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**HIGHER EDUCATION AND THE LABOUR MARKET:
A LOGICAL FRAMEWORK FOR POLICY MAKERS
IN AFRICA'S EDUCATION SECTOR**

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HIGHER EDUCATION AND THE LABOUR MARKET: A FRAMEWORK FOR POLICY MAKERS IN AFRICA'S EDUCATION SECTOR by Kwabia Boateng

ABSTRACT

The paper provides a logical framework depicting the main linkages between the educational sector and the labour market, to explain the sources of the low rates of return to higher education and the increasing educated unemployment in Africa and to guide the formulation of a comprehensive human resource development policy on the continent. Though only Ghanaian and Nigerian data is used to evaluate the extent of the "mismatch" between educational output and labour market requirements, the findings and hence the recommendations could be generally applied to other African countries. The main recommendation for raising the impacts of higher education on Africa's development is to establish and strengthen the flow and the utilisation of labour market information in higher educational institutions and matching the provision of public resources with national manpower requirements.

A. Introduction

The main hypothesis of this paper is that the phenomenon of increasing graduate unemployment and the low returns to higher education in Africa can be attributed to the weak linkage between the higher education sector and the labour market. This weak linkage isolates the education sector from the real sector, resulting in a weak impact of educational output on the growth and development of the economy.¹ Bawumia and Laryea (1997), using labour income measures, found negative human capital indices for the majority of African countries and concluded that the investment in education in these countries is not being translated into increased productivity of the labour force. What accounts for this?

One could posit several reasons for the low returns to education, notably, the increasing unemployment of educated labour; brain drain; poor quality of educational output; lack of complementary factors like equipment; and generally poor working environment. But the more fundamental cause is the continuing failure to subject the educational sector to the requirements of the labour market.²

In Nigeria, it has been observed that the "rising graduate unemployment reflects the insensitivity or the attitude of unconcern of the manpower producers to labour market concerns" (Nigeria Federal Government Ministry of Finance 2001, p. 123). Strengthening the linkages between the education sector and the labour market should be seen therefore as a critical requirement for the realisation of the potential impacts of education on economic growth and development in Africa.³ A logical

¹ Gauci and Paddison (2001) argue that though enrolment rates have increased significantly in Africa the expected impact of education on growth rates has been minimal, and in some cases regressive. Oyinlola (1998) has found the productivity of high-level manpower to be low in Nigeria.

² Let the number of courses taught (and thus the types of output produced) by educational institutions be denoted by C . Let us assume that employment occurs when the type of education output c_i ($i=1, \dots, C$) matches the skill type required by employers, c_i^b . Where there is a match we could assign "success" (S) to the educational output, because output has been placed; otherwise there is unemployment and hence "failure" (F). The sample space for educational output (Q) may thus be specified as $Q = \{S, F\}$. It can be shown that the probability of a match (S) is given by $P(S) = 1 - (1 - 1/C)^C$. In a situation where $C=1$, as it will be where there is guaranteed employment in the public services irrespective of course of study, $P(S)=1$. The educational institutions need produce only one type of output (where their aim is to meet labour demand). In the other extreme where C is very large because educational institutions have to meet a wide diversity of labour demand, $P(S)$ will be low, approaching zero. The general notion underlying the hypothesis of this study, therefore, is that given any level of C the empirical $P(S)$ could be held relatively high by installing a mechanism that ensures timely correspondence between c_i and c_i^b . The most efficient means to do this is to ensure a smooth education sector-labour market linkage. It is both an information as well as institutional issue.

³ "The labour market" may be defined broadly to include the market for good and responsible social and political leadership, for example.

framework is presented (Figure 1) to help identify the linkages and to generate information for the design of human resource development policies.

Africa's lack of growth and development is generally attributed to its low human capital base. Long-run growth theory points out two ways in which higher education, the principal agent for human resource development impacts growth. One way is the technological innovations driven by highly skilled workforce, and the other is, the ability of a highly skilled workforce to learn and adapt new skills and technologies (Nwuoke, 2001). In both ways the critical question is, who determines what skills are produced and how they are utilised? In a competitive economy, the labour market facilitates the supply-side decision by individuals to invest in particular skills with the objective of maximising their lifetime earnings. On the demand side, the labour market facilitates the decision by firms (and employers) to utilise particular skill mix in combination with existing stock of machinery and other production factors, with the aim of maximising profits. Thus, the labour market provides the vital link between the education sector and the other sectors, in particular the real sector, of the economy.

Educational attainment may be described as an asset generated principally through the interaction between particular demand and supply forces in the labour market. The demand for education (that is, the demand for employable skills as measured by certificates, degrees and other qualifications) is linked with the labour demand for such qualifications. The differential in net earnings among various skills, for example, constitutes a major factor in determining which skill type individuals will invest their resources in. This decision in turn determines how much of each skill will be supplied in the labour market. Ideally, the supply of educational output of the various qualifications should be determined by the actual demand for such qualifications, to the extent that individuals are rational (income maximisers) and the differential earnings among skill types reflect the differential demand and supply of employment opportunities. And to the extent that the decisions by individuals to invest in particular skills are influenced by these differentials, equilibrium between the demand for and the supply of skills is achievable in the long run.⁴

In Africa, however, there is evidence of widespread disparity between what educational institutions produce and what the labour market wants. The consequence has been increasing incidence and duration of unemployment among the educated labour force in various African countries. In Ghana, it is estimated that about 47 percent of social science and arts students who graduated in 1999/2000 likely to enter into unemployment, given the changes in skill demand in Ghana (Boateng and Ofori-Sarpong, 2001). In Nigeria at least 17% of university output cannot be absorbed by the labour market (Dabalén and Oni, 2000).

