

*Full Length Research Paper*

# Status of quality supervision of postgraduate research and its influence on the rate of economic growth: A case of universities in Kenya

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This study sought to find out the quality processes in supervision of postgraduate student's research in public and private universities in Kenya. The researcher sought to establish the influence of quality research supervisory practices on economic growth. Data was gathered through a questionnaire using a sample of 381 randomly selected postgraduate students and 66 coordinators of postgraduate studies. Descriptive statistics were used to summarize data, while multiple regressions were used to test hypothesis. All calculations were done at confidence level of 0.7 and alpha level of 0.05. The study results indicate that the strongest predictor of the rate of economic growth was supervision training ( $R^2 = 0.309$ ), followed by supervision model ( $R^2 = 0.622$ ), use of mentorship model (0.425) and finally the use of supervision schedules ( $R^2 = 0.755$ ). In the stepwise regression analysis, the beta coefficients for the predicted model shows that supervision training has highest impact ( $b=0.272$ ), next was supervision monitoring ( $b = 0.210$ ) followed by use of mentorship model with ( $b=0.172$ ) while use of supervision schedules had least effect ( $b = 0.067$ ) on the rate of economic growth. Implications and recommendations are included in the study.

**Key words:** Postgraduate research, supervision, quality, economic growth.

## INTRODUCTION

Research supervision is a process of fostering and enhancing learning, research and communication at the highest level (Laske and Zuber-Skerritt, 1996). Connell (1985) maintained that research supervision is the most advanced level of teaching in the educational system. The supervisory process is crucial to the success of graduate students. Effective supervision of research degree candidates is a complex multi-factorial process that encompasses issues at all levels from that of individual students and supervisors, to available infrastructural support, to institutional and governmental policies, structures and procedures (Rodwell and Neumann, 2008; Bourke et al., 2004; Seagram et al., 1998; Wright and Cochrane, 2000; Gasson and Reyes, 2004; Acker et al., 1994; Latona and Browne, 2001; Pearson and Brew, 2002).

Various research supervision practices have been adopted in some top world universities (Oxford, Yale,

Harvard, Cambridge, Massachusetts Institute of Technology); such include supervision training, research schedules, monitoring of supervision, and adoption of top notch styles such as mentorship model, provision of cutting edge infrastructure and cultivation of intellectual climate. This study focuses on the first four aspects since the last two are relatively common denominators in Kenyan universities.

The roles and functions of research supervision are multiple and vary in the perception of its different stakeholders. In the view of students, the ideal supervision helps them to achieve a scientific, professional or personal goal, and to learn about research and how to conduct research against the quality standards of the system. In the view of supervisors, their supervision should be able to contribute to the advancement of scientific knowledge through creating effective learning/research situations and entail

opportunities for supervisors to conduct research projects with students which may contribute to economic growth.

In response, this study looks into relations and contributions of quality research supervision towards economic growth. It has been argued that high levels of education are essential for countries to be able to achieve high levels of economic growth and innovation (Hanushek and Woessmann, 2007; Franz, 2016). Recent studies of the determinants of aggregate economic growth have stressed the importance of fundamental economic institutions and the role of cognitive skills (Heiner, 2009). Hanushek and Woessmann (2010) also consider cognitive skills as a proxy for education quality and hypothesizes that without capacity, there is no development.

### Statement of the Problem

It has been observed in Kenya that postgraduate students take longer time in research and a conspicuous movement from one university to another in search for effective supervision.

There is outcry from government and non-government sector that university education is not addressing societal and economic needs of the nation. Worse still, the education landscape has changed whereby higher education has become dominated by a market driven consumerism and increased pressure on supervisors to ensure that graduate students finish on time hence threatening the quality of supervision. It is in this view that the researcher will endeavor to study the aspect of quality supervision of postgraduate research in Kenyan universities and its influence on the rate of economic growth.

### Gap analysis

Scholars seem to agree that effective management of research and effective development of human capacity are crucial anecdotes of economic growth and poverty reduction. Although much of the literature on graduate education and supervision has focused on the impact of student variables (e.g. age, gender, and national and linguistic backgrounds) on the PhD experience for students; Cullen et al. (1994) found that the demographics of the supervisor population (e.g. age, gender, graduate education background and teaching responsibilities) had a significant effect on how they conduct supervision. Lee in 2008 conceptualized a combination of research supervisory models while Pearson and Brew in 2002 focused on research training and supervision development. However, record is not evidenced research directly relating quality supervision and its impact on specific national economic variables. Thus, this study isolates the quality of research supervision and tests its influence on rate of economic growth in Kenyas' higher education sector.

### Purpose of the study

This research will attempt to find out if there is quality supervision of postgraduate research in Kenyan universities; In addition, the research will endeavor to find out if quality of research supervision has had a significant influence on rate of economic growth.

