ORGANIZATIONAL EFFICIENCY: A REVIEW OF THE LITERATURE

ALLY RAMATHAN KIBIRIGE
Makerere University Business School
arkibirige@gmail.com

TWAHA KAAWAASE
Makerere University Business School
twaha@accamail.com

STELLA A. EDUAN
College of Education and External Studies, Makerere University
seduan@makdos.mak.ac.ug
AND
MUHEREZA T.FRANKLIN
College of Economics and Management Studies, Kampala International University
muherezaf@yahoo.com

Abstract
Organisations are competing to survive and thrive in an increasingly volatile and fierce market environment. Organisational efficiency is an essential tool for the success of these organisations because it helps organisations in many ways. It facilitates comparisons across similar units and reveals variations in performance, thereby highlighting the factors necessary for improvement. Therefore, periodic appraisal of writings understanding that this review discusses operationalization and theorisation on the concept of organisational efficiency. In addition, the paper addresses the importance of the concept as well as attempts at predicting it before highlighting gaps in literature on the same.

Key words: Organisational Efficiency, Allocative Efficiency, Technical Efficiency, Dynamic Efficiency and Productive efficiency.

The Concept of Organizational Efficiency

In order to understand the concept of organizational efficiency, it is important to comprehend the concept of efficiency in general, first. In the Australian Government Productivity Commission (2013) research report, the concept of efficiency was theorised as having three dimensions namely productive, allocative and dynamic efficiency. The Commission defines productive efficiency as one where goods and services are produced at the lowest possible cost. Productive efficiency incorporates technical efficiency conceptualised as the extent to which it is technically feasible to reduce any input without decreasing the output, and without increasing any other input. Allocative efficiency (AE) is about ensuring that the community gets the greatest return (utility) from its scarce resources. The Commission also defines Dynamic efficiency as the allocation of resources over time, including allocations designed to improve economic efficiency and to generate more resources. Daraio and Simar (2007) defined efficiency as the ratio

between the quantity of input and output. They continued that efficiency is the quantity of input and output that defines the best possible outcome of a firm in its industry. Daraio and Simar's definition of efficiency clearly points to efficiency of an organization hence the concept organizational efficiency.

Farrell (1957) in his study regarding measurement of productive efficiency in firms, defined efficiency of a firm as the success of an organization or firm in producing as large as possible an output from a given set of inputs. The researcher further proposes that firm or an organization to be efficient, it must have both technical and allocative (price) efficiency. The researcher's view of technical efficiency means the success of an organization in producing maximum output while allocative efficiency is the success of the firm in choosing an optimal set of inputs. In reference to Farrell, if additional firms are introduced to the existing firm they may reduce, but cannot increase the technical efficiency. Technical efficiency is therefore defined in relation to a given set of firms, in respect of a given set of factors measured in a specific way, and any change in these specifications will automatically affect the measure. Allocative or price efficiency of a firm will also depend on the measurement of inputs (introduction of new firms) according to Farrell,

Hussey et al (2008) propose that efficiency of an organization is a combination of the perspective, output and input of an organization. The reviewers indicated perspective to include the individual evaluating the efficiency, the entity and their objectives. In terms of output, they referred to the type of product being evaluated and inputs referred to contributions, involvement or ideas to produce the output. The first measure, which is on perspective requires a clear identification of the entity that is evaluating efficiency, the entity being evaluated and the rationale for the assessment. The second measurement (output) identifies the outcome of interest depending on the organization. Lastly, the inputs refer to what can be used to produce the output.

These could be physical or financial inputs. Irsova and Havranek (2010), in their study of bank efficiency, deal with three types of efficiencies namely technical, profit and cost efficiency. They defined technical efficiency as an ability of the decision of the making unit to acquire maximum output with a given set of inputs. Profit efficiency is conceptualized as how much in terms of percentage profits, the bank earns, whereas cost efficiency refers to how much in terms of costs does the bank save or not wasted. Kalirajan and Shand (1999) also suggest that efficiency of an organization is made up of two components; technical and allocative efficiency. Technical efficiency is defined as the capacity and willingness of an economic unit to produce the maximum possible output from a given bundle of inputs and technology. The latter concept defined as the ability and willingness of an economic unit to equate its specific marginal value product with its marginal cost. Mokhtar, Alhabashi and Abdullah (2006), in their survey of banking efficiency, contend that efficiency refers to the comparison between the outputs and inputs used in the process of producing a product or service. The researchers further propose that the concept of efficiency for them, technical efficiency is the firm's ability to obtain maximal output from a given set of inputs while allocative efficiency means the firm's ability to use inputs in optimal proportions, given their respective prices and production technology.