It is paradoxical that while skilled resources are scarce, a significant and increasing proportion of educated youth in Africa are unemployed. The ILO (1994) has attributed the increasing unemployment among the youth, mostly the educated youth, to the "distortions related to the development and utilisation of human resources in the context of changing economic circumstances" (page 13). A major aspect of the new economic circumstances is the diminished role of the public sector as a major employer, resulting from the macroeconomic necessity to adhere to fiscal constraints imposed by sluggish growth in GDP and in public revenues (The World Bank, 1994).

In most African countries the educated normally assume they have a right to jobs, because they believe they have skills that are in short supply and history shows that their predecessors had always been absorbed, especially as a last resort into the public services. While employers complain about the quality of recent graduates, these graduates also complain of lack of jobs. The linkage between education and the labour market is therefore a question of particular concern both to the graduates who seek employment and the employers who consider hiring them.

⁴ In the short run there is likely to be some demand-supply gaps due to rigidities, especially on the supply-side as some skills require long periods of training and certification.

The aim of this paper is to highlight the weak or missing links between the higher education sector and the labour market in African countries, which is at the core of the tripod-issue of inadequate higher education financing, low quality of higher educational output and increasing graduate unemployment. The paper is divided into nine main sections: section A is the introduction; and Section B presents a description of the linkages between the education sector and the labour market employing a logical diagram (shown in Figure 1). Section C looks at developments in African labour markets relating to graduate employment, while section D outlines the structure of higher education, with respect to their objectives and focus, and financing. In section E we attempt to evaluate the extent of the graduate demand-supply mismatch, while section F contains a summary of the sources of the weak linkages between the education sector and the labour market. Section G discusses some of the direct consequences of the weak linkage between the education sector and the labour market. Section H discusses areas for policy reform and the final section I provides a summary of the conclusions and recommendations. Statistical evidence from Ghana and Nigeria is used to support the analysis.

Based on the analysis the paper recommends that the following should be established or strengthened:

- 1) The flow of labour market information (coordinated by properly resourced public employment centres) to educational institutions (through on-campus career advisory centres) and job seekers
- 2) Correspondence between the human resource development programmes of the private sector and public employers on one hand and educational institutions on the other, coordinated through education-business-government collaborative mechanisms.

B. Higher Education- Labour Market Linkage Model

Figure 1 illustrates the dynamic linkage that is supposed to exist between higher education (and for that matter the education sector in general) and the labour market, in a real economy.⁵ The principal components of the labour market are households who are the agents of labour, employers and labour market institutions. At the highest level, the labour market may be seen as one of the three broad markets of the economy. It is linked to the real sector that generates employment and hence the income needed by households to finance their consumption of goods and services produced by that sector. The labour market is also linked with the money and capital market where the agents of labour save surpluses from their employment incomes and invest in various financial instruments. Agents of labour also depend on the money and capital market for credits and advances they usually need to support their consumption (and investment) expenditures.

The segment of the chart (Figure 1) to the left of the vertical line from the box depicting labour market institutions to the educational output box may be described as the supply side of the education-labour market, while the segment to the right of that line is the demand side. Equilibrium exists when the quantities (and qualities) supplied match the employers' requirements. For this to happen, there must be mutual links between the labour market information system, public policy (relating to education and employment), the education sector, and the job market (covering job vacancies and job seekers), that is, a system by which "signals" are carried from one segment of the market to the other.

It should be noted that, unlike other factors of production, labour services cannot be stored; they are lost forever if not used. Hence, the returns to investment in higher education is lost forever, if educated labour remain unemployed because of mismatch.

⁵ The model is applicable to the entire education sector. Our focus on higher education is related as much to issues addressed elsewhere in this book as to the fact that higher education is the terminal point, if not the focal point, of human capital development and the ultimate exit into the labour market in any economy.

Labour market institutions (that is, unions and associations, the labour laws, business norms and practices, social norms and practices, etc.) play a key role in determining labour market outcomes. Individual agents and or their collectives (such as unions or business associations) interacting within a given policy and social environment influence who on the household side gets employed or remains a job seeker, while on the demand side they influence which jobs will be filled (or occupied) or remain vacant. The labour market information system (LMIS) facilitates the collection, analysis and dissemination of information about jobs and occupations and their associated wage rates and such other relevant data. Job seekers must structure their preferences in terms of whether to accept a job offer, to continue searching for jobs with their existing level of human capital or seek more education in order to enhance their job prospects- all of these based on signals from the LMIS. In this scheme, the demand for education services will thus depend on the number deciding to enhance their human capital (or labour market) endowments. The more efficient the LMIS is in providing information, the more efficient the decisions made by job or education seekers and the more likely educational output will match job vacancies. Contact mechanisms and information channels have been shown to determine the efficiency of the job matching process. (See for example, Coles, 1994.)

Labour market information is also vital for effective public policy on manpower development, both in the short- and the long-term (see, for example, ECA 1996). The resources provided by public authorities determine the level, scope and quality of services the educational sector provides, in terms of curriculum and training and student (career and academic) advice. Where public policy (as reflected in the amount of resources provided for particular educational activities) is well informed by data available from the LMIS there is likely to be a match between the type of services provided by the educational sector and the requirements of the labour market.

Public funding of educational services is complemented by individual employers or their collective through enterprise-level human resource development (HRD) programmes such as staff training, scholarships and bursaries, student and faculty attachments, and research funding. It must be expected that employers' HRD programmes (including recruitment and training) will depend on their job vacancy positions, both current and projected. Private funding will be provided to the extent that private sector human resource needs are "real". Knowledge of employers' HDR needs (that is, the profile of current and future job vacancies) constitutes an important tool for determining the type of output and hence the services the educational sector must provide. Furthermore, incomplete information about the skills of recent graduates could give further incentive to employers to rank employed searchers above recent graduates, and thereby minimise the employment of the latter.

Ultimately, the extent of the mismatch between educational output and labour market requirements will be determined by the type and quality of curriculum and training, career and academic advisory services, admission and evaluation policies and the role of faculty boards and employers' associations in education service delivery.