Specific objectives of this study included: The following study objectives will be addressed:

- To find out the set mechanisms for supervision of post graduate research in Kenyan Universities?
- To find out if there is formal training for supervisors in Kenyan universities?
- To examine if there is national assessment of quality postgraduate research supervision?
- To determine if there is a statistically significant influence between the supervisor training and the rate of economic growth in Kenya?
- To assess if there is a statistically significant influence between use of formal time schedules, and the rate of economic growth in Kenya?
- To find out if there is a statistically significant influence between use of mentorship supervision model and the rate of economic growth in Kenya?
- To find out if there is a statistically significant influence between formal monitoring of supervision and the rate of economic growth in Kenya?

### LITERATURE REVIEW

#### Theoretical review

This study was informed by, self-efficacy theory, Wormell model. Self-efficacy theory by Albert Bandura in 1977, explains a person's self confidence in his or her ability to perform a particular task. It is positively related to performance as a person of high self-efficacy is likely to perform jobs assigned to him better than a person of weak self-efficacy. It is imperative to have, staff training in research supervision in academic institutions. This idea is likely to increase supervisor self-efficacy in handling research in the emerging economic environment.

Wormell model explains the level of collaboration that should exist between the different players in learning organizations (Wormell, 1998). It is therefore crucial that, all the key players in an institution that is staff (user), management (sponsor of training programmes), programme designers (architect) and the trainers come together to develop programmes that will improve skills in research supervision. Such collaboration will ensure proper needs assessment is done to improve their performance.

Theory of Reasoned Action developed by Icek Ajzen and Martin Fishbein in 1975 postulates that an individual's action is dependent on the perceived

outcome of the action, it is important that, a form of reinforcement be attached to the display of quality supervision and acquisition of quality research outcome. Such reinforcement may encompass promotional rewards, or Job enrichment, and connection with industry for funding to actualize practical research outcomes.

## EMPIRICAL REVIEW AND HYPOTHESIS DEVELOPMENT

Grant (1999) indicates that supervision is a complex process that requires both situational awareness and a flexible posture, neatly captures this teetering complexity through the vivid metaphor of supervision as a process of "walking on a rickety bridge". Consequently, it is implied that Quality supervision of research is a complex multi-factorial process that encompasses issues at all levels from that of individual students and supervisors, to available infrastructural support, to institutional and governmental policies, structures and procedures. Existing literature focuses primarily on research that evaluates and models the factors that influence the quality of relationship between the student and the supervisor. According to Pearson and Brew 2002, four models of supervision emerge: functional, critical thinking, enculturation and mentoring.

In a broader perspective, studies have been carried out to relate the general education output with economic growth variables. Empirical evidence clearly supports the assertion that the human capital embodied in higher education strengthens economic growth prospects. Holmes (2013), using a sample that pools countries across different levels of development, finds a significant relationship between secondary education and GDP growth, but not between tertiary education and growth. Keller (2006) identifies a positive relationship between enrolment in tertiary education rates and economic growth, while Hanushek and Woessmann (2010) find that the role of tertiary schooling in OECD countries increased after controlling for cognitive skills, based on educational attainment tests at the primary and secondary levels of schooling.

A number of studies in European countries have supported the US evidence of a positive relationship between workforce education or skills and the adoption of new technologies. Examples include firms in Spain (Bayo-Moriones and Lera-López, 2007), Switzerland (Hollenstein, 2004), Portugal (Barbosa and Faria, 2008) and Ireland (Haller and Siedschlag, 2008). The principal mechanisms involved are that high skilled workers can contribute more than low skilled workers to the selection, installation, operation and maintenance of Information Communication Technology and also to the adaptation of Information Communication Technology to firm-specific requirements. Martins and Pereira (2004) analyses the returns to education at the first and ninth deciles using micro-data for 16 developed countries during the mid-

1990s. They provide evidence of a common pattern for most of the countries, in that the returns to education are higher at higher points of the conditional wages by those exiting higher education.

Using comparable micro-data for 28 countries from 1985 to 1995, Trostel et al (2002) estimate the rate of return and find considerable variation in rates of return across countries. They document that the highest returns to education are found in countries with incomes that are relatively high (USA and Japan) and relatively low (Philippines), as well as in-between (Northern Ireland, GB, Slovenia and Poland). Moreover, they provide evidence that the rate of return declines with average educational attainment, per capita income, and relative spending on education.

Freeman and Soete (1997) describe the growth process over the last two centuries as a sequence of product innovation cycles where new products are developed, followed by process innovation cycles where those products are improved. Recent product innovations have been closely linked to university level research and innovation.

