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The mitigating effect of work-integrated learning on graduate employment in South Africa

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Abstract

This article seeks to provide theoretical insight into supply and demand factors within higher education and how these relate to each other and to graduate unemployment within the South African context. Research was undertaken primarily to determine the graduate unemployment rate at a higher education institution in South Africa and secondly to ascertain whether work-integrated learning (WIL) had an effect on graduate unemployment. Statistical analysis revealed that the graduate unemployment rate at a certain higher education institution in 2011 was 46% while WIL reduced graduate unemployment. The unemployment rate for students who had had no WIL was 63%, whereas the unemployment rate for those who had complete WIL in the course of their higher education training decreased to 26%. Findings supporting the mitigating influence of WIL are a potentially valuable contribution to policy and practice in higher education.

Keywords: economic perspective, demand for higher education, input output analysis, work-integrated learning, graduate unemployment

1. Introduction

In 2008 the Quarterly Labour Force Survey provided by Statistics South Africa indicated that 73.17% of the unemployed in South Africa were between 15 and

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34 years of age. Furthermore, 4.7% of the unemployed had attained a tertiary education (Statistics South Africa, 2008). Although this figure appears to be minor in the context of broader unemployment, the unemployment rate of graduates increased by an estimated 50% between 1995 and 2005, which makes it the fastest growing unemployment rate in South Africa (Development Policy Research Unit, 2007). Kraak (2010) concurs by referring to the collapse of the graduate labour market within the South African context.

There appears to be a growing discrepancy between the book value and the market value of qualifications as commerce and industry are increasingly setting exact requirements with regard to knowledge and skills (Armstrong, 2011). Ssempebwa (2008) postulates that graduate unemployment is symptomatic of so called university education system disequilibrium caused by anomalies in the system's input, output and societal subsystems. The anomaly seems to be in university education system outputs as indicated by a survey conducted within 20 top South African firms, which point out a lack of practical skills and experience as a contributing factor influencing the growing unemployment rate of graduates (Development Policy Research Unit, 2006). This can be attributed to, amongst other things, supply and demand factors and the role they play in the knowledge economy. Inconsistency between supply and demand occurs when the supply of graduates increases faster than the demand for graduates, resulting in an increase in the equilibrium threshold level which may result in graduate unemployment (Kim, 2011).

This article seeks to provide theoretical insights into supply and demand factors within higher education and how these relate to each other and to graduate unemployment as a whole based on the human capital theory. Against this background the primary objective of the research reported in this article was to ascertain the current unemployment rate of graduates at a higher education institution. The secondary objective was to determine the mitigating influence of work-integrated learning (WIL) on graduate unemployment.

2. Supply and demand factors in the knowledge economy

Knowledge and skill endowment, rather than physical capital, determines the progress of a country's labour force – at an economic as well as a social level – and therefore the country's ability to compete in the world economy (Goujon, Lutz and Wazir, 2011). It has been increasingly argued that the economic performance of first world countries are directly related to their knowledge stock and learning capabilities (Bridgstock, 2009). The stock of individuals with skills and knowledge is referred to as human capital (Lutz, Goujon and Wils,

2008). Based on the human capital theory education and training have been reconceptualized as a primarily economic enabler and crucial for participation in the world economy (Bridgstock, 2009). In terms of the economy, education's main function is to increase the total factor productivity of a country inducing growth (Le Van, Nguyen, Nguyen and Luong, 2010).

The equilibrium growth rate of an economy is determined by both supply and demand factors affecting skilled labour (Kim, 2011). The human capital theory posits that the global expansion of higher education reflects the demand within a knowledge economy for advance levels of skills, creativity and innovation (Servage, 2009). Supply and demand indicates the relationship between a product's accessibility and desirability. Demand is estimated through occupational estimates of current employment while supply refers to the amount of products produced – in this instance the number of graduates. Inconsistency between the supply and demand factors influences the equilibrium threshold, thus causing an increase in the skill premium (Kim, 2011). The skill premium refers to the disparity between the income generated by skilled and unskilled employees. In other words the skill premium can also be seen as the market value of skills (Burstein and Vogel, 2010). When there is an increase in the supply of graduates, there is a concomitant increase in the skills requirements since the labour market becomes saturated with lower skilled employees which results in an elevation of the skill premium.