"Mismatch" here may be defined in terms of the ability of the educational sector to meet the (human resource) requirements of the economy, as measured by the absorption of educational output into the available job vacancies. To the extent that there is a mismatch, the flow of educational output back into the pool of out-of-school job seekers (instead of being employed or employable) and then into the pool of in-school job seekers will continue, swelling the demand for educational services. However, the part of educational output that matches existing vacancies will enter the employed pool, and thereby reduce the number of job vacancies. In a system of perfect linkage between the labour market and educational institutions the output of the latter will match known (current and projected) vacancies and equilibrium will be established, that is, in the long run.

The conclusion is that the solution to the increasing graduate unemployment is to achieve congruence between educational services (that determine the type of educational output) and labour market needs. To the extent that educational services are not responsive to labour market signals because they are scrambled by non-market factors, or to the extent that such signals are

non-existent, blurred or distorted- by an inefficient LMIS-, the problem of graduate unemployment will persist, especially given the diminishing role of the public services in graduate employment.

C. Developments in Graduate Employment in African Labour Markets

The decades after 1980 have been characterised by increasing educated unemployment, and an expanding role of the informal sector as the major source of urban employment. This has resulted not only from the slow economic growth and lack of investment in African economies, in particular the industrial sector, but also the technological changes in the structure of production and hence employment around the world. Statistical information about labour markets in Africa, in particular data on incomes and employment, is very much deficient in terms of scope and detail. Thus it is difficult to evaluate trends in employment at the micro or sub-sector level. Broadly speaking, however, African labour markets may be described as follows: they are dominated by agricultural and informal employment, which revolves around the consumer-employer-investor, subsistent household. In the formal sector, there exist extensive institutional rigidities, in the form of outdated labour laws and public sector compensation policies that tend to over-ride private incentive structures. In view of these rigidities, African labour markets tend to be highly segmented. Relative wages are highly rigid and hence labour mobility is low among the sectors of the labour market.

For tertiary graduates the relevant labour market is the market for paid employment in the formal sector, where remuneration is not only higher compared with the average for other sectors, but also directly determined by educational qualifications.⁶ In many African countries paid employment accounts for less than 20 percent of total employment. The remaining (increasing) proportion of the labour force is employed in the informal sector- as self-employed, own-account, or unpaid family workers in agriculture or the urban informal sector.

The majority of workers with higher education (at least three-quarters of university and polytechnic graduates) are in paid employment. In 1988/89, about 82% of Ghanaians with higher education were engaged in paid employment, and 18% in self-employment, according to the Ghana Living Standards Survey. In 1998/99, nearly 90% of Ghanaians with higher education were in paid employment, an increase of 8 percentage points in the ten-year period. However, of the larger labour force without higher education, 20.3% were in paid employment in 1988/89, which dropped to only 12.4% in 1998/99 due to the slack in both private sector employment and retrenchment in the public sector.

In Nigeria the share of the public sector in paid employment has been declining since the 1980s. Thus, fewer and fewer recent graduates are being employed in that sector. It is estimated that only 6.6 percent of new graduate applicants for federal jobs were hired in 2000, while 17-25% of graduates are unemployed (Dabalén and Oni, 2000). The majority of new graduates are now looking to the service sector, mainly informal, jobs. Overall, only about 10% of educational output can be absorbed by the economy annually.

The primary determinant of aggregate demand for labour is the growth of national output (GDP), because it provides the resources needed to finance additional employment. In the absence of growth in GDP an increase in aggregate employment can only come about through a decline in real incomes or through a decline in the share of capital in the national output. However, in the long run a decline in real wages will diminish labour efficiency (following the efficiency wage model), while a decline in the share of capital in output will adversely affect the rate of capital accumulation and hence labour absorption. The situation of declining rate of employment growth in African economies is the result of decades of slow GDP growth.

⁶ In 1998/99 households with heads working in the formal sector were found to have 1.38 times the national average per capita consumption in Ghana, indicating a higher standard of living than other households (Ghana Living Standard Survey, 1998/99.) Between 1991/92 and 1998/99 per capita household consumption increased by 19.9% for formal sector households, compared with the national average of 15.3%, indicating that the relative welfare position of formal sector workers improved during the period.

Africa's growth performance has been abysmal in the 1980s and 1990s; hence the growth in employment for all types of labour has been slow, relative to the growth in the labour force. The average GDP growth rate for the period 1998-2001 in Ghana and Nigeria is estimated at 3.4% and 2.6%, respectively. Assuming a total productivity growth of only 2% per annum these GDP growth rates lead to a long run labour demand growth of only 1.4% in Ghana and 0.6% in Nigeria. Given the labour force growth rate of 2.8% in Ghana and 3.0% in Nigeria, it could be said that at least 1% and 2% of the labour force in Ghana and Nigeria, respectively, is added to the existing number of unemployed persons annually.⁷

The second factor determining aggregate demand for labour is the investment rate: more investment is needed to equip new labour market entrants and to raise the productivity of existing workers. Capital per worker and, hence effective demand for labour declines in the absence of adequate levels of investment. Investment rates in African countries have been very low in recent years, both in comparison with other developing countries and with its performance in the past. Gross fixed capital formation as a percentage of GDP was below 8% in the 1990s and is likely to remain low in the short-medium term in both Ghana and Nigeria.

Meanwhile, it has been observed that employment growth has been positive mainly in those African countries with investment rates exceeding 15% of GDP. For example, formal sector employment declined in the 1990s in countries like Benin, Niger, Burundi, and the Central African Republic, where gross investment rates were below 15% of GDP and it increased in countries like Botswana, Mauritius and Seychelles where investment rates were higher. Thus, Nigeria and Ghana, for example, need to double their current rate of investment to generate an increase in the rate of productive employment. The problem however is that business investment also depends on the availability of skilled manpower.

