

Full Length Research Paper

Congruence between national policy for science and humanities enrolment ratio and labour market demand in Ghana

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Accepted 15 April, 2013

The paper undertook a snapshot of the demand for various academic programmes on the labour market and compared this with national policy norms for enrolment in public universities in Ghana. The objective was to ascertain whether national higher education enrolments are responsive to the national policy target of 60:40 (Sciences : Humanities) or responsive to labour market needs. The study employed an exploratory mix-method design based on reviews of existing works, survey of job advertisements and data on enrolments. In all 120 issues of a widely-circulated newspaper was perused for job advertisements and 2536 job advertisements were recorded. The results suggests that enrolments in public universities in Ghana are not in consonance with the national policy targets of 60:40 (Science: Humanities) respectively but in line with market demand. The study found that at undergraduate level enrolment ratios for Sciences and Humanities were 35:65 in 2002 with a corresponding market demand of 34:66 and 39: 61 in 2010 as against the market demand of 39:61. The detailed analysis of the survey results further points out that enrolments in various academic programmes also reflect labour market needs and realities but national policy norm deviates from these realities. The stricken match between enrolment and market demand requires further attention that will realign the policy target with the reality or vice versa. This will require a comprehensive data collection and analysis on demand for academic programmes as this was found to be non-existing in the country. **Key words:** Academic Programming, Labour Market Demands

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INTRODUCTION

Quality assurance and relevance of higher education have become key issues of concern on the global higher education landscape. The commoditization, privatization and massification of higher education are believed to have contributed to lowering standards and consequently affecting quality of higher education globally (Mohamedbhai, 2008). However, it is not clear how massification or privatization have impact on the relevance of higher education. This is because relevance of academic programmes is essentially judged by the labour

market. The challenge most policymakers face is how to balance quality which relates directly to relevance with access (Bloom et al., 2005). Students everywhere want to get good and satisfying jobs upon completion of higher education and employers also expect to employ graduates who are job-ready. Thus, to meet the needs of both students and employers, there is the need to constantly align academic programmes with the labour market needs by examining the relevance of learning outcomes of curricula to the industry.

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Boateng and Ofori Sarpong (2002) note that *“in terms of the supply of educated manpower, Ghana is highly rated among African countries, according to the World Economic Forum/HIID (1998). However, serious doubts have been expressed about Ghana’s ability to meet the increasing global competition, given the current level of skills available in the Ghanaian labour market”* (Boateng and Ofori, 2002: 9). This situation does not seem to have improved, because similar to the observation of Boateng and Ofori (2002), Gondwe and Walenkamp (2011) also report some mismatch between policy targets and polytechnic graduate output and labour market trends in Ghana. The Education Sector Performance Report (ESPR, 2010: 7, 52) notes that *“to remain competitive both nationally and internationally, and to drive the economy from the present status to about 9% by 2012, the country must be strategic in developing the relevant skills in its workforce. However, there is at the moment no consistent and comprehensive data on labour market demands for skills and qualifications”*. The report adds that *“There is no research investigating how effectively the skills acquired are being translated into jobs on the labour market”*.

The official government policy on Ghana’s technological and industrial development planning at the tertiary education level requires the nation to achieve a ratio of 60:40 Sciences to Humanities manpower base by the year 2020 (Ghana Statistical Service, 2008a: 111; Government of Ghana, 2007: 42; ESPR, 2010). Unfortunately, the Education Sector Report (2010) notes *“There was also lack of research to ensure a better integration of science, technology and humanities policy. Consequently, there was no carefully planned strategy for the incremental achievement of this policy, as such the policy ratio of 60:40 Sciences: Humanities became an unrealistic norm for the tertiary education sector by the National Council for Tertiary Education.”* Enrolments have heavily been skewed towards humanities. The enrolment ratio for the 2006/07 stood at 38% for Science and Technology and 62% for Humanities for Public Universities. The situation was even worse for private universities, which for the 2006/07 has 87.6% for Humanities and 12.4% for Science and Technology (Somuah, 2008). The report on the visitation panel to the University of Ghana also notes that there is no scientific basis for this science/humanity ratio of 60:40 (Government of Ghana, 2007: 42). It is, therefore, not clear whether the 60:40 ratio was the right policy to implement the Education Strategic Plan (Government of Ghana, 2008: 143). Considering the total enrolment rates so far, the National Council for Tertiary Education (NCTE) recommends that the future growth in Humanities and Science and Technology should be pegged at 5% for Science and Technology and 3% for humanities in all the public universities. Some analysts think this approach will take 57 years to reverse the current trend to achieve the desired 60:40 ratio in favour of Science and Technology (Somuah, 2008). Another school of thought has

suggested that a more realistic growth rate should be 0% for humanities and 8% for Science and Technology over a period of 12 years for both public Universities and the Polytechnics or 1% for humanities and 6% for Science and Technology over a period of 19 years for both public Universities and the Polytechnics while universities with the mandate to focus on science and technology are given specific growth rate targets (Somuah, 2008). However, the various Education Sector Review reports do not indicate the basis of these assumptions and projections. It was also not clear whether labour market trends or demand have been taken into consideration, given that there is no consistent and comprehensive data set on labour market trends for the demand for skills and qualifications from universities. Is there any relationship between national labour Market demands and the enrolment trend observed in the higher institutions of learning in Ghana? This study, therefore sought to ascertain whether demand for academic programmes reflects national policy norm on enrolment in the higher education sector in Ghana and to compare demand for various academic programmes with enrolment trends.