Oppedisano's (2011) research on the (adverse) effects of expanding higher education found that due to the expansion of the demand for higher education, new educational policies are adopted which increase the supply of graduates. An increase in the supply influence enrolment as well as dropout rates and academic performance which in turn have an influence on higher education institutions performance and indirectly affects graduates labour market outcomes. In a study conducted in Europe Núñez and Livanos (2010) indicated that over recent decades the number of graduates entering the labour market has increased. This rapid expansion produced graduates whose employment prospects are dubious, resulting in rising graduate unemployment.

In order to estimate demand a static higher education system and labour market – in which key variables do not alter over a period of at least five years – are required. For this reason the demand forecast is based on estimates (Cosser, 2010). Guile (2006: 364) is of the opinion that the knowledge economy has been 'under-theorized' resulting in higher education policies that reflect 'very little clarity … about what type of knowledge is required [demand] … [or]how it should be acquired'. Consequently Servage (2009) question whether increased

supply is indeed a response to consistent labour market demand. Against this backdrop, graduate unemployment can be seen as the result of an increase in the skilled labour supply while the demand for skilled labour has not increased accordingly.

Furthermore, based on the human capital theory knowledge stock can be measured by means of various approaches. Educational output indicators such as average years of schooling, dropout rates or educational spending are often used to proxy for human capital also referred to as the educational stock approach. On the other hand in macro-economics and finance labour income is used to estimate the value of human capital also known as the income-based approach (Chiappero-Martinetti and Sabadash, 2012; Di Giovanni and Matsumoto, 2011). Thus higher education and the private sector utilize different approached to measure human capital which might explain inconsistencies between supply and demand.

2.1 The South African context

Gordhan (2009), the then minister of finance, indicated in his 2009 budget speech that the South African government allocated close to R9 billion to public skills development programmes. In conjunction with this the Development Policy Research Unit of the University of Cape Town (2007) indicated that the participation rate in higher education has expanded exponentially by 356,000 graduates over the last decade. Educational output indicators such as educational spending and average years of schooling have increased indicative of growth from an educational stock approach. Consequently, economic growth occurred due to an increase in the supply of skilled labour (Kim, 2011). Simultaneously, graduate unemployment has increased by an estimated 50% between 1995 and 2005 (Development Policy Research Unit, 2007). It is estimated that there are nearly 600,000 unemployed higher education graduates in South Africa, while 829,800 vacancies remained unfilled due to skills shortages (Sharp, 2011). However research indicated that these skills shortages are most severe at the middle to senior management level and that the labour market indicated that the supply of graduates are sufficient and that demand did not increase as the human capital theory posits (Development Policy Research Unit, 2007). Graduate unemployment in this context would indicate an oversupply of graduates who do not possess critical skills required by the labour market at this time – indicating inconsistency between supply and demand factors affecting skilled labour.

The inconsistency was further complicated by the varying emphases placed on different economic sectors (Servage, 2009). Cosser (2010), reporting on forecasting estimates provided by the Human Science Research Council, indicated that the demand for Science and Technology and computer-related professionals was expected to be high. While the demand for professional employment in the public sector was expected to be weak. As a result the categories of educators, medical practitioners and nurses show little growth. Despite this the less required occupations such as educators have the largest number of new vacancies. Some of the Science and Technology occupations for which a high demand was forecast, had comparative few vacancies. The estimated Science and Technology, Business and Commerce, and Humanities demand ration was as follows: 36%, 23% and 41% respectively (Cosser, 2010). In an article in the *Sowetan* (10 January 2012) a labour market analyst indicated that the nearly 600,000 unemployed university graduates are mostly in the humanities and social science whereas the private sector has more than 800,000 vacancies in management, engineering, law, finance, accounting and medicine. Inconsistency between forecasted demand, supply and actual demand occurred.

The inconsistency between the supply of graduates and the demand caused an oversupply as well as an elevation of the skill premium. As a result of the current oversupply, commerce and industry can dictate and set exact requirements with regard to knowledge and skills (Armstrong, 2011). To address this matter government has incorporated a macro-political framework to ensure a more articulated relationship between higher education and industry (Akoojee, 2010). Higher education institutions comply with commerce and industry's requirements by means of WIL.