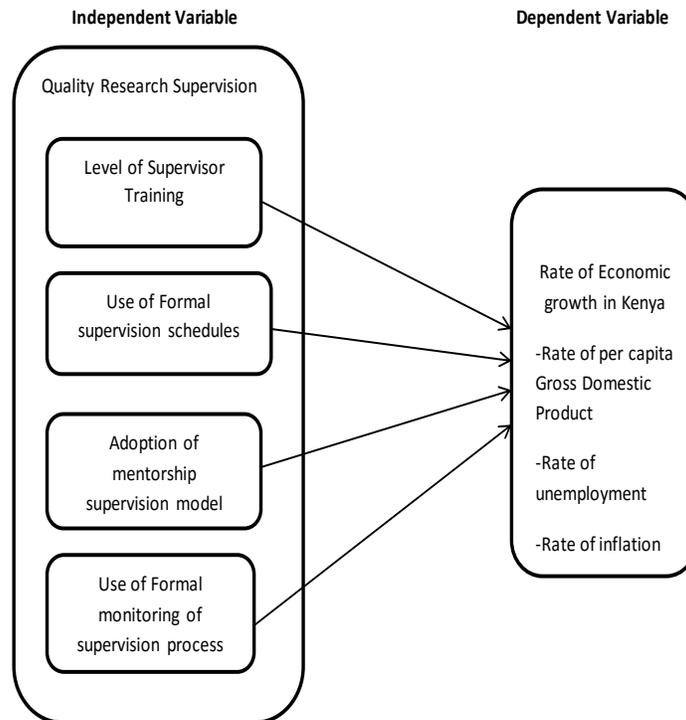
In brief most studies focusing on higher education which includes teaching and research register positive and significant relationship with economic growth variables. This study isolates a specific aspect of education research (quality supervision) and measures its interaction with perceived rate of economic growth; an area which has scantily been researched. Against this discussion the study formulates a null Hypothesis that: There is no statistically significant influence of quality research supervision on economic growth in Kenya.

Specific Hypothesis developed to test this assertion includes:

- HO<sub>1</sub>: There is no statistically significant influence between the quality of research supervision and the rate of economic growth in Kenya
- HO<sub>2</sub>: There is no statistically significant influence between the quality of research supervision and the rate of economic growth in Kenya
- HO<sub>3</sub>: There is no statistically significant influence between the use of mentorship supervision model and the rate of economic growth in Kenya
- HO<sub>4</sub>: There is no statistically significant influence between the quality of research supervision and the rate of economic growth in Kenya

## Conceptual framework

The framework depicting the anticipated interaction of study variables is illustrated in Figure 1. This interaction is informed by theoretical reviews that quality research supervision yields quality research which has a positive influence on the rate of economic growth. This is based on assertion that quality research meets the objectives of solving real life problems.



**Figure 1.** Influence of quality research supervision on the rate of economic growth in Kenya.

## MATERIALS AND METHODS

The study adopted a descriptive survey and cross sectional research design since it sought for opinions and ideas at a point in time. Kothari (2008) states that the descriptive studies may include present facts, existing conditions concerning the nature of persons, a number of class of events and may entail procedures of enumeration, induction analysis, classification, details and measurement. This study sought opinions on prevailing situation of research supervision. The target population was all postgraduate students in accredited universities.

The total sample of respondents used in this study was (447) composed of (381) postgraduate students, and 66 coordinators of postgraduate studies. The sampling technique adopted was random and purposive; random because the respondents included any university postgraduate student and purposive, because the study also included postgraduate coordinators. The questionnaire was divided into (2) major sections: Section A measured the background information of the respondents. Section B measured the existence of study variables using a five point likert scale. The items' reliability coefficient (Cronbach alpha) was acceptable at 0.70. Expert opinion was sought from scholars who confirmed the content validity of the measures used, while the pilot study results confirmed their predictive

validity.

## Data analysis

Data cleaning was done and analyzed using SPSS software. The first step was to summarize data using frequencies and percentages. Secondly, the hypothesis testing was done using multiple regression analysis where beta coefficients were used to check for effects between dependent and independent variables.

## Operationalization of study variables

In this study the variables were operationalized as in Table 1.

## RESULTS AND DISCUSSION

Study results, from the background statistics of the 381 postgraduate students, 75% were master's students while 25% were PhD students. Regarding the stage or year of study, 70% of master's students were in their second year of study working on their research, while 20% of the PhD students were also working on their proposals and thesis. Therefore, most the respondents used in the study had a feel of the research supervision process.

In order to address the first objective on whether there

**Table 1.** Variable operationalization.

Independent Variables	Instrument	Data analysis method
Level of supervisor training	Five point likert scale	Multiple regression
Formal supervision time schedules	Five point likert scale	
Adoption of mentorship model	Five point likert scale	
Use of formal monitoring of supervision process	Five point likert scale	

were set mechanisms for supervision of postgraduate research at the universities, student responses showed that only 5% could be termed as excellent, 30% as good and 65% as poor. This infers that most postgraduate students had negative experiences that made them judge the universities as having poor supervision mechanisms.