Objective of the study

The study sought to analyse the demand for various higher education qualifications in Ghana and compare these with enrolment figures and national policy norm for Sciences and Humanities. The aim is to ascertain if national norms are in line with market realities. Though exploratory in nature, the study should provide a basis for a further and consistent analysis that can inform academic programming at both the Institutional and national levels.

OVERVIEW OF THE GHANAIAN ECONOMY

The World Bank classifies Ghana as a Lower Middle Income Country. The country anticipated a growth rate of 14.1% in 2011, with the outlooks for agricultural, industrial and service sectors all showing positive. Life expectancy rose in the two years after 2009, from 58 to 60; and the workforce is 49.2% female (IMF, World Economic Outlook, 2011). Against this demographic and economic background, demand for higher education is growing. Enrolment in Tertiary institutions has continued to expand, surpassing the target of 174,574 for 2012 with 185,268 by 2011 in public institutions alone and an additional 32, 275 in private institutions in the same year (Draft Education Sector Performance Report, 2012). In 2009, Ghana was the second largest cocoa and the ninth largest gold producer in the world, while its nascent oil industry was expected to generate revenue of EUR 291m in 2011 (The *Economist* Pocket World in Figures, 2012). Ghana is thus internationally classified as an “emerging economy” rather than a “least developed economy” (IMF

World Economic Outlook, 2011). Additionally, available data indicate that Ghana has long achieved target one of the United Nations Millennium Development Goal (UN MDG 1), which is to halve the proportion of people living in absolute poverty by 2015 (UN, 2010). The overall standard of living in Ghana has been improving steadily with the international purchasing power of the country and of individuals having grown by a factor of 7 and 3 respectively over 30 years. This is against the fact that the population in Ghana has doubled during the same period (IMF, 2011). According to the World Bank, absolute poverty refers to people living on less than one dollar (\$1) a day. However, Gondwe and Walenkamp (2011) notes that theoretically Ghana did not suffer absolute poverty in the three decades, with each person having \$1.37/day to spend in 1980 and \$4.40/day to spend in 2009 (please note: annual figures divided by 365 days). GDP growth has also been increasing steadily with 4.0% in 2009, 7.7% in 2010 and 13.6% in 2011 (MOFEP Budget, 2012). Inflation which was 18.1% at the end of 2008, stood at 8.40% in September, 2011 (MOFEP Budget, 2012). The Services sector grew by 4.2% and contributed 48.1% as its share to GDP, still making it the largest contributor to GDP in 2011. The population as estimated by July 2011 is 24,791,073, with 36.5% (male 4,568,273/female 4,468,939) being between the ages 0 to 14 years, while 60% (male 7,435,449/female 7,436,204) is between the ages 15 to 64 years and 3.6% (male 399,737/female 482,471) 65 years and over (www.indexmundi.com/ghana/demographic.profile).

Against this economic and demographic background, Gondwe and Walenkamp (2011) report that , the 2006 national census held by the GSS shows that middle and higher education (that is universities, polytechnics, specialized colleges, technical and general secondary schools and technical training institutes, both public and private) contribute only 9.4% of the personnel in the Ghanaian labour market . All other employees have less than a senior secondary level education (28.6% completed their primary and junior secondary education, 26.7% attended primary and junior secondary school but did not complete the education and 35.3% have no formal education). Considering the fact that the share of workers with a higher education is limited and that the output of primary and junior secondary school is also limited, it can be said that Ghana has achieved remarkable success in its macro-economic climate but not in educational attainment.

The Ghana Statistical Service (GSS) provides statistical summaries on participation in the labour market however; this is less than desired to allow effective analysis of the labour market and higher education planning. The Educational Sector Performance Report (ESPR) does not also Report on labour market demands or graduate exist data. The strong performance of Ghana's economy, particularly since the mid-1990s, has been linked to declining unemployment and under-

employment (GSS, 2008a). Despite these positive developments, the situation for youth is still critical, with the unemployment rate among the youth aged 15 to 24 (that is people who have no work, are available for work and actively looking for work) being estimated at 61% in 2006 (GSS, 2008a). Gondwe and Walenkamp, (2011) notes that these statistics are in agreement with the fact that 60% of the junior secondary school leavers do not proceed further with their education.

Relevance of labour market analysis in quality of higher education

Production and application of knowledge have become important factors in economic development. The World Bank acknowledges that economic growth is as much a process of knowledge accumulation as capital accumulation (World Bank, 2002). However, knowledge accumulated must be relevant in order to support development. Primarily, the aim of higher education is to create knowledge to foster economic and social development (OECD, 2008). This implies that there is need to examine what type of knowledge is produced, where it is produced, how it is produced and how it is used. Some scholars have argued that the aim of higher education is to create knowledge that can be used to chart the path of progress at a later time (OECD, 2008). From this perspective, output of higher education must not necessarily be immediately relevant. This school of thought also suggests that the mere production of knowledge should empower graduates to use critical thinking to chart the path of progress. However, there has been several reports expressing concern that higher education output is not meeting expectations of the labour market, making relevance a critical issue (Mohamedhbia, 2008, Gondwe and Walenkamp, 2011).

Contrary to the advocacy for relevance of higher education and the congruence with the labour market, it has been argued that focusing on the labour market needs for academic planning may also result in ignoring other vital disciplines that may not seem market relevant or demand driven but may be relevant for future development (Gondwe and Walenkamp, 2011). An OECD report (2008) notes that there is a tension between the pursuit of knowledge generation as a self-determined institutional objective and the statement of national priority as defined in the aims and goals of the tertiary system. The objective, from a governance point of view, is then to reconcile the priorities of the individual institutions and the broader social and economic objectives of countries. This entails determining how far the former contributes to the latter as well as clarifying the degree of latitude the institution has in pursuing its own self-established objectives.