For the higher education sector to reach acceptable levels of competitiveness and to ensure relevance, it must keep abreast of employer market requirements and adjust curricula accordingly to ensure the effective development of human capital through training (Wessels & Jacobsz, 2010). Higher education institutions have incorporated the requirements of commerce and industry by means of a cooperative education strategy (Calmeyer et al., 2011). Within this cooperative education strategy, integration takes place between discipline-related theoretical concepts and actual workplace exposure (Rawjee and Ramlutchman, 2010). Actual workplace exposure (also referred to as WIL) can thus be seen as a way in which to bridge the gap between the theory of market orientation and the practice of implementation within the higher education sector. Matoti, Junqueira and Odora (2011: 1141) define WIL as 'the component of a learning programme

that focuses on the application of learning in an authentic learning work based context under the supervision of a person/s representing the workplace'. For the purpose of this article WIL can be seen as exposure to formal employment which is integrated within a learning programme. The goal is to enable students to combine theoretical knowledge gained through academic study, with practical knowledge-based information attained via engagement in a work or professional context (Billett, 2010). WIL is underpinned by the assumption that certain learning outcomes are best acquired by means of direct experience and reflection (Calmeyer et al., 2011). In most instances, as is the case with the higher education institution included in this study, the centre for cooperative education is responsible for linking students with industry to secure WIL opportunities which is a compulsory component of some formal education programmes within the higher education sector.

The application of WIL is not without stumbling blocks. A fine balance must be kept between meeting the demands of industry and higher education institutions' requirements for quality learning (Calmeyer et al., 2011). Some stumbling blocks are highlighted in the following section.

It is a cause for concern that any form of instruction can theoretically be seen as an experimental intervention where instruction takes place in isolation and in an artificial environment (Brown, 2010) in which contamination variables such as public accountability and responsibility, political realignment, changing demographics and intergroup conflict are taken out of the equation. Instruction for the most part focuses on a deconstructed theme since students do not necessarily have knowledge of all the contaminating variables that may influence a specific theme. In this context WIL represents the re-contextualized aspects of specialized knowledge (Bohloko, 2011). The outcome of case studies, which are essential to problem-based learning and work-directed theoretical learning, can therefore fluctuate when the contaminating variables are introduced. Although case studies and other simulations add value to the learning process, they do not necessarily signify work integration. Both Matoti et al. (2011) as well as Rawjee and Ramlutchman (2010) indicate that cooperative education with WIL as a component refers to an education strategy which integrates academic studies with work experience in participating employer organizations under supervision. In light of this definition of WIL, work-directed theoretical learning and problem-based learning, which according to Engel-Hills, Garraway, Jacobs, Volbrecht and Winberg (2010) are among the prototypes of WIL, cannot be seen as prototypes of WIL since these do not include work experience at an employer organization.

Furthermore, in light of the expectations of business and industry it can be said that it is required of higher education to produce a pseudo-organizational culture similar to organizations at large in order to stimulate the development of certain characteristics which business and industry perceive as crucial. However, higher education institutions have an intrinsic organizational culture of their own based on pedagogic practices and not on those of business and industry which are for the most part profit driven. In this regard Maassen (1996) has indicated that the culture aspect of higher education can be divided into the substantive activities of academics as well as their attitude and value towards their vocation and profession. Hence graduates are exposed to an academic culture instead of a global capitalist economic culture that thrives on competitiveness.

Additionally, globalization of markets – which refers to changes in the economy, employment trends, technological advancements, accelerated communication, cultural diversity and political restructuring (Badley, 2003) – forces organizations to face the daunting challenge of reacting to a rapidly changing external environment. The ability to adapt in response to these exogenous factors is crucial to the survival of organizations at large (Stice, 2011). Against this backdrop the private sector expects graduates to be workplace ready (Brown, 2010) even though many companies do not wish to invest in training, or are concerned that other organizations will poach staff once they have trained them, the result being lost commodities like time and resources. Research done by Lewis, Holtzhausen and Taylor (2010) has indicated that participating employer organizations indicated the time needed by employers to get students 'operational' as a disadvantage of WIL programmes. In conjunction with this the management aspects and demands on the time of already stretched supervisors are highlighted.