Importance of Organizational Efficiency

Organizational efficiency is a crucial key performance area in today's economic management systems. In the Australian Productivity Commission Report (2013), it was noted that, improving economic efficiency involves reducing costs of production per unit of output, matching the supply of goods and services to those most desired individuals. This will help organizations to improve on investments since the costs of production will be low leading to removal of barriers to investment, innovations and flexibility can be attained. In addition, the community will benefit because of favorable economic policies which lowers the cost of living hence improving the standard of living. Bravo-Ureta, Solís., López, Maripani, Thiam, and Rivas (2007**)** state that, productivity growth can be disintegrated into technological change (TC) and TE, yet TE isthe relative measure of managerial ability for a given technology. This means that TE helps management in decision making, which helps in growth and prosperity of firms. Dairo and Simar (2007) suggest that, allocative efficiency measures a firm's success in choosing an optimal set of inputs with a given set of input prices while technical efficiency is associated with firm's success in producing maximum output from a given set of inputs. This means will be important to an organization because a firm will enjoy production at the minimal cost and the community will benefit on the low price of commodities. According to Farrell (1957), efficiency broadly measures the extent to which an industry keeps up with the performance of its own best practice firms: it is a measure at the industry level, of the extent to which its firms are of optimum size.

Hussey et al (2008) comment that organization efficiency is likely to be used increasingly in public programs. They refer to the statement, which President Bush issued, as an executive order in 2006 stipulating that federal health care programs promote quality, efficiency and increase in transparency of relevant information for consumers. This made the Medicare Payment Advisory Commission to advocate for the use of organizational efficiency to improve value in Medicare programs. With a bias towards banks, Irsova and Havranek (2010) suggest that the importance of efficiency in a bank is related to the substantial impact that an efficient banking system has on the micro and macro economies of the country.

Mokhtar, Alhabshi and Abdullah (2006) in their findings on banks, they found out that organizational efficiency could lead to improved financial products and services, a higher shareholder value and volume of funds. The scholars projected that, funds if well channeled into productive investments lead to economic growth. Siudek (2008) proposed that organizational efficiency is identified with productivity. According to researcher finding towards banks, increase in productivity of work is owed to the saving of the work and to the invention of a great number of machines. This shortens labour and leads to one person doing work of the many. Tang (1997) in a critical review on efficiency of the private sector, suggested that organizational efficiency can economically appropriate allocation of resources. From the statement, Tang related inputs to outputs allowing the influence of factors outside the control of activities. This meant that private and public enterprises should maintain a substantial presence in their respective areas of strength (comparative advantage) and in the long run, organizational efficiency, which leads to increased competition and just in time (JIT) operations and quality products. Thiam, Bravo-Ureta and Rivas (2001) in their meta regression analysis on technical efficiency in

a developing country agriculture suggest that technical efficiency is crucial in guiding policy decisions. This was underlined in areas dealing with farm extension and training programs among others. This in overall, will help policy makers in evaluating the effectiveness in the implementation of the policies which leads to prosperity for all.

Theoretical Framework on Organizational Efficiency

Some theories like Agency Theory, stewardship theory and stakeholder theory can be used to explain the concept of organisational efficiency. Meckling (1976) suggests that a principal chooses to contract an agent for reasons of cost and expertise. However, due to lack of information on the side of the principal, opportunism and moral hazard or post-contractual opportunism may occur. Therefore, the principal and agent have to agree on the terms of the contract (Eisenhardt, 1989). These may be inputs, processes, outcomes, quality and satisfaction parameters, monitoring and performance-reporting requirements. The contract may also include conditions on how the agent is to be compensated for doing the work of the principal and the sanctions that will result if the principal detects the agent pursuing his/ her own goals above the principal's control mechanisms are put in place. Basing on AT, it is reasonable to suggest that, if internal controls are put in place, they can reduce fraudulent intentions of the agents and hence efficiency of the organisation in question.

Stewardship Theory, Freeman (1984) holds that, there is no conflict between the interests of managers and owners, and that the goal of governance is, precisely, to find the mechanisms and structure that facilitate the most effective coordination between the two parties. The theory further contends that there is no inherent problem of executive control, meaning that, organisational managers tend to be nonthreatening to owners in their actions (Donaldson, 2008). Therefore, a manager is not motivated by individual goals, but rather is a steward whose motives are aligned with the objectives of the principal (Slyke, Shim, Johnson & Jiang, 2006). ST indicates that a manager is motivated by a range of non-financial motives such as the need for achievement and recognition, the intrinsic satisfaction of successful performance, respect for authority and the work ethic (Muth & Donaldson, 1998). From ST, it emerges that if certain job motivational factors are put in place, a manager will work in the interests of shareholders thus promoting efficiency of the organisation. Stakeholder Theory (StT) suggests that the goal of any organisation is its own flourishing and the flourishing of entire proprietors. Therefore, managing for stakeholders involves attention to more than simply maximizing shareholder's wealth but also interests and wellbeing of those who can assist or hinder the achievement of the organisation's objectives. Thus, the job of a manager is to work on the interests of customers, suppliers, communities (Sundin, Granlund & Brown, 2010). StT proposes that in order to achieve efficiency of an organisation, role participation, consultation and decision making of stakeholders is important (Nwanji & Howell, 2004).