The World Bank in a Report of 1998/99 has highlighted the issue of knowledge and information gaps as critical

factors in the development of nations (The World Bank, 1999:1). In the World Employment Report (WER) of 1998-99 the ILO noted that, "the level and quality of skills that a nation possesses are becoming critical factors" in determining a country's ability to take advantage of new opportunities, in a world of increasing globalization and technological change (ILO, 1998, pg.10)

Boateng and Ofori-Sarpong back in 2002 noted that the problem of supply-demand gaps in graduate output is real in Ghana and that there is an over-supply of graduate labour in those courses that are easily accessible, in particular arts and humanities, and an under-supply in critical areas, like engineering, accounting, medicine, information technology and management. Boateng and Ofori Sarpong further notes that tertiary education remains an important factor for escaping long-term unemployment and poverty. The existence of supply-demand gaps not only contributes to the problem of graduate unemployment but also undermines the efficiency of public investment in tertiary education.

The National Council for Tertiary Education (NCTE) also notes that the lack of congruence between labour market needs and educational outcomes of tertiary education is a major lapse in Ghana (NCTE nd., ongoing). The NCTE further observes that "*there is inadequate articulation between higher education and national development efforts*". The question is, ten years after the report of Boateng and Ofori-Sarpong, commissioned by the World Bank in collaboration with the National Accreditation Board (NAB) and the National Council for Higher Education (NCTE), what has changed. The study sought to find answers to these questions.

The essence of analysing the labour market trends at the national level is therefore to track congruence and improve the relevance and quality of the higher education output, and minimize the problem of supply-demand mismatch. This can also enhance strategic planning of academic programmes and augment diversity of knowledge and skills. The question is can a bridge between the labour market and higher education impact development in Ghana positively or would it leave some important sectors under developed in the long term? This should be food for thought for HEIs planners in Ghana though it is not part of the scope of this paper.

The tertiary education sector in Ghana

Ghana has a diversified tertiary education sector, the public institutions comprising 8 public universities, 6 public specialised Institutions, 3 chartered private universities, 51 private university colleges, 10 polytechnics, 38 public colleges of education, 3 private colleges of education, 13 public nursing colleges, and 4 private nursing colleges (Draft ESPR, 2012). The total student enrolment in the public universities in 2011 was 185,268 and 32, 275 in private institutions in the same year.

Enrolment in the public institutions accounted for about 14% of the total tertiary enrolment, and in the 10 public polytechnics represented about a third of total enrolment in the 6 public universities (ESPR, 2012; Mohamedhai, 2008).

Ghana also has a well-coordinated tertiary education sector. The National Council for Tertiary Education (NCTE) is charged by law to advise the Minister responsible for education on the development of institutions of tertiary education and to formulate policies. The National Accreditation Board (NAB) has responsibility for accreditation of both public and private institutions with regard to the contents and standards of their programmes. The Board determines, in consultation with the relevant institution, the programme and requirements for the proper operation of that institution and the maintenance of acceptable levels of academic or professional standards. Determination of the equivalence of diplomas, certificates and other qualifications awarded by institutions in Ghana or elsewhere is also conducted by this organ. The National Board for Professional and Technician Examinations is responsible for formulating and administering schemes of examinations, evaluation, assessment and certification for professional bodies, non-university tertiary institutions and private institutions. All the three institutions were established as part of the Tertiary education reforms in the early 1990s (MOESS, 2007).

Higher education in Ghana is offered generally at the university and higher professional institutions. Theoretical higher education is offered by both public universities and private national or international universities, while professional education is offered by specialized and professional Institutions, professional bodies and the ten national polytechnics and several national or international specialized colleges that are affiliated to some of the local universities for the award of professional bachelor and postgraduate degrees (Gondwe and Walenkamp, 2011). Universities offer academic programmes (Bachelor, Master and PhD education) as well as sub-degree professional education courses (certificates and diplomas) through their affiliation with local tertiary level professional education institutions. The universities are autonomous, being governed by academic boards and university councils through the vice-chancellor.

Currently, the Education Sector Performance Report (ESPR) which is based on the National Education Sector Annual Review (NESAR) and was instituted with the implementation of the country's Education Strategic Plan (ESP) 2003-2015 is the source of various comparative statistics and information for the education sector (Gondwe and Walenkamp, 2011). The ESPR reports on access to education, quality of education, education management, education finance, and the state of science and technology.

The Education Sector Performance Report (ESPR, 2012) notes that education in Ghana is mainly financed

by the Ministry of Education (72% in 2008), the GETFund (9.5% in 2008), internally generated funds by institutions (9% in 2008) and multilateral and bilateral donors (9.5% in 2008; Ghana MOESS, 2008). In 2011, education expenditure as a percentage of Government of Ghana (GoG) expenditure was 25.8% making it the largest government expenditure.