It should also be taken in to consideration that WIL tends to be better integrated with qualifications in professions that are regulated by accreditations of governing bodies, who oversee both the formal curricula and competence levels of the graduates (Bohloko, 2011). Lam (2010), conversely, is of the opinion that certain factors determine the quality of the WIL programme. Factors that influence WIL quality include the business environment, the nature of the work-placement learning, working area, organizational size, pre-training programmes, the student's attitude, and the employer's leadership style. Quality insurance with regard to WIL is crucial to ensure that the objectives of the WIL programme are reached and to guarantee that students obtain certain competencies. Du Plessis (2010) concurs that WIL needs to be supervised at all stages of implementation to ensure that the set objectives materialize. The question

arises as to how WIL can be implemented in courses that do not prepare graduates for a specific profession, like management sciences or social sciences.

From a higher educational perspective, stumbling blocks with reference to WIL include amongst other pressure to increase the participation rate in higher education in spite of the limited number of practicum positions available (Lewis et al., 2010). The legal implication of WIL for higher education institutions and individual departments is also a contentious matter. According to the Higher Education Qualification Framework (HEQF) (South Africa. Department of Education, 2007: 7): 'it is the responsibility of institutions, which offer programmes requiring WIL credits to place students into WIL programmes'. The question that might arise based on this statement is whether the failure to comply with the HEQF statement would result in a breach of legal duty, and whether students could litigate in terms of the mentioned breach (Lewis et al., 2010).

All of the above-mentioned aspects exacerbate the disparity between supply and demand of graduates. In spite of a rhetoric of optimism, a bleak consensus on the positive outcomes of WIL is upheld. Student preparation for and placement in careers has been praised as a noble idea, with little empirical evidence of its success (Beach, 2009). Based on the previous discussion this study proposed to investigate the influence of WIL on graduate unemployment.

3. Methodology

The research design that was utilized can be classified as a descriptive quantitative design as it aimed to examine and portray graduate unemployment as well as WIL and the influence thereof at a higher education institution by means of statistical analysis. The main goal in a descriptive study is to describe as accurately as possible what is occurring within a particular population at a specific point in time (Salkind, 2012). Questionnaires were administered to all the graduates before the graduation ceremony held in April 2011. This procedure is carried out annually for the Institutional Planning Unit of the higher education institution to determine certain institutional outcomes. The institution under discussion is a university of technology. A random sample was drawn from the population of graduates graduating in 2011 since questionnaires were only distributed during the first graduation ceremony in April (the second graduation ceremony takes place in September). The sample consisted of 1350 (n = 1350) graduates from the main campus as well as satellite campuses. The sample included National Diploma diplomats, bachelor's degree and post graduate studies graduates. The racial distribution of the higher education

institution is skewed with 80% of the students being black African. The sample represented the population.

Owing to the descriptive nature of the study, descriptive statistical analysis was utilized. The statistical analysis was conducted and interpreted by the higher education institution, and was provided to the researcher on request. Ethical guidelines that were taken into consideration included informed consent. Questionnaires were distributed on the allocated chairs prior to the commencement of the graduation ceremony. Respondents were informed of the aim and the purpose of the questionnaire during the ceremony at which time they were requested to complete the questionnaires voluntary. Participants were assured of anonymity and associated confidentiality. No physical or psychological harm was imposed on respondents as a result of participation (Salkind, 2012).

4. Results

The primary goal of the research on which this article is based was to ascertain the current unemployment rate of graduates at a higher education institution and secondarily to determine the influence of WIL on graduate unemployment. Table 1 provides a short summary of the 2011 graduate unemployment rate at a certain South African higher education institution.

As indicated in Table 1, 46% (n = 618) of graduates were unemployed at the time of the graduation ceremony. Of this percentage of unemployed graduates the majority, namely 73% (n = 454), completed courses where poor or no WIL were present, while only 26% of graduates who had completed WIL courses were unemployed. Furthermore, the unemployment rate for courses with no or poor WIL was 63% while the unemployment rate decreased to 26% when WIL was factored in. Table 2 provides an in-depth look at the degree of integration and the influence thereof on graduate unemployment.