Literature Reviews on Organizational Efficiency

Several scholars (e.g. Bravo-Ureta, Solís, Lopez, Maripani, Thiam, & Rivas, 2007; Hussey, de Vries, Romley, Wang, Chen, Shekelle & McGlynn, 2009; Irsova & Havranek, 2010; Kolawole, 2009; Mareth, Scavarda & Oliveira, 2017; Tang, 1997; Thiam, Bravo-Ureta & Rivas, 2001) have reviewed literature on organizational efficiency for different organisations. For example, Bravo-Ureta et al. (2007) carried out

a meta regression analysis on studies of technical efficiency of 167 farms, from developed and developing countries. The farms were from Asia, Africa, Latin America, North America and Eastern Europe. The researcher used common technological representation and frontier models, based on cross sectional data. Bravo et al. (2007) solicited the studies they analyzed using data bases from: Agricola; Agris International; Ingenta; Science Direct; Social Science Citation Index; and the world Agricultural Economics and Rural Sociology Abstracts. In addition, they performed a complementary search in the following Journals (J); Agricultural (Ag.) and Resource Economics (Econ), Reviews; American J. of Ag. Econ; Australian J. of Ag. Econ; Canadian J. of Ag. Econ; European J. of Operational Research. Their literature search yielded 167 published papers, for the period between January 1979 and June 2005. Their findings showed that on average, studies for animal production had a higher mean technical efficiency (MTE) than crop farming. Their results also suggested that studies for countries in Western Europe and Oceania presented, on average, the highest levels of MTE. In contrast, studies for Eastern Europe exhibited the lowest estimate of MTE followed by those of Asia, Africa, Latin America and North American countries.

Hussey et al. (2009) performed a systematic review on health care efficiency in order to facilitate a common understanding about their adequacy. They used Medline and Econlit databases to get articles published between January 1990 and May 2008. They as well searched for "gray" literature (newsletters, reports, government documents and conference sheets) for additional measures developed by private organizations. For comparisons purposes, they also interviewed a sample of vendors, to enable them describe and relate efficiency measures to others abstracted from publications. They identified 265 measures in the peer reviewed literature and eight measures in the gray literature with little overlap between the two sets of measures. Hussey et al (2009) hence, found that, the state of efficiency measurement had lagged far behind quality measurement in the health care. In addition, he pointed out that efficiency measures had been subjected to few rigorous evaluations of reliability, validity and methods of accounting and not well developed. Despite widespread interest in evaluating efficiency, considerable uncertainty existed about whether methods were sufficiently well developed to be used outside the research laboratory because of two reasons: First, the term efficiency was used by different stakeholders to connote various constructs. Second, little was known about the range of methods that existed to measure efficiency and how well available efficiency metrics capture the constructs of interest (Hussey et al., 2007)

Irsova and Havranek (2010) carried out a meta regression analysis of 32 studies on measurement of banking efficiency, focusing on the sensitivity of the reported estimates to the methodology design. To construct the data sample, they examined articles on bank efficiency estimates from USA, using Econlit database supplemented by Jstor, SSRN, RePec, and Google scholar. They analyzed the sensitivity of empirical efficiency scores on the choice of research methodologyusing data from 32 comparable papers. Their findings indicated that generally, the higher the number of observations, the higher the average estimated efficiency. However, the first measure of firm efficiency in terms of frontier analysis, which was the main focus of Farrell's seminal works differed throughout the studies by bringing different outcomes. Second, their results on banking sector reported significant differences in the efficiency types, banks found it harder to keep efficiency in profits than in costs, which provided a justification for separate

comparisons of cost and profit efficiencies. Third, they also found out that the methodology used in the study of efficiency mattered a lot for the results.

Kalirajan and Shand (1999) carried out a literature review to provide an up to date significant discussion on some of the core methods. They compared data envelopment analysis (DEA), stochastic frontier approach (SFA), the stochastic varying coefficients frontier approach (SVFA) and Bayesian approach (BA). Their findings showed that the degree of measured efficiency was very sensitive to the assumptions about the appropriate method of analysis. Their results also indicated that in many cases, SFA and DEA not only yielded different estimates of technical efficiency but also provided different distributions of efficiency among observations for the same data set. Kolawole (2009) carried out a meta-analysis regarding the mean technical efficiency (MTE) in Nigerian agriculture based on econometric studies covering the period 1999 to 2008. He used truncated regression on a total of 64 studies which yielded 86 observations for the analysis. His regression results showed that MTE in Nigerian agriculture increased significantly over the years. Secondly, the study specific characteristics such as sample size, number of inputs used as well as studies on crop and livestock production had been found to significantly impact on MTE.