Balancing quality, access and labour market needs in Ghana

The author(s) conceptualize quality as “*what you want and what works for you*” or *what end users want and want works for them*. From this perspective the question to ask is “what does Ghana want from higher education and does that work for her? A recent study by the Hague University on alignment of higher professional education with the needs of the local labour market notes that “many students in developing countries do not complete their secondary education, either due to financial reasons or due to poor academic performance. Gondwe and Walenkamp (2011) further note that, complex regulatory structures and processes limit progression of large groups of students to the post-secondary education level. In addition, the number of post-secondary education institutions in developing countries is limited and this requires a strict selection of students who may proceed with their studies at the next educational level. “*Most of the students who do not get selected are not rejected on the basis of low individual academic capacity but because the student absorption capacity of the institutions is limited and tough choices simply have to be made*” (Gondwe and Walenkamp, 2011). Gondwe and Walenkamp (2011), further notes that the number of students who fall away is very high (e.g. 60% in Ghana do not get to the post-secondary level; in the cited from Ghana MOESS, 2008), which is an unfortunate loss of talent. Most of those who do not get access to higher levels end up in the informal sector where they become self-employed.

Data from the most current report of the Ghana Living Standards Survey (GLSS) indicates that about 31% of adults (representing a little over 4 million people) have never been to school. A further 17% (representing 2.3 million people) attended school but did not obtain Middle School Leaving Certificate (MSLC/Basic Education Certificate Examination (BECE) certificate. About 39% of adults (5.1 million people) have the MSLC/BECE certificate and only about 14% (1.8 million adults) obtained secondary or higher level qualification. Thus, about half (6.4 million) of adults in Ghana neither attended school nor completed middle school/JSS. Further to this the draft Policy for Tertiary Education a document which is being finalized by the National Council for Higher Education, report “*in spite of the significant increases in enrolment in tertiary education institutions,*

only about 10% of the age cohorts from junior secondary schools gain to tertiary education” (NCTE nd., on-going, pg. 15). These data put together suggest that just about 1.4% that is about (180, 000) or less of adults in Ghana have access to higher or tertiary education, which is in line with the total enrolment of about 185,268 which include universities, polytechnics and colleges by 2011. The statistics is not surprising in the light of the emphasis of the Millennium Development goal 2, which pushes developing countries to focus on basic education. UNESCO and the African Union’s suggestion is that actual expenditure on education should be approximately 6% of GDP and out of this the expenditure on Tertiary education is expected to be within 15 and 20% of all public expenditures on public education. The understanding is that developing countries that devote more than 20% of their education budget to tertiary education (especially those that have not attained universal primary education coverage) are likely to have a distorted allocation (ESPR, 2012). The authors opine that, these conditions have contributed quite significantly to the perpetration of semi illiteracy in some African countries including Ghana. The question is, if higher education is a key engine for socio-economic development; can the current rate of access to higher education support the increasing anticipated economic growth of about 11% as Ghana aspires to move from lower middle to truly middle income country?

On the other hand, other reports have suggested that massification is lowering standards of higher education particularly in Africa (Mohamedhai, 2008,). Mohamedhai further, notes that these trends notwithstanding, the phenomenon of lowering standards seems to be less prevalent in the Anglophone countries where enrolment is usually subject to a rigorous selection process and access is more or less restricted. Adu and Orivel (2006, as cited in Mohammedbai, 2008)) report that in Kenya, for example, less than 10 % of the senior secondary graduates are admitted each year to the six public universities of the country. Nevertheless, the number of students admitted each year continues to increase in spite of the rigorous selection process. Mohamedbnai (2008), further notes that Ghana another Anglophone country, is another example of the phenomenon of rigorous selection process which restricts access to the higher institutions of learning. The issues of “how do we know our specifications work, is a misconstrued concept. It is important to recognize the difference between specifications and standards in these contexts. A standard is a detailed, formally ratified and fixed technology, format or method which enables the performance of a particular task or activity. A specification can be considered to be a ‘draft standard’, in that it is a step on the path towards formal standardisation, but can be incomplete and is inherently subject to change and development (www.jicinfonet.ac.uk). Essentially standards are authoritative having been produced by a national or

international organisation with the legal power to define standards in consultation with stakeholders. Specifications on the other hand have no legal status and may be defined by anyone. Ghana's rigorous entry requirements can best be described as specifications and not standards.

On the contrary, Mohamedhai (2008) notes that international universities are generally lowering the entry requirements to enhance access. Lomas (2001), reports that, in the United Kingdom for example, many students were admitted without the usual minimum standard requirement of two GCE Advance Level subjects for undergraduate courses. Indeed, Rust (1997) gives the example of Liverpool John Moores University where the proportion of non-standard entrants was nearly 75%. This has led generally to falling expectations and standards in universities. According to Trow's typology (2000), countries in North America and Western Europe had reached almost universal higher education, while those in Central and Eastern Europe had mass higher education. Some countries in East Asia and the Pacific, for example Australia and Singapore, have also reached mass or even universal higher education. However, it is important to note that, for Sub-Saharan Africa, not only has the increase in the enrolment ratio been insignificant from 1991 to 2005 but the ratio is also by far the lowest than any other region of the world (Mohamedhai, 2008). However, Lomas (2001) further reports that when it comes to Africa, the challenge of balancing the seemingly mutually exclusive demands of greater access and maintaining quality seems much more acute due to a lack of resources. With the concept of "Swim or Swing" it should be possible to give all qualified applicants a chance to test their intellectual capabilities in the public institutions. China is one of the few countries that made the decision to increase university student enrolments with the goal of stimulating the country's economy and it has worked (Yang, 2002).