It needs to be noted that while employment opportunities have substantially declined in most African countries, tertiary graduates have fared relatively better than the less educated groups. Furthermore, while employment opportunities in the formal sector have declined for tertiary graduates in most African countries, graduates in certain disciplines have not been affected. With the introduction of structural adjustment programmes that focused on fiscal restraint as a tool for re-establishing macroeconomic stability in African countries, the public services embarked on retrenchment exercises and new employment was frozen, especially for administrative staff. Furthermore, public service restructuring has necessitated a shift in labour demand in favour of professional degree holders and away from liberal arts. This shift in skill demand makes it imperative to examine educational output, to ensure effective and efficient public investment in education and the employability of graduates.

D. Structure of Higher Educational Institutions

Objectives and Focus

The main mandate of African universities and other centres of higher learning after independence was to produce administrators for the new African governments. Hence, higher education has been almost entirely the creature of the state in African countries rather than civil society or private organisations (Amoako, 2000). Enrolment structure in the immediate post-independence years was then broad, with open admissions for all applicants who had the minimum entry qualification. The bulk of higher education output was absorbed by the public services, usually under an implicit scheme of guaranteed employment. However, since the 1990s the role of the public sector as the main employer of educated labour has declined, due largely to fiscal constraints and institutional reforms necessitated by globalisation, structural adjustment and new governance requirements in

⁷ A preliminary report on the unemployed registration exercise undertaken in November 2001 indicates a total of 950,000 unemployed persons in Ghana, with a number of communities yet to be covered. This preliminary figure represents 12% of the total labour force. (Daily Graphic Wednesday April 3, 2002: Online (<http://www.graphicghana.com/article.asp?artid=1065>)).

the public sector. Ghana, for example, has embarked on public sector restructuring under the National Institutional Renewal Programme since 1997, aimed at good governance, improvement in the administrative environment for accelerated growth and equitable social development, a compact public sector and an enhanced public-private sector partnership. Most African countries are currently engaged in similar programmes (IMF 1997).

Because of the shift of the centre of employment from the public to private sector, it is imperative for African universities and other centres of higher learning to re-orient their outputs. Tertiary graduates must now find jobs outside the public sector. Unfortunately, this new focus remains to be comprehended, and current enrolment and pedagogical structures in the universities appear to mirror those of the past.

Higher education institutions play a crucial role in generating the human capacities for leadership, management and technical expertise, with which to face the challenges of globalisation and development. However, universities in Africa appear to see their role in development as purely tangential or incidental. In its *Vision 2000 Plus* Statement, the University of Ghana proposed to become "a centre of excellence in research, teaching and delivery of extension services, and a world class institution of higher learning". However, throughout the 35-page document, which outlines its specific objectives and strategies, there is not even an anecdotal reference to requirements of the labour market.

Financing and Legal Status

First, African higher education institutions are mostly public or state-owned. This means that they are funded and controlled by the government. Until 1997, there were no private universities in Ghana. But even now, the first choice of every student is the public universities because of free and "better" tuition, subsidised residential accommodation and prestige. Secondly, universities dominate the higher education sector, as polytechnics and other components of higher education are considered less prestigious within the linear and liberal educational system established after independence. In Nigeria the 43 federal and state universities dominate the tertiary sector, in terms of enrolment and prestige. University enrolment in 1998/1999 accounted for 72% and 61% of total tertiary enrolments in Ghana and Nigeria, respectively.

Since the main source of finance for higher education institutions is the government, the inadequate GDP and hence public revenue growth in the 1980s and 1990s have caused low and unpredictable funding levels in education, in particular, and the social sector in general. In Nigeria, total public expenditure on education declined from 6.4 percent of GDP in 1980 to 0.7 percent in 1997 (Hartnett, 2001), whilst in Ghana the average public expenditure per university student dropped from \$2300 in 1990 to \$900 in 1997. In the polytechnics expenditure per student in Ghana dropped from \$180 in 1990 to \$74 per annum in 1997 (Girdwood, 1999). The impact of the declining expenditures on higher education has been greater on the capital-intensive courses such as medicine and engineering, noting that the expenditure mutations were not associated with the economies of scale due to the expansion in enrolments but were the result of budget cuts.

There are three main reasons why government must support higher education, namely, government's own manpower needs, social needs and the public good nature of education. As said earlier, higher education institutions were largely established to provide new African governments with the requisite manpower for the administration of their countries. Currently, however, the manpower needs of the government has declined at the lower levels of administration and that of the private sector is expected to increase as that sector expands in size following the current private sector development initiatives. It has become logical, therefore, for the government to expect private sector support for higher education to increase. However, social needs and the public good nature of high education provide sufficient ground for increased public financing.

In the context of social needs, higher education contributes to labour productivity (following the human capital school of thought) and hence overall economic growth. It also provides the

whereby to escape from poverty. Hence, public investment in higher education is profitable, and expenditure reductions should be seen as unfavourable to long run growth and poverty reduction. Finally, education is generally a public good, which if completely left to private individuals will be under-supplied. Public intervention is required in the form of additional resources to cover at least the consumption and production externalities derived from higher education. Unfortunately in Ghana, while the Education Sector Strategic Plan of Ghana (2001) aims to increase access to higher education, expenditure reductions mean reduced access in a country where tertiary enrolment ratio is only 2% of the population in the age group 18-25 years.

Why is public spending on (higher) education falling relative to expenditures on other sectors? Is it due to the issue of low social rate of return? What determines the return to education? These issues could be better appreciated within the education-labour market framework, shown in Fig. 1.

E. Quantifying the Mismatch

We may differentiate two broad types of labour market mismatch, namely, quantity mismatch and quality mismatch. "Quantity mismatch" refers to the divergence between physical outputs and the number required by the market. For example, how many accounting graduates are produced annually, and how many are required in the public services, private enterprises, non-profit organisations, etc. "Quality mismatch" refers to the divergence between the type of skills graduates are equipped with and the skill-mix required by the market. For example, a new accounting graduate may not have computer skills, which is considered basic to the tasks of an accounting officer in the 21st century enterprise. In this paper we focus on the primary issue of quantity mismatch.