The research coordinators were also asked if they had formal research training on supervision at their universities; in response 60% reported that there was no formal supervision training ("to no extent"), 25% reporting there was training ("to some extent"), while only 15% indicated existence of training ("to large extent"). This information clearly shows that most universities have not established formal supervision training for supervisors. This scenario is likely to influence the quality of supervision and in effect the quality of research outcome.

In the study, the question of whether there was National Assessment of quality of research supervision was raised. In response, research coordinators (45%) reported they were "not at all aware", 35% were aware "to some extent" while 20% were fully aware of existence of such assessment. In deed these findings show that National bodies in charge of quality research should also focus on quality research supervision.

### Hypothesis testing

Multiple regression analysis shows that the independent variables (supervision training, supervision schedules, supervision monitoring and use of mentorship model) were significant predictors Information Communication Technology (ICT) of the dependent variable (rate of economic growth). The R square adjusted was 74%. Based on ANOVA reading, the model was significant at 0.05 at three degrees of freedom. This also implies that there are other factors that explain the remaining 26% of the Model.

In order to test for effect of each independent variable on the dependent variable, a stepwise regression analysis was run. Results indicate that the strongest predictor Information Communication Technology (ICT) of the rate of economic growth was supervision training ( $R^2 = 0.309$ ), followed by supervision monitoring ( $R^2 = 0.622$ ), use of mentorship model (0.425) and finally the use of supervision schedules ( $R^2 = 0.755$ ). In the stepwise regression analysis, the beta coefficients for the predicted

Information and Communication Technology (ICT) model shows that supervision training has highest impact ( $b=0.272$ ) at 0.05 precision level. The next was supervision monitoring ( $b = 0.210$ ) at 0.05 precision level. Use of mentorship model followed with ( $b=0.172$ ) while use of supervision schedules had least effect ( $b = 0.067$ ) on the rate of economic growth at 0.05 precision level.

These study results show that the four null hypotheses that there is no significant influence of quality research supervision on rate of economic growth are rejected. Thus each of the study hypotheses indicates that there is a significant effect of quality research supervision on the rate of economic growth in Kenya. These findings concur with previous empirical studies with the assertion that the human capital embodied in higher education strengthens economic growth prospects (Holmes, 2013; Keller, 2006) identifies a positive relationship between enrolment in tertiary education rates and economic growth, while Hanushek and Woessmann (2010) find that the role of tertiary schooling in Organisation for Economic Co-operation and Development (OECD) countries increased after controlling for cognitive skills, based on educational attainment tests at the primary and secondary and higher levels of schooling. Martins and Pereira (2004) provide evidence the returns to education are higher at higher points of the conditional wages by those exiting higher education. Freeman and Soete (1997) describe the economic growth process over the last two centuries as a sequence of product innovation cycles where the recent product innovations have been closely linked to university level research and innovation.

The viewpoints of self-efficacy theory, Wormell model, Technology Acceptance Model (TAM) and Theory of Reasoned Action (TRA) as discussed earlier, are also affirmed by these findings, Thus training of supervisors will improve self-efficacy due to perceived acquired competence while involvement of university managers and larger research fraternity in acknowledging quality research output will lead to increased effort in this direction. This trend would increase impact of higher education on economic growth rate, a desired role that has been for ages.

### CONCLUSION AND RECOMMENDATION

The study had seven objectives; from which the first three, exploratory information was solicited while from the

remaining four, hypothesis were formulated. From the findings, supervision training has the highest impact on economic growth rate which logically makes sense in that well trained supervisors are likely to guide students into production of quality research and thereof resolve issues that positively impact on economic growth. The second hypothesis on quality supervision monitoring had also a significant effect on economic growth rate an activity that should be revamped for better research outcome. Adoption of mentorship approach and supervision schedules had least influence on the model; however the effects were statistically significant. This study acknowledges that there are possibly other factors that may need further research.

### IMPLICATIONS FOR POLICY AND PRACTICE

Implications for policy and practice point towards training of research supervisors in a formal way which necessitates a need for a training module to this end. This informs university managers and research coordinators to embrace this good practice. The findings also inform Commission for University Education (CUE) and other research Bodies to take keen interest in monitoring of the supervision process making it part of quality assessment policy. The whole fraternity of faculty and research supervisors is invited to adopt the mentorship supervision model with clear supervision time schedules.

### RECOMMENDATIONS

Further research may consider testing for causal effect relationships between variables. And more importantly work out an econometric model for measuring economic growth inputs and outputs on education system; and as such inputs towards quality research supervision.

### LIMITATIONS OF THE STUDY

This study brings forth important findings that may improve research supervision practice; however, it had assumptions that relied on social truth construction which could have bias. Additionally, there was no scientific control over all other variables that may influence the relationship between the independent variable and dependent variables.

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