Consequently, in the light of the pressures for a diversification of mass higher education, more and more courses have been introduced in both public and private tertiary institutions. However, some of these courses do not take the needs of the labour market into account (Mohamedhbia, 2008). Mass higher education has therefore been criticized as having led to the devaluation of higher education by providing a "plethora of quasi-academic courses" (Lomas, 2001). In Africa, many more students graduate in programmes that are not relevant to the needs of their society and therefore end up joining the thousands of unsuccessful job applicants. UNESCO (1997) reports that "African societies are leaving greater and greater portions of their higher education graduates unemployed..." This is not only due to the large numbers of graduates being churned out but also largely attributable to the deficit in the quality and relevance of higher education. One factor causing unemployment of graduates is the fact that larger numbers of students are

enrolled in the humanities where there are fewer job prospects, whereas there are fewer graduates in the science and technology sector, for which there is a greater need (Mohamedhai, 2008). Is this the situation in Ghana? Is national planning and standards setting for higher education informed or theorised by labour market realities? The study sought to find answers to these questions by comparing the national norm of 60:40% of Science: Humanities to labour market realities.

The Education Sector Performance report (2008), stated "Government policy was to stress science/technology enrolments so that 60% enrolment would be in Science and Technology. The reverse situation is true, with both university and polytechnic enrolment showing 60% in humanities and only 40% in science and technology. Some observers trace this situation back into JHS and SHS where many students find mathematics/science to be difficult or find that it is not properly taught (ESPR, 2008). In 2010, the Education Sector Performance Review (ESPR) reported:

"The implementation of the official government policy on Ghana's technological and industrial development planning policy at the tertiary education level was for the nation to achieve a ratio of 60:40 sciences to humanities manpower base by the year 2020. It was not clear whether the 60:40 ratios are the right policy to implement the Education Strategic Plan 2010 to 2020. In the ESP (2010-2020) 60% of all university students are to be registered in science and technology-related disciplines by 2020. Achievement by 2007/08 is 38%."

The concept of the labour market as operationalized in this study

Labour Market has been described as a nominal market in which workers find paying work, employers find willing workers, and wage rates are determined. Labour markets may be local or national (even international) in their scope and are made up of smaller, interacting labour markets for different qualifications, skills, and geographical locations. They depend on exchange of information between employers and job seekers about wage rates, conditions of employment, level of competition, and job location (<http://www.businessdictionary.com/definition/labor-market.html#ixzz1u3PBU3f6>).

In this study the labour market refers to the congruence between the supply of labour and the demand for labour which is described by the interactions between supply side and demand side dynamics.

The supply side of the labour market is operationalized by two variables

- Number of Institutions offering similar programmes
- Total enrolments (Since the total graduate exit data was not available).

Although, the demand-side is operationalized by:

- Number of job vacancies advertised by programme qualification.

METHODOLOGY

The study employed an exploratory and cross sectional approach. It relied on a mixed method approach, using both qualitative and quantitative techniques based on reviews of secondary information for the supply side and analysis of primary data based on a market survey for the demand side. To analyse the national labour market trends, two field data sources were used to represent the supply and demand sides.

The supply side was operationalized by two variables:

- Number of higher education institutions accredited to offer similar programmes by June 30th 2011 and;
- Total enrolment in the last 10 years covering 2002 to 2011

The demand-side was operationalized by the number of job vacancies advertised in newspapers for various programmes at the higher education level between January to June 2011 and this formed the basis of the primary data. Currently, there seem to be no secondary source data that can be used to analyse trends in the demand for labour in the Ghanaian labour market. As such, the researchers resorted to gathering primary data from newspapers particularly on the jobs advertised and the qualifications required. In collecting the data, we restricted ourselves to the Daily Graphic for a couple of reasons. The first is that the Daily Graphic is the print medium widely used by advertisers, recruitment agencies and prospective employers to seek prospective employees. The preference for Daily Graphic by advertisers may probably be explained by the fact the newspaper enjoys nationwide circulation and readership. The Second reason for using only the Daily Graphic is that a cursory look at the jobs advertised in the other newspapers revealed that nearly all of them were also advertised in the Daily Graphic. Many of the online adverts were also carried in the Daily Graphic. Thus, the use of the Daily Graphic alone means that we minimize the error of double-counting some of the advertisement.

One hundred and twenty issues of the Daily Graphic were perused to count the number of advertisements. Though, job advertisement does not represent all job opening available, the approach provides a more reliable basis for analysis. Boateng and Ofori-Sarpong (2002) also used a similar operationalization for the demand side in their World Bank study of 2002.

The study then compared the observed demand with both the supply of academic programmes and national norms as well as results of previous studies to ascertain whether there are any changes in the trend.

Data collection

Data was collected through review of reports, policy documents, websites of official agencies and the newspapers from January 1st January to June 30th, 2011. An interview was conducted to corroborate some of the data from official websites. Key documents reviewed include:

- Education Sector Performance Report - ESPR (2012, 2010, 2008).
- MOESS (Ministry of Education, Science and Sports), 2008, *Preliminary Education Sector Performance Report (ESPR) 2008*.
- Gondwe and Walekamp (2011). Alignment of higher professional

education with the needs of the local labour market: The case of Ghana, A NUFFIC project Report.

- Boateng and Ofori (2002). An analytical study of the labour market for tertiary graduates In Ghana, a World Bank Project Ghana.
- Mohamedbhai (2008) Effects of massification of on higher education in Africa.
- Altbach et al. (2009) a report prepared for UNESCO Conference on higher education with support from SIDA/SAREC.
- Ghana Living Standards Survey Report, 2008.
- Budget Statement (2012). Ministry of Finance and Economic Planning.

The Draft National Policy on tertiary education which is currently under review was used to ascertain the proposed norms and performance targets against which the field data was to be compared.

The official website of the National Accreditation Board (NAB) and the education sector performance reports were used for number of tertiary and higher education institutions in Ghana. The data collected were submitted to the National Accreditation Board (NAB) for corroboration.