The most direct measure of quantity mismatch is the extent of graduate unemployment. The main facts about graduate unemployment in Africa are that: it is increasing; it is more prevalent among recent graduates; and it is more prevalent among graduates with arts or social science background. In Nigeria the unemployment rate among university graduates is estimated at between 17-25% (Dabalén and Oni, 2000). In Ghana, it has been officially acknowledged that graduate unemployment is a critical issue (MMDE, 1998). There is unemployment basically because educational output exceeds the demand; that is, a mismatch between enrolment and vacancies.

Growth in tertiary enrolment in African countries is generally blurred by the high population growth rate of more than 3% among the age group 18-25 years. Average gross enrolment ratio has remained at 1% in Africa for many years, giving the impression that enrolment levels have been stagnant. Yet in many African countries, tertiary enrolment doubled in the decade between 1990 and 2000. In Ghana, tertiary enrolment increased from 21,000 in 1994/95 to 50,000 in 1999/2000, that is more than 100%. In Nigeria enrolment increased from 121,000 in 1986/87 to 269,000 in 1996/97, and then to 276,000 in 1998/99, with the average enrolment per university increasing from about 6,400 in 1986/87 to over 13,000 in 1998/99. Thus, enrolment growth rate in higher education has been greater in Africa than every other region, with total enrolment increasing from 1.5 million in 1980 to 3.8 million in 1995 (Amoako, 2000, p.7).

The expansion in enrolment and output has, however, been uneven among the various areas of specialisation. In Ghana, whilst science enrolments in the universities accounted for 44% of total enrolment in 1983, in 1999/2000 science enrolment was only 32%. In the polytechnics in Ghana, while enrolment in engineering courses increased four-fold between 1994/95 and 1999/2000, that of business and management went up nine-fold. Thus, while in 1994/95 at least 35% of HND enrolment was in engineering only 25% were in that field in 1999/2000. In Nigeria, the share of the sciences in total university output (excluding those in science education) dropped from 29.4% in 1987 to 24.5% in 1997 (Dabalén and Oni, 2000).

The bias against science in tertiary enrolments is not because of the lack of public policy. In fact public policy have since the early days of independence been in favour of science and technology education. The source of the problem is the lack of public funding, which has resulted in

inadequate laboratory facilities from high school to the universities, to absorb the increasing numbers that apply for science. At the University of Ghana, because of limited science laboratory facilities, the grade cut-off point for admission into science courses has always been higher than for the humanities, thus curtailing the chances of high school science students of entering the university. The lack of laboratory facilities has also affected the level of student interest in science programmes, as practical exposure is limited in educational institutions. It is usually asked, whether any meaningful science education can take place given the technical infrastructure available in some African countries. In science-based courses there appears to exist a fixed technological relationship between the available physical facilities and the number of students. In contrast, the physical requirements for delivering courses in the arts and humanities are flexible, allowing any number to be catered for without substantial effect on quality.

Though the public demand for holders of arts and social science degrees started to decline in the early 1990s with the introduction of structural adjustment programmes and public service reforms, the trend in university enrolment continue to be dominated by these courses. The Nigerian National Rolling Plan 2001-2003 makes a profound observation that "the manpower-mix of the tertiary graduate out-turn does not reflect the true manpower needs of the country" (op. cit. p.123). Another aspect of the quantity mismatch is gender. Though female enrolment in higher education has increased significantly since the 1980s in Ghana and Nigeria, as in other African countries, female students tend to be over-concentrated in the humanities. Female enrolment in Ghanaian universities increased from about 17% in 1987/88 to 27% in 1999/2000. However, about 75% of female students were enrolled in the humanities, compared with less than 65% for men in 1999/2000. Thus, while public policy is attempting to address the issue of employment bias against women in the labour force, educational institutions are far behind in supplying the numbers of women that are required in the many and varied fields.

Table 1 presents the distribution of advertised vacancies in Ghana in 2000 by type of course and programme, as an illustration of the current pattern of demand for the output of the various tertiary programmes. It is observed that a high proportion of vacancies (34.8%) required business management and accounting degrees. In contrast, administration and management graduates accounted for only 10.8% of university output in 1999/2000 (see Table 2). It is also observed that computer science and information science and the medical sciences accounted for a disproportionately higher share of advertised job vacancies, relative to their share in tertiary output.⁸ As shown in Table 2 medical/health sciences, and engineering/technical courses accounted for only 10.4% of university output while they accounted for 30.8% of vacancies in 2000 (in Table 1). Furthermore, it is observed that more than 58 percent of all advertised vacancies in 2000 explicitly required graduate degrees, 25 percent required some professional qualification, HND or university diploma, whilst 16 percent required secondary education or did not specify the type of academic qualification. The implication is that open vacancies are available mainly to post-graduates, which may be ascribed to the phenomenon of educational deepening or the possibility that employers do not advertise graduate entry jobs.

In view of the technical and practical nature of the computer jobs and also in view of the short supply of IT graduates, more than 20 percent of jobs requiring computer science or information technology ignore formal academic qualifications and emphasise practical, on-the-job skills.

Weak linkage between the labour market and the education sector may explain the wide divergence between the types of skills needed in the labour market and the type of outputs delivered by the higher educational institutions. Boateng and Ofori-Sarpong (2001) have generated estimates of the extent of the quantity mismatch between the labour market demand and the

⁸ Medical science and computer science together accounted for less than 8% of total final year university enrolments during 1999/2000, that is, about 370 out of 4380. In 1998/99 the output of the Computer Science Department at the University of Ghana was only 49, compared with the total output of 5718. (The University of Ghana, 2001.)

output of the universities in Ghana, shown in Table 2.⁹ The result of a similar projection for Nigeria is shown in Table 3.