TABLE 1: Summary of the influence of WIL on graduate unemployment.

WIL status	Number of graduates	Unemployed graduates	Unemployment rate (%)
No or poor WIL	724	454	63
Integrated or fully-integrated WIL	626	164	26
Total	**1350**	**618**	**46**

TABLE 2: Degree of WIL integration and the influence thereof on graduate unemployment.

Degree of integration	N	Unemployment rate (%)
Fully-integrated WIL	347	25
WIL integrated but could be improved	110	30
Some WIL or simulation	321	68
No WIL	403	59
WIL completed on National Diploma level	169	27
Total	**1350**	**46**

The following must be taken into consideration when interpreting Table 2:

- Fully-integrated WIL refers to work placement for a year period at an employer organization.
- WIL integration but could be improved include work placement for a short duration at an employer organization (project placement) as well as on the job training on campus.
- Some WIL or simulation include case studies and work related simulations.
- No WIL refers to programmes that only include theoretical learning activities.

Table 2 indicates that the largest percentage of unemployed graduates (n = 218, 68%) had had some WIL or theoretical work-related simulation present during their course, followed by graduates who had completed courses with no WIL (n = 236, 59%). Table II also indicates that 25% of graduates who had completed courses with fully integrated WIL were unemployed. Note that this category had the lowest percentage of unemployment, followed by graduates who had completed WIL on a National Diploma level (n = 45, 27%). Lastly, 30% of unemployed graduates indicated that although their courses had integrated WIL it could be improved.

5. Discussion

This research study investigated the current unemployment rate of graduates as well as the influence of WIL on graduate unemployment which indicated that the unemployment rate was 46% at the time of the graduation ceremony in 2011. The unemployment rate for graduates from courses with no or poor WIL was 63%, while the unemployment rate for those whose courses had fully integrated WIL decreased to 26%. There seems to be an indication to underscore the assumption

that WIL decreases graduate unemployment despite a bleak consensus on the positive outcomes of vocational education (Beach, 2009).

Furthermore, the results also indicated that graduates who had completed courses that integrated some WIL or provided a measure of theoretical WIL-related simulation had an unemployment rate of 68% while students who had completed courses with no WIL had an unemployment rate of 59%. The degree and prototype of WIL also seem to influence graduate unemployment.

National Diploma diplomats tended to have higher unemployment rates than graduates who completed their bachelor's degrees or postgraduate studies. This research finding supports Naong's (2011) finding that a large number of university of technology diplomats are unemployed. This can be an indication that graduate unemployment could possibly be attributed to an increase in the supply of skilled employees and a decrease in demand for the skilled resulting in the elevation of the skill premium.

6. Conclusion

Many constituencies including government, industry spokespersons, university administration and students, consider graduate unemployment to be problematic, attributing this phenomenon to inadequacy of the national education and training systems. In contrast to this perspective, the aim of this article was to provide an alternative perspective based on the human capital theory on graduate unemployment which attributes the previously mentioned issue to supply and demand factors within the knowledge economy.

This research proposed to investigate graduate unemployment and determine the effectiveness of higher education's attempts to meet the demands of commerce and industry. The findings suggest that diplomats/graduates from the specific higher education institution who have experienced WIL are more likely to be employed soon after achieving their qualification. This is a potentially valuable contribution to policy and practice in higher education.

Notes on Contributors

Dr Petronella Jonck is currently the Deputy Director of Research and Policy Development for the Department of Community Safety, Gauteng Provincial Government. Prior to this Dr. Jonck was a post-doctoral research fellow in the faculty of Management Sciences at the Central University of Technology, Free State from 2011 to April 2014. She completed her PhD in Psychology in 2010

at the University of the Free State and was one of the top 15% of academic achievers. Additionally, she has an honours degree in Industrial Psychology and has completed several subjects for a B.Com degree in Accounting. Her scholarly interests are interdisciplinary in nature subsuming human capital formation, socio-economic development and crime. Dr. Jonck's research outputs to date include 4 published papers in accredited journals, 5 articles accepted for publication in 2014 and several in the review process.

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