One hundred and twenty issues of the Daily Graphic newspaper were perused and 2536 job advertisements were recorded. The initial design was to source for exit data on students graduation figures to be used as a proxy for labour supply, however, when this failed because data of graduation figures of higher education institutions were not available, the researchers resorted to use total enrolments statistics.

Data analysis

Generally data was analysed through descriptive statistics by cumulative frequencies of observations and percentages. The market demand data from the study were compared with national norms to ascertain whether market realities match enrolments and national policy norms.

RESULTS

The number of tertiary institutions accredited to offer tertiary programmes in Ghana by June 2011 were one hundred and thirty-six. The breakdown is shown in Table 1. Out of the total of 136 institutions, about 68 are accredited to offer university level degrees, with 58 institutions out of the 68 accredited to offers business and management related programmes.

Enrolment figures in higher education institutions in Ghana

Comprehensive data on graduation rates was not available. Though various websites of public universities and professional degree awarding institutions in Ghana were visited to collate figures for the last ten years, this was not possible because of the gaps observed. The situation is due to the fact that some of the universities had no up to date information on exits data. This observation is in-line with the finding of Gondwe and Walenkamp (2011:18.) who reported “no statistic” for university and polytechnic graduation rates. Boateng and Ofori (2002: 29) also reported that the “universities do not

Table 1. Number of tertiary institutions in Ghana.

Public and Private Tertiary institutions	
Institution	Number
Public Universities/university colleges	8
Public Specialized/Professional Colleges	6
Chartered Private Tertiary Institutions	3
Private Tertiary Institutions	51
Polytechnics	10
Public Colleges of Education	38
Private Colleges of Education	3
Public Nursing Training Colleges	13
Private Nursing Training Colleges	4
Total	136

Source: Education Sector Performance Report, 2012; NAB Website, 2011.

publish data on the actual number of graduates produced annually on a regular basis". This suggests that the situation in respect of graduation data on higher

education in Ghana has not changed significantly since 2000. There is still no planned and consistent data collection and analysis of graduation or completion rates at both institutional and national levels in Ghana.

Enrolment statistics

Table 3 shows that demand enrolment in the various accredited tertiary institutions at 2011 stood at a total of 217,543 which represents about % enrolled in the eight public universities alone, while all other public tertiary institute accounted for xxx% of the total enrolment in 2011. The private universities represented about a third of the enrolment in the eight public universities. Available reports indicate that in spite of the *significant increases in enrolment in tertiary education institutions, only about 10% of the age cohorts from Junior Secondary Schools gain to tertiary education*" (NCTE nd., on-going, pg. 15). *"in spite of the significant increases in enrolment in tertiary education institutions, only about 10% of the age cohorts from junior secondary schools gain to tertiary education"* (NCTE nd., on-going, pg. 15). The UNESCO Institute of Statistics report that gross tertiary enrolment ratio for the African region in 2009 was at 6% with that of Ghana being a little above the regional average with 6.2%. Other countries which had higher gross enrolment ratios included but not limited to Cameroon (9.0%), Cape Verde (14.9%), Côte d'Ivoire (8.4%), Guinea (9.2%), Mauritius (25.9%), Namibia (8.9%) and Senegal (8.0%).

Demand for various higher education qualifications 2011

In all 2536 job advertisements were recorded and the

distribution by type of programme and month are shown in Tables 3 and 4 respectively.

Table 4 and Figure 1 show the frequencies job adverts that required Certificates, Diploma, Higher National Diploma (HND), Bachelor Degrees, Masters and Doctorate degrees during the period months of January 2011 to June 2011. Figure 1 indicates that the first Degree has the highest demand frequency, followed by Masters Degree, with the third being Higher National Diplomas, then the fourth Professional, Diplomas and Certificates came next with Doctorate being the least in demand. Over the period January 2011 to June 2011, the least number of jobs requiring first degree was recorded in the month of March while April recorded the highest number of jobs.

Table 5, shows the distribution and percentages of demands for various groups of disciplines and programmes. It is observed that a large proportion of vacancies went to business related programmes with the highest going to Accounting, Finance and Management. Followed by Social Sciences particularly Economics. Engineering, and Oil and Gas programmes scored a percentage of 16.64%, an indication of growth for demand in this sector as a result of oil and gas discovery and production in the country. For all programmes, a Bachelors degree was in higher demand except for Economics and other Social Sciences where master's qualifications stood higher at 40.39% as compared to the corresponding 17.30% for the Bachelor degree.

Achieving the policy target on science and humanities enrolment ratio

Table 6 indicates the tertiary enrolment ratios for science and humanities from 2002 to 2011 in Ghana. The table indicates that the in 2002, the enrolment ratio of science and Humanities was 35:65 while the corresponding market demand ratio for science and humanities was 34:66. In 2010, enrolment ration stood at 39.61 with a corresponding market demand of 39:61. It is worthy of note that the demand data collected between January and June 2011 therefore reflects enrolment of 2010. The official government policy is to achieve an enrolment ratio of 60:40 sciences to humanities manpower base by 2020 (Ghana MOESS, 2008). However, enrolments are heavily skewed towards the humanities. Not much seem to have changed in the period under consideration. The match between enrolment and market demand for programmes is striking.

The results of this study are similar to that of Boateng and Ofori Sarpong, 2002, and that of Gondwe and Walenkamp in 2011. All the studies suggest a close match between enrolment ratios and market demand ratios of science and humanities. Boateng and Ofori Sarpong (2002) reports that enrolment in the Bachelor of Arts and management programmes as a percentage of total enrolment in the universities was above 65% and

Table 2. Number of higher educational institutions (degree awarding excluding polytechnics) accredited by NAB in Ghana, 2011.