Table 1
Job Vacancies by Type of Course and Programme in Ghana, 2000

Type of Course	Percent of Total Advertised Jobs	Type of Programme		
		Graduate	Professional/HND	Other or Unspecified
Management	18.9	70.0	26.9	3.1
Accounting, Finance, Banking & Insurance	15.9	55.0	37.0	8.0
Economics & Other Social Sciences	11.6	91.2	5.9	2.9
Computer Science/Informatics	8.1	72.0	7.5	20.4
Medical & Other Health Sciences	6.9	63.9	28.1	8.0
Engineering, Technical	15.8	45.3	33.8	10.9
Agric., Environment, Resource	3.3	75.2	21.1	3.7
Arts & others	19.6	23.6	26.5	49.9
TOTAL Percent (Number)	100 (3262)	58.5 (1906)	25.4 (829)	16.1 (527)

Source: Adapted from Boateng and Ofori-Sarpong (2001).

Table 2 clearly shows that out of the 4280 that were expected to graduate in 2000, 66.8% were in social sciences and arts, while (from Table 1) only 15.2% of vacancies were available to graduates with this background. This implies that at least 47% of such graduates would be without jobs for at least one year after graduation, after accounting for informal and public sector demand.

Table 2.
Estimates of Excess Supply of University Graduates in the Ghanaian Labour Market for Selected Courses (1999/2000)

Courses	Final Year Enrolment = Annual Output		Minimum Excess(deficit) as % of Enrolment	Accommodation Ratio
	Number	% of Total		
Arts/Social Sciences	2858	66.8	47	0.53
Administration/Management	461	10.8	(23)	1.23
Medical/Health Sciences	216	5.0	(156)	2.56
Engineering/Technical	274	6.4	(10)	1.10
Agriculture	471	11.0	45	0.55
Total for Selected Courses	4280	100.0	36	0.64

Source: Adapted from Boateng and Ofori-Sarpong (2001, Table 4.2)

In the 1970s, the overall accommodation ratio for those with secondary or higher education in Ghana was estimated to be 1.33 (Squire, 1981), compared with the estimated 0.64 for tertiary graduates in 1999/2000, indicating that on average about 36% of graduating students will not get jobs immediately after graduation. This trend is indicative of the weak linkage between the outcomes of enrolment policy in the educational institutions and the requirements of the labour market, especially when trends in enrolment by course is compared with the labour accommodation ratios, representing the pattern of labour demand in the market.

⁹ In Boateng and Ofori-Sarpong (2001), the extent of mismatch or the excess supply G for any type of programme or course in a given year is defined as $G_t = S_t - D_t > 0$, where $S_t = N_{t-1}$, that is the supply of graduates in the current year is equal to final year enrolment in the previous year, and D_t is the sum of graduate labour demand in the private sector, government sector and the informal sector in the current year. "Leakages" into other countries (that is brain drain) is not treated. However it is known that such leakages are even greater in areas of domestic shortage (e.g. medical) than in areas with surpluses (e.g. arts).

A similar situation of wide divergence between educational output and labour market demand exists in Nigeria, as shown in Table 3. Given the declining role of the public sector in graduate employment- about 21 percent of graduates were employed in the public sector in 1991 compared with 44 percent in 1981- we have used private sector advertised vacancies as a measure of the pattern of labour demand for graduates in Nigeria. Over 60% of private demand is accounted for by administration and management courses, compared with the mere 5% representation of these courses in university enrolment. The coefficient of dissimilarity between the distribution of enrolment and that of vacancies (shown in Table 3) is very high at 65.6%.

We can conclude that as enrolment increases in the arts and social sciences, as indeed is the case in most African countries, the incidence of graduate unemployment will increase because of the divergence between educational output and labour demand. For better matching, in the nominal sense, enrolment percentages should therefore follow the accommodation ratios. To do this would require drastic changes in admission policies, as well as in the collection and analysis of statistical information on job vacancies.

Table 3
Divergence between University Output by Course and Private
Advertised Vacancies for Graduates in Nigeria, 1997

Course	Percent Share in Total Enrolment	Percent Share in Advertised Jobs in Private Sector
Administration	4.9	60.5
Social Science & Education	48.6	1.3
Medical & Health ¹⁰	6.5	3.5
Engineering	6.8	17.3
Agriculture & other Science	21.4	17.4
Arts	11.8	-
Total	100.0 (47339)	100.0 (1500)

Source: Adapted from Dabalen and Oni (2001) Table 7

F. Sources of Weak Linkage: A Summary

As shown in Fig 1, the educational sector provides two main services to education seekers, namely, curriculum-based training and career counselling and advice. The services provided must be demand driven. However, in Africa the education sector supplies services based mainly on the size of the government purse available to it. The size of the purse, unfortunately, is normally not determined by manpower requirements of the economy (because there are no employment surveys or projections) but solely by the annual size of government revenue. Thus, the supply of education services is market-blind. Admission policies of higher education institutions are not related to labour demand requirements, nor by individual student interests; but mainly by secondary school grades.¹¹

The demand for education services, on the other hand, is a demand derived from the desire for credentials not necessarily skills, since the facilities are not available in the educational institutions to provide skills. In the environment of low private costs permanent unfulfilled demand for admission arises, putting pressure on government resources and on limited educational facilities, which ultimately affect quality of educational output.

¹⁰ A more recent study by the National Institute for Social and Economic Research (NISER, 2000) indicates that medical and health sciences account for about 20% of private demand for graduate labour.

¹¹ A recent survey of 60 tertiary institutions in Ghana by Agyemang and ors (2001) showed that 58% of admission board members thought gender equity was the primary objective admission policy; whilst only 7% thought course or programme of study was important.

Since there is little or no private direct funding of higher education, a wedge exists between private effective demand and the supply of educational services. Internships and private open scholarships are largely non-existent; while faculty have no attachment to businesses. Thus, curriculum and its delivery have little or no connection with realities in the economy. Graduation simply means more credits rather than the accumulation of purposeful knowledge. There is no effective career guidance due to limited resources for career centres and the limited supply of labour market information.

