productivity Growth in Nigerian Manufacturing and its Correlation to Trade Policy Regimes/ Indexes (1962-1985). AERC, RP 127.

Constitutions of the Republic of Uganda, 1962, 1967, 1995, Entebbe, Uganda Printing and Publishing Corporation.

Deininger, K., G. Kempaka, and A. Crommelynck (2002), Long- term Welfare and Investment Impact of AIDS - Related Changes in Family Composition: Evidence from Uganda. EPRC Research Series no. 29.

Derosa, D., Obwona M. & V.O. Roningen (2002). The New Customs Union: Implications for Uganda Trade, Industry Competitiveness, and Economic Welfare. (Paper prepared for MoFPED & USAID) EPRC, Occasional Paper No.17.

Friedman, Steven (April 1993). "South Africa's Reluctant Transition," Journal of Democracy.

East African Weekly Newspaper no.599 (July 18-24, 2005). Pp. 1 and 3, "Uganda's Power Blues to Last Till Bujagali Switches on in 2010,"

Ellis, F. (1989), Peasant Economics, Cambridge University Press

Gauthier, Bernard (1998), "Productivity and Export," in ed. Reinikka, Ritva & P. Collier, Uganda's Recovery: The Role of Farms, Firms and Government (Washington D. C: World Bank, Regional and Sectoral Studies, 2001).

Government of Uganda (2003), Pro-poor International Trade Policy of Uganda (Zero-Draft document prepared by Maxwell Stamp PLC. London).

Hamisi, R, S.E. Joseph and P. K. Sardana (1979), "An Overview of Manufacturing Industries." Commonwealth Secretariat, The Rehabilitation of the Economy of Uganda Vol.2 Chap.8

Hasusira, Richard (2004), "Factors Influencing Investment in Research and Development (R&D) in Selected Manufacturing Firms in Uganda, "MA Dissertation submitted to Makerere University, Faculty of Economics and Management.

Hettne, B. (1996), "Developmental Regionalism," ed. Lundahl, M. and B. J. Ndulu, New Directions in Development Economics. London: Routledge Publishers, Chap.7.

Huntington, Samuel P. (1991). The Third World: Democratization in the Twentieth Century (Norman & London, University of Oklahoma Press).

Hutchinson, P. (2001), "Combating Illness," ed. Reinikka. R and P.Collier, Uganda's Recovery: Role of Farms, Firms and Government. World Bank Regional and Sectoral Studies. Pp. 416-17 and 433.

Kakembo, F. (2003). The Education Challenge in the Industrialization of Uganda. Paper presented at the International Conference on Industrialization in Uganda Aug. 14-16, 2003.

Khan, M. S. and C. M. Reinhart (1990), "Private Investment and Economic Growth in Developing Countries", World Development Vol. 18, No.1.

Kasekende L. A & G. N. Ssemogerere (1994), Exchange Rate Unification and Economic Development: The Case of Uganda 1987-1992, "World Development" Vol. 22 no.8.

Kasozi-Mulindwa S. (2004), "Issues in the Implementation of Sector Policy at Local Levels in Uganda: Primary Education". Papers Presented at a One-Week Course on Basic Principles of Decentralization, Conducted by Uganda Management Institute.

Kitakule, Sarah (1998), Current Situation, Vision and Strategy for Trade and Industrial Policy Research in Uganda. Paper prepared for the National Council of Science and Technology.

Lall, S. (1995), Selective Policies for Export Promotion: Lessons from the Asian Tigers. The UNU/WIDER. Research for Action No. 43.

Low D.A. (1971), "The Uganda Agreement 1900" in The Mind of Buganda: Documents of the Modern History of an African Kingdom. (London: Ibadan etc, Heinemann) pp 37-41.

Ministry of Gender, Labour and Social Development (2004). National Employment Policy Proposals (Draft).

Monitor Daily Newspaper "Global Fund Suspends Ug. Shs. 280bn Uganda Aid," pp.1-2. (Aug. 25, 2005, Issue no.237).

MoFPED (2002), Uganda Participatory Poverty Assessment Process (UPPAP) Kitembe Site Report, Madudu Sub-county, Mubende District.

MoTTI & UNIDO (2005), Uganda; Overview of Industrial and Trade Performance.

Mubende District, Madudu Sub-county, Kitemba Site Report (2002), MoFPED Uganda Participatory Poverty Assessment Process (UPPAP).