Category of institution	Number of accreditation	Those offering business/management related programmes
Public Universities	8	5
Public Specialized and Professional	6	3
Private Tertiary Institutions	46	44
Chartered Private Universities	3	1
Distance Learning Private	5	5
Total	68	58

Source: Survey results: NAB website, 24th August, 2011.

Table 3. Enrolment in tertiary institutions.

Institution	Year				
	2006/7	2007/ 8	2008/9	2009/10	2010/11
Public Universities	88,445	93,973	102,548	107,058	115,452
Polytechnics	28,695	34,448	38,656	46,079	43,113
Colleges of Education		26,025	27,589	26,861	26,703
Total	117,140	154,446	168,793	179,998	185,268
Enrolment in Private Universities					32,275

Source: Provisional Education Sector Performance Report (2012).

Table 4. Monthly distributions of jobs advertised.

Category of programmes	January	February	March	April	May	June	Cumulative Frequency
Professional	32	50	28	50	54	58	272
Certificate	31	24	11	2	22	26	116
Diploma	6	8	40	47	22	4	127
HND	65	69	32	67	46	72	351
Bachelor	185	209	75	261	194	209	1133
Masters	54	64	29	198	96	41	482
Doctorate	8	17	1	11	8	10	55
Total							2536

Source: Survey Data, January to June, 2011.

increased from 65% in 1994/95 to 68% in 1999/2000. This suggests that there have not been significant changes in the science: humanities ratio since the 90s till date.

Gondwe and Walenkamp (2011) argue that the skewness in enrolment towards humanities can be addressed by enrolment policies whereby balance is sought in this ratio. Gondwe and Walenkamp (2011) maintain that currently at the tertiary level only one-third of applicants for the sciences (natural science, agriculture and engineering) are accepted for enrolment. Gondwe and Walenkamp (2011), further argue that *“the reason for the skewness towards humanities is not due to the fact that students do not meet the minimum requirements set by the universities, but the insufficient training facilities (laboratory space, equipment, etc.). Admitting more*

students than the facilities can accommodate would compromise the standard of education being offered. Qualified students who applied to study science at universities but did not get admitted often switch to the humanities and that is a waste of talent to the field”.

However, this study puts forward that there may be stronger driving forces accounting for the observed enrolment ratios for sciences and humanities. And that a more compelling force is labour market realities which reflects which qualifications are more sought after on the job market. Clearly, graduates expect to be employed shortly after graduation. The tendency therefore is to opt for programmes that have higher labour market attraction. Obviously more will tend to go where they believe jobs are readily available. Apparently academic programmes are being offered without consideration of actual

Table 5. Job vacancies by type of programme.

Type of course	Percentage of advertised jobs	Percentage distribution by type of programme					
		Doctorate	Masters	Bachelor	Professional	Cert/Dip	HND / Others
Management and Business Admin.	24.68	0.8	23.96	35.78	13.89	3.03	22.52
Accounting, Finance, Banking/Insurance	31.26	0.12	13.24	48.8	23.32	4.41	10.08
Economics and Social Sciences	4.11	4.80	40.38	17.3	-	37.5	-
Computer Science/ICT	5.67		20.14	43.05	-	22.22	14.58
Sciences	9.07	4.78	20.0	56.52	-	7.39	11.3
Engineering/Gas/Oil/ Mining/Technical	16.64	0.71	12.32	58.76	-	11.61	16.58
Agriculture/Environmental Natural/Resources	7.37		31.01	34.22	-	27.8	6.95
Arts and others	1.2	100	-	-	-	-	-
Total percentages	100	2.17	19.01	44.68	10.73	9.58	13.84
Total (Numbers)	(2536)	(55)	(482)	(1133)	(272)	(243)	(351)

Survey Data: January to June 2011.

Table 6. Enrolments ratios for Science and Humanity (2002-2011).

NCTE norm		Enrolment		Result		
		Year	Total enrolments	Ratio of Science to Humanities	Demand for qualifications	
Ratio of enrolment in Science and Humanities	60:40	2002	31,501	35:65	34:66	
		2003	53,895	34:66		
		2004	63,576	34:66		
		2005	73,408	34:66		
		2006	84,078	35:65		
		2007	117,140	38:62		
		2008	154,446	38:62		
		2009	168,793	39.61		
		2010	179,998	39.61		
		2011	2 17543	34:66		39: 61

Source: Provisional ESPR 2012, ESPR 2010, Current Study Results, Boateng and Ofori Sarpong 2002)

of the labour force and that the manufacturing subsector has potential to grow, though currently remains limited in its growth largely due to high production costs and the influx of cheaper imports which make locally-

manufactured products uncompetitive. Whereas the industry sector that largely drives science employment is not doing so well in Ghana, the Services sector continues to grow with the sector growing by 4.2% and contributed