A cursory glance at the ILO Yearbook of Labour Statistics would reveal that Africa has the weakest labour information database among all regions. There is little or no information about occupations, relative earnings, job vacancies, etc. Public employment centres (PECs) exist merely on paper. Because of lack of resources PECs have limited coverage, and prospective employers or workers have no incentive of registering with them.

G. Consequences of Weak Linkage

The primary consequence of the mismatch between educational output and labour market requirements is that of graduate unemployment. Two major contributory factors to the unemployment problem is the divergence between the expectations of new graduates and what the labour market can offer- due in part to the lack of career guidance and counselling-, and the high hiring costs of new graduates which apparent mismatch creates.

Boateng and Bekoe (2001) have found a wide divergence between the current offered wage for new graduates and the expectations of the graduating students in a recent study based on a sample of graduating students at the University of Ghana. In that study they found that more than 84% of respondents over-estimated their wages. Furthermore, most of the graduating students expected to find work in the public services, though the public services now employ only a few of them annually, implying lack of labour market information.

Unfulfilled expectations, in terms of either employment or wages, have further repercussions on the education sector: they create vicious circles of educational deepening and low quality. Individuals whose expectations are unfulfilled by the labour market usually tend to demand more education, and thereby give accent to the phenomenon of educational deepening, proliferation, and low quality- the circle of educational proliferation and certification, that has engulfed many African countries. Educational deepening in turn leads to lower returns to education, and, hence, lack of readiness to contribute to the provision of education on the part of private individuals, which further exacerbates the resource constraints faced by educational institutions and undermine quality output- the vicious circle of poor quality education.

At the enterprise level, low or doubtful quality of educational output has adverse effect on effective labour demand, by increasing the hiring (fixed) cost of labour and causing a downward shift of the marginal productivity of labour schedule, with adverse consequences for both employment and starting wages of new graduates. In many cases employers compensate for the inadequacies of new graduate employees by organising remedial courses for them or extending their probation periods. Some employers take new graduate employees through intensive post-employment training.

There are therefore costs, both private and public, to the mismatch between educational output and labour market requirements. Non-utilisation of graduate labour entails inefficient use of scarce public resources. It is therefore necessary that public authorities review their educational expenditure policies and, for that matter, public policy towards the education sector vis-à-vis national manpower needs.

H. Institutional Reform

The need for reform in the orientation of higher education transcends the education sector or the labour market. Globalisation, technological change and regionalisation of the African economy require drastic improvement in the development and utilisation of human resources on the continent, which cannot happen within the context of the present policy and the human resource production environment. The main areas that require careful review are: educational finance; formulation of admissions policy and career goals; policy for promoting intense private sector involvement in higher education; and public sector incomes policy, as a cornerstone of a comprehensive human resource development programme.

Finance

The major source of the crisis in higher education in the developing world is finance (Ransom et al, 1993). The costs of higher education are both direct (the cost of facilities, tuition, etc.) and indirect (forgone individual income or benefits of alternative projects). For the majority of students in Africa both costs are minimal to the individual beneficiary of higher education. Hence, in economic terms, private demand for higher education in Africa is limited only by the places available.

However, government financing of higher education is severely constrained by the slow growth of the economy, relative to the growth in population and hence the needed level of enrolment. Between 1991 and 1998, overall enrolment in Nigerian public universities grew by 3.4 percent while the average GDP growth rate for the period was 2.3 percent. Since tax revenue as percentage of GDP remained constant at 15 percent during the period, the slow GDP growth effectively limited the public sector's ability to fund the expansion of higher education. The same situation of inadequate capacity to finance higher education exists in many African countries.

Under-funding and high student-teacher ratios have adverse implications for the quality of educational output, which in turn affects effective labour demand. Under-funding is also a major source of persistent unrest on campuses, which often lead to disruption of academic programmes, thereby affecting the efficient delivery of higher education services. Thus, under-funding imposes other private and public costs.

Financial reform of the higher education sector is needed to secure additional funding from private sources and, through that, to foster the link between private demand for higher education (that is based on labour market demand) and the supply of educational services. Measures need to be adopted that enhances private sector involvement in educational financing. There are three key decision factors for the private sector: cost control and cost effectiveness; clear human resource development policy; and appropriate incentive system.

Possible sources of cost reduction that should be examined include the elimination of unnecessary administrative procedures and practices that contribute to the high overhead costs but little to efficient delivery; faculty specialisation and institutional rationalisation; distance education and facility sharing; direct private sector financing of specific components of academic programmes such as research.

From Agyemang et al (2001), it is observed that only 30 percent of 62 tertiary institution administrators think the cost of tertiary education should be recovered from students, while 23 percent, favoured commercialisation of university services. On the contrary, 72 percent of these same interviewees thought that parents lack the ability to pay towards their wards' tertiary education. Thus, there are constraints, mainly political constraints to policy reform. Because of their past role in providing support for de facto governments, university students have become a highly political interest group. An attempt by the University of Ghana to increase residential fees and introduce fee-paying for certain categories of students in 2001 was met with such strong resistance from the students that the government had to come in to prevent what was turning out to be a national crisis. The students' main argument was that their parents are too poor to contribute more.

There are two main ways to lift this constraint: formulation and implementation of an effective human resource development policy, backed by government commitment in the form of resources and an educational campaigns highlighting the role of the education sector in national and individual development; and an incentive system that adequately provides a fair return to education (that is a market driven incomes policy) and appropriately rewards corporate business initiatives in education.

Private Educational Goals, Enrolment and Career Counselling

Private educational goals among African students are formulated in the context of very limited labour market information. Students crowd into traditional or "familiar" courses in a herd-like manner, to minimise risks of failure. Public policy must deal with the labour market preference structures of prospective students and graduate workers. This will require a reformed LMIS with strong links to career centres on the campuses. Admission and scholarship policies must be based on the national human resource development programme, which in turn must be based on manpower projections emanating from current LMI and trends in the national and global economy.