Myint, H. (1971), Economic Theory and the Underdeveloped Countries Oxford University Press.

Nabbumba, R. and G. Bahiigwa (2003), Agricultural Productivity Constraints in Uganda: Implications for Investment. EPR C, Research Series no.31.

National Council for Higher Education (2004), The State of Higher Education: A Report of A Survey of Uganda's Higher Institutions of Learning (First Draft).

North, D.C. (1997), The Contribution of the New Institutional Economics to Understanding of the Transition Problem UNU/WEDER Annual Lecture 1.

Nowlan, David M. and F. Peckhan (1979), "An Overview of Transportation", Commonwealth Secretariat, The Rehabilitation of the Economy of Uganda Vol.2 Chap.15.

Obwona, M. and B. Mutambi (2004), Foreign Direct Investment in Africa: Trends Determinants, and Linkage with Growth and Poverty. Paper presented to the EPRC Seminar, at Makerere University.

Onjala, Joseph O. (2002), Total Factor Productivity in Kenya: The Linko with Trade Policy, AERC, RP 118.

Parliament of Uganda (2004), Report of the Committee on National Economy on the Loan Request for Financing the APEX Private Sector Global Loan Facility (APEX IV).

Pigato, Miria (2000), Foreign Direct Investment in Africa Old Tables and New Evidence (Economic Development Institute of the World Bank, Draft).

Republic of Uganda (1991), Government White Paper on the Education Policy Review Commission Report.

Republic of Uganda (2004), Government White Paper on: (1) The Report of the Inquiry (Constitutional Review); (2) Government Proposals not Addressed by the Report of the Commission of Inquiry (Constitutional Review).

Republic of Uganda (2004), MoTTI: Ministerial Statement for the Financial Year 2004/05. (Presented to Parliament for Debate on Estimates of Revenue and Expenditure Vote 015).

Salinger, Lynn (2001), "Overcoming Barriers to Increased Productivity, Trade and Investment in Africa," Cambridge, Massachusetts: Association of International Resources and Development.

Seers, Dudley (1979), "Statistics," Commonwealth Secretariat, The Rehabilitation of the Economy of Uganda. Vol. 2 Chap. 31.

Shell Foundation (2005), Enterprise Solutions to Poverty: A Report by the Shell Foundation.

Siggel, Eckard and G. Ssemogerere (2004), "Uganda's Policy Reforms, Industrial Competitiveness and Regional Integration," Journal of International Trade and Economic Development Vol.13 No. 2

Smarzynska, Beata, K. (2002), Does Foreign Direct Investment Increase the Productivity of Domestic Firms? World Bank, Development Research Group, Policy Research Working Paper 2923.

Ssemanda P. E., Walakira, E. J. and A. R. Nakimuli (2005), Analysis of Unemployment and Underemployment in Uganda: Strategies for Productive Employment Generation. MoFPED, Poverty Monitoring and Analysis Unit (PMAU).

Ssemogerere, G.N, & W. Kalema (2000), "Managing A Smooth Transition From Aid Dependency," Final Report Submitted to the African Economic Research Consortium (AERC), Nairobi, Kenya.

Stanbic Bank Ltd. (2004), Foreign Direct Investment for Uganda: Buying Process of South African Investors and Implications for the Uganda Investment Authority.

Teixeira, R. Paul (2003), "The Challenge of Access to Art in Developing Countries," Paris, France.

Timmer, E.P. "Agricultural Transformation," ed. H. B. Chenery, Handbook of Development Economics vol.1 Elsevier Science Publishers.

Uganda Investment Authority (UIA, 2005), About the Uganda Investment Authority: Vision, Mission, Investment Incentives etc.

UIA FY 2004 Country Commercial Guide for Uganda: Investment Climate Statement.

UNDP & UNIDO, Uganda Private Sector Development (1996), National Strategy and Programme for the Development of the Manufacturing and Industries Sector (UGA/95/002).

World Bank & UMACIS (2004), Investment Climate Assessment in Uganda.

World Bank (2005), A Better Investment Climate for Everyone; World Development Report.

Printed in Austria
V.05-91111—December 2005—100

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Telephone: (+43-1) 26026-0, Fax: (+43-1) 26926-69
E-mail: unido@unido.org, Internet: http://www.unido.org