Another systematic review was carried out by Mareth, Thomé, Scavarda and Cyrino Oliveira, (2017) on TE in dairy farms. The purpose of the review was to offer a novel qualitative research synthesis with frameworks and classification of previous literature and research agenda. The review carried out amounted to 86 survey research studies. A three step process was used to select the studies included in the review and the seven data bases used. The first step of selection was on the data bases which included majority of scientific journals covering the research subject: Agecon search, Ebsco, Emerald, Springerlink, Scielo, and Science direct and Wiley. The second selection was on queries on technical efficiency in dairy farms and technical efficiency in milk production which resulted in selection of 206 papers. Step three selection involved exclusion of some duplicate articles like on veterinary, milk production improvement, experiments on animal reproduction, article on combined efficiency of agricultural production and milk. Their results from the 86 published papers about TE in dairy farms pointed out lack of consensus regarding measurement techniques, agreement and determinants of TE which remained an open debate

Tang (1997) carried out a critical review of empirical evidence on public provision of services from public services compared to private provisions in different sectors. In his review he examined the existing empirical studies regarding the relative efficiency of public and private provisions in public services, some of the studies were on public and private refuse collection in the New York Metropolitan Area, others were from 20 cities of Switzerland, 48 Canadian municipalities and a detailed study of comparative performance in urban bus transit in the USA. From a total of 13 studies conducted over a period of 29 years, six found that private ownership is more efficient than public, four arrived at opposite conclusion and three uncovered no difference. Tang also noted that only a patchy collection of studies, scattered across different countries and with results that are subject to varying interpretations. Many of the studies drew on samples from the United States and only a few studies for industries in Australia, Indonesia, Canada and Switzerland were also examined. A second difficulty was that of data deficiencies which seriously affected the generalizability and validity of some

studies hence observations were only available for selected years for long time periods. Lastly the critical review did not disclose the methodologies used, therefore a combination of the above factors enhances more gaps for the need to explore more on how to attain organisation efficiency.

. Thiam, Bravo-Ureta, and Rivas, (2001) carried out a meta analysis to contribute to a better understanding of the factors that influenced estimates of mean technical efficiency (MTE). Thiam et al. examined a total of 32 studies, focusing on the agricultural sector of developing countries, to test whether specific characteristics of the data and econometrics specifications accounts for systematic differences in the efficiency estimates. Using the two-limit Tobit procedure their results indicated that factors such as the number of fixed inputs and number of variable inputs increased average TE estimates. On the other hand, using the Cobb-Douglous functional form and cross sectional data, the results showed a lower level of TE. Other factors, including the number of variables in the model, crop type, stochastic versus deterministic frontiers and sample size, did not seem to significantly affect the estimates of TE across studies. Despite the wide array of applied work, their findings reported that the extent to which empirical measures of efficiency were sensitive to the choice of methodology, remained a matter of controversy. Furthermore, Thiam et al. (2001). Suggested that work that incorporates larger samples from other geographical or sectoral coverage would produce a better understanding of the measures of TE.

Summary

The objective of this article was to review literature on efficiency and understand better its meaning, importance, theoretical framework and past studies on organizational efficiency. Primarily the literature provides information on operationalization of the concept of organizational efficiency, its importance, the theories used and more important the research gaps. The gaps observed from the past studies are from Bravo et al. (2007) who observed that on average, studies for animal production had a higher MTE than crop farming. Their results also suggested that studies for countries in Western Europe and Oceania presented, on average, the highest levels of MTE which was in contrast with studies from Eastern Europe which exhibited the lowest estimate of MTE followed by Asia and Africa. Hussey et al (2009) found out that the state of efficiency measurement had lagged far behind quality measurement in the health care and pointed out that efficiency measures had been subjected to a few rigorous evaluations of reliability, validity and methods of accounting which are not well developed. More to that efficiency was used by different stakeholders to connote various constructs, little was known about the range of methods that existed to measure efficiency. Irsova and Havraneck (2010) findings indicated that banks sector reported significant differences in the efficiency types. Kalirajan and Shand (1999) findings yielded different estimates of TE from the same data set. Mareth et al. (2017) identified a gap of lack of agreement regarding measurement techniques of efficiency. Tang (1997) noted that only a patchy collection of studies, scattered across different countries with results that are subject to varying interpretations were reported. The critical review by Tang did not disclose the methodologies used and remained a matter of controversy. Finally Thiam et al. (2001) suggested that work that incorporates larger samples from other geographical or sectoral coverage would produce a better understanding of the measures of TE.

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