Higher Education and Private Sector Employers' Linkage

In many African countries interaction between educational institutions and the private sector is rather lukewarm. There is no formal arrangement for feedback from employers to educational institutions in the areas of job performance of new graduates, curriculum development or job advisory. Yet there are possibilities of partnership with the private sector through tapping the expertise of private sector executives in advisory boards; through internships; research funding; and faculty job attachments (Amoako, 2000). The Nigerian National Rolling Plan 2001-2003, for example, calls for the establishment of a strong tripartite linkage between the manpower planners, producers and employers for effective coordination between the world of learning and the world of work. The tripartite structure will ensure efficient flow of information, which is at the heart of the education sector, public policy and labour market linkage.

Public Sector Incomes Policy

In view of the size of the public sector, the structure of incomes in the sector influences what obtains in the larger economy in terms of determining relative incomes among occupations and levels of education. The compensation system in the public services in many African countries does not reflect conditions of demand and supply in the labour market outside. In general, salary structures, in a compressed form, reflect more of the concerns for inequality rather than efficiency. In the process returns to education are repressed in areas where demand is highest. Public sector compensation systems need to be reviewed, in the light of current labour market developments. Enhancing the earnings in particular disciplines could help induce greater willingness on the part of private individuals to finance their own education.

I. Conclusions and Recommendations

Reform of higher education has often proceeded on the assumption that the education sector is independent of other sectors of the economy. Increasing unemployment among graduates is an indicator of the mismatch between educational output and labour market needs, and thus is fundamentally out of tune with the real economy. This mismatch is a product of the particular institutional structures governing higher education processes, the existence of which undermines economy in the use of public resources, and individual benefits from education.

To correct the imbalance in the supply and demand for graduates, the dynamic linkages between the labour market and the educational sector in African countries should be strengthened through:

- Effective labour market information systems linked to career centres at the universities
- Comprehensive national human resource development policy, with an incomes policy component
- Effective tapping of private sector resources for educational institutions, through consultations in curriculum development; student and faculty attachments; funded research and scholarships
- Installation of flexible and lean management structures in educational institutions and designing expenditure framework based on results and delivery of specified outputs
- Effective cost-sharing mechanisms, including review of public funding of residential costs.

References

- Agyemang, Dan K., W. Boateng and A. Akinyoade (2001). Structural Adjustment Programme and Tertiary Education in Ghana. A SAPRI Report. World Bank, Accra. March.
- Amoako, K.Y. (2000). African Universities, the Private Sector and Civil Society: Forging Partnerships for Development. NCTE Tertiary Education Series, Volume 1, No.1. Accra. September.
- Bawumia, Mahamadu and Samuel A. Laryea (1997). Measuring the Aggregate Values of Human Capital in sub-Saharan Africa. *Review of Human factor Studies*, 3(1): 88-97.
- Boateng, Kwabia and Edward Ofori-Sarpong (2001). An Analytical Study of the Labour Market for Graduates in Ghana. Ghana National Council for Tertiary Education (NCTE)/World Bank Education and Training Project Report. Accra. October.
- Boateng, Kwabia and William Bekoe (2001). Wage Expectations among Final Year Students of Ghanaian Universities- The Case of the University of Ghana. *Journal of Management Studies* (forthcoming).
- Coles, Melvyn G. (1994). Understanding the Matching Function: The Role of Newspapers and Job Agencies. Centre for Economic Policy Research Discussion Paper Series No. 939. London.
- Dabalén, Andrew and Bankole Oni (2000). Labour Market Prospects of University Graduates in Nigeria. Nigerian Institute of Social and Economic Research (NISER)/World Bank Education and Training Project Report. October.
- Economic Commission for Africa ECA (1996). Training manual on the Application of Labour Market Analysis in the Planning of Human Resources Projects and Programmes. Public Administration, Human resources and Social Development Division. Addis Ababa.
- Federal Government of Nigeria (2001). Ministry of Finance, National Rolling Plan, 2001-2003. Abuja.
- Gauci, Adrian, and Oliver Paddison (2001). Towards a Knowledge-based Economy: The Relevance of Curricula in Africa. Economic Commission for Africa Discussion Paper Series ECA/ESPD/DPS/1/2001. Addis Ababa. October.
- Girdwood, Alison (1999). Tertiary Education Policy in Ghana: An Assessment 1988-98. A World Bank Education and Training Unit Report. Washington D.C.
(<http://www1.worldbank.org/education/tertiary/ghana.htm>)
- Hartnett, Teresa (2001). Financing Trends and Expenditure Patterns in Nigerian Federal Universities: An Update. Background Study for the Nigerian University System Innovation Project. Unpublished. World Bank. Education and Training Unit, Washington D.C.
- ILO (1994). African Employment Report, 1994. (Draft Working Document. ILO Regional Office for Africa.) Addis Ababa. December.
- International Monetary Fund IMF (1997). A Decade of Civil Service Reform in sub-Sahara Africa. IMF Working Paper WP/97/179. December.
- Ministry of Manpower Development and Employment, MMDE (1998). Report on Graduate Unemployment in Ghana. Accra. December.

Nwuke, O. K. (2001). Africa's Development Challenges. Paper Presented at the Afro-Asian Parliamentarians Meeting on Development Cooperation and Commitment. Tokyo, Japan. November.

Oyinlola, Olaniyi (1998). A Study of the Relative Marginal Productivity of Graduate Labour in the Nigerian Economy. *Review of Human Factor Studies* 4(1): 69-87.

Ransom, A., S-M. Khoo and V. Selvaratnam (1993). Improving Higher education in Developing Countries. EDI Seminar Series. Washington D.C.

Squire, Lyn (1981). Employment Policy in Developing Countries. A World Bank Research Publication. Oxford University Press.

The World Bank (1994). Higher Education: The Lessons of Experience. Washington, D.C.

Figure 1. Higher Education- Labour Market Linkages (Source: Designed by the author)