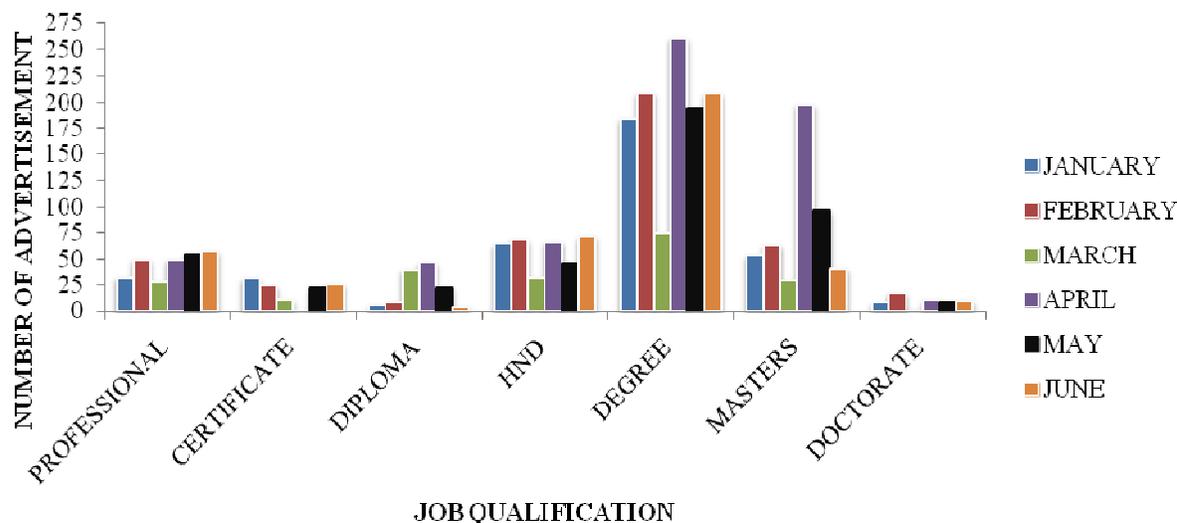


Figure 1. Monthly distribution of jobs advertised in Ghana, from Jan. - June, 2011.

48.1% as its share to GDP, still making it the largest contributor to GDP in 2011. Additionally, low science enrolments may be due to the fact that there are fewer students who read science at the secondary level. Furthermore, whereas the science students from secondary level can switch to any other fields, those with humanities background cannot switch to sciences at the higher or university level. This is against the argument by Gondwe and Walenkamp (2011) that currently at the tertiary level only one-third of applicants for the sciences (natural science, agriculture and engineering) are accepted for enrolment and that the *skewness towards humanities is not due to the fact that students do not meet the minimum requirements set by the universities, but rather lack of facilities.*

The findings of this study, support the observation that “*There was lack of research to ensure a better integration of science, technology and humanities policy and that there was no carefully planned strategy for the incremental achievement of this policy.*” As a result, the policy ratio of 60:40 sciences: humanities ratio became an unrealistic norm for the tertiary education sector by the National Council for Tertiary Education.” Additionally, the study confirms the view of the visitation panel to the University of Ghana in 2008, which also notes that there is no scientific basis for this science/humanity ratio of 60:40 (Government of Ghana, 2007, p. 42). It is, therefore, not clear whether the 60:40 ratio is the realistic policy to implement the Education Strategic Plan (Government of Ghana, 2008, p.143). Considering the total enrolment rates so far and market demand statistics, it is not clear whether the projections of the National Council for Tertiary Education (NCTE) which recommends that the future growth in humanities and Science and Technology be pegged at 5% for Science and Technology and 3% for humanities in all the public

universities as well as all other projections and recommendations can support the vision of higher education in Ghana. However, the various education sector performance reviews do not indicate the basis of these assumptions and projections. It was also not clear whether labour market trends or demand have been taken into consideration, given that there is no consistent and comprehensive data set on labour market trends for the demand for skills and qualifications from universities. With the findings of this study, there appear to be a relationship between national labour Market demands and the enrolment trend observed in the higher institutions of learning in Ghana. An important question to ask therefore is what are the policy makers doing about the labour market in order to make it drive enrolment to the target?

Conclusion

The study sought to find out whether enrolments in higher institutions of learning are in-line with national norms, and whether both the actual enrolments and national policy norm on enrolments in science and technology were in-line with labour market realities. The results of the study indicate that generally, in the last decade demand for academic programmes as reflected by enrolments do not match the national policy norms but rather matches Labour market realities as reflected by job advertisements in Ghana. The question that arises from this conclusion is what informs national norms and targets for the higher education sector in Ghana. The persistent deviation of enrolment figures from the targeted policy norm suggests a need for a review of the norms against Labour market realities or promote the industrial sector which promises to offer employment to the Sciences in

the hope that it will encourage more students to apply for the Sciences.

The study also concludes that there is no system in Ghana for tracking and analysing Labour market trends against graduation statistic and academic programming on a comprehensive and consistent manner. All labour market studies reviewed in this study were one-off donor funded research projects. The results also suggest that academic programming at both institutional and national level is theorized but not an exact science. Consequently, the study concludes that there is stricken match between the higher education enrolments and labour market realities in Ghana.

RECOMMENDATION

- There should be an interactive data base to analyze the trends of the job market requirements on the current time basis
- Policy on enrolment targets for higher education programmes must factor in labour market trends.
- The study recommends the urgent need to reconsider the national higher education management and planning information system. This should include data on applications, access, enrolments, graduation rates and demand for various programmes on the labour market on a consistent and systematic basis.
- A further study would be required to analyse applications, admissions and actual enrolment figures to throw more light on the dynamics of the demand for higher education programmes.
- A public repository (website) should be established for the labour market and higher education management database to provide up to date information on the sector.

ACKNOWLEDGEMENTS

The authors thank all the research fellows of IPS who assisted with data collection. Special thanks goes to Silvanus Asesorbor for his efforts in leading the data collection process and to the AAU and EUA for the Quality Connect initiative which culminated in this study.

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