

Influence of Force Account on Value for Money in construction projects in Tanzania

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Abstract:

Purpose – The purpose of this study is to find out the influence of force account on value for money in construction projects in Tanzania.

Design/methodology/approach – The study used a quantitative approach and a cross-section survey in collecting and analyzing data. Data were collected from a sample of 196 respondents. Data analysis was done through descriptive and inferential statistics.

Findings – The results show that organization personnel and project management significantly contribute to value for money achievement in construction projects. Practically, this study adds on the existing knowledge of construction procedures by linking the facets of force account and value for money. The study concludes that effective and proper use of force account improves value for money through cost reduction in construction of buildings in public institutions in Tanzania. Hence, public procuring entities should hire adequate engineers and allocate supervision fund in the construction budget.

Social implication –The study has a potential benefit to the communities because force account procedure provides employment opportunity to the community in construction as labourers, suppliers and providers of various goods and services to the projects such as construction materials and catering services.

Originality/value – The study has determined the influence of force account on value for money. The combined results from the literature review and study on influence of force account on VfM could assist in decision making to policymakers, practitioners and societies in choosing the right procedure in implementation of projects.

Keywords: Force Account, value for money, project management, organizational personnel and organizational capital.

1. Introduction

Force Account, a method where government entities use their own labor and resources for project implementation, is increasingly being adopted in Tanzania. Force account is the process where works are carried out by a public or semi-public departments or agencies by using its personnel and equipment or in collaboration with any other public or private entity (URT, 2022;Matto 2021;PPRA, 2020). According to Shengeza, (2018), the use of force account or direct labor may be justified if the required works are scattered or are in remote locations for which qualified construction firms are unlikely to tender at reasonable prices; work is required to be carried out without disrupting ongoing operations; risks of unavoidable work interruption are better borne by a procuring entity or public authority than by a contractor; there are emergencies which require a prompt attention; the procuring entity has qualified personnel to carry out and supervise the required works; or the maintenance or construction is part of the routine activity of the procuring entity.

The concept of Value for Money (VfM) in construction projects encompasses three key components: economy, efficiency, and effectiveness. Emmi et al, (2011) defined VFM in term of the 3Es namely economy, Efficiency and effectiveness. Olusola, (2017) interpret VFM, as ‘the conveyance of organization objectives at the lowest reasonable cost while attaining constant improvement with the three key components of best value which are effectiveness, efficiency and economy supported by the demonstration of continual development.

The state of Michigan in USA used force account in construction of small portion of a project, minor utility or railroad work regardless of cost, to be completed either by a railroad or the utility, on an existing system located within the limits of the proposed project and owned by the utility or railroad, subject to one of the following criteria: the utility or railroad performs the work with its own forces; the utility or railroad obtains a subcontract secured under a fully competitive bidding process; or the utility or railroad is responsible for completing the work as part of its established contract or franchise agreement with the local agency (Mendez, 2017). In India, Nepal and Korea, force account was termed as labour contractor which was reported to be the one who is most in touch with the workers and to whom the workers look for help and guidance, not only in finding work and acquiring skills, but also in providing loans in times of emergency (Wells, 2017).

In Uganda, the Public procurement law (PPDA act 2003) requires governments procuring entities to implement road maintenance works by force account (Mbabazi & Mugurusi, 2019). Uganda has implemented many and diverse roads construction project through force account (Tekka, 2017). Force account was applied in upgrading and expansion of Entebbe International Airport to accommodate current and future traffic and also to encourage services excellence (Tekka, 2017). In 2020, the Kenya National Highways Authority (KeNHA) used the force account method to construct a bridge in Kwale County (KeNHA, 2020). The project was initiated after the previous bridge was destroyed by floods, which had cut off the residents of the area from the rest of the county. The force account method was used to complete the project within a short period of time, and the bridge was opened to the public in August 2020 (KeNHA, 2020).

In Tanzania, force account has been used for a long time in construction works in some of the public institutions. Tanzania Electric Supply Company (TANESCO) is among the biggest public institutions where force account has greatly been practiced in electricity distribution projects (PPRA, 2018). However, one important thing to note with TANESCO is that, she has adequate workforce which include sufficient manpower and special trucks and equipment for implementing such works and regular initiatives are made to empower those workforces. Another public institution that has been using force account is the Tanzania Railways Limited (TRL) which performs renovations of railway infrastructures using her workforces (TPJ, 2018). However, use of force account procedure increased tremendously in public Institutions particularly in the Local Government Authorities (LGAs) after the amendment of the Public Procurement Act (PPA), 2016 where force account is incorporated in section 64(5) of the PPA, 2011 as read together with the PPA amendments of 2016 (Matto, 2021). Tanzania has implemented many projects through force account in construction and renovation of building infrastructures, for example the ministry of Education, Science and Technology (MOEST) as well as Tanzania Education Authority (TEA), decided to use force account to renovate some of old secondary schools and training colleges (Tekka, 2017). Furthermore, the Ministry of Education Science, Technology and Vocational Training (MoEST) reported spending TZS 800 million (US\$ 0.346 mill) to 1 billion (US\$ 0.433 mill) in construction of teaching classrooms, dormitories, laboratories, offices and staff quarters using force account mechanism (Matto 2021).

Similarly, construction of permanent ministerial structures at the Mtumba government city in Dodoma phase one was implemented through force account procedures where 23 buildings were completed where eight public construction companies were engaged that is SUMAJKT, National Housing Corporation (NHC), Mzinga Corporation, Tanzania Prison Services, Watumishi Housing Company. When launching the second phase force account projects at Mtumba Government City, the Prime Minister (PM) stressed that the government plans to spend 300billion to construct about 24 modern permanent buildings at the Government city of Mtumba in the country’s capital during the second construction phase (PM, 2021).

The position of force account in Tanzania public procurement can be assessed by looking to the volume and value of projects implemented by force account. Table 1 shows the trend analysis of force account projects for four consecutive years at Bariadi District Council

Project description Completion Status	Project value (in TZS billions)	Project duration (in months)	Project commencement date	Project completion date	
Construction of Bariadi District Hospital	4.28	48	12/02/2019	11/02/2022	100%
Construction of District 98% Executive Director's (DED's) headquarters' offices at Dutwa	2.75	36	20/10/2020	19/10/2023	
Construction of 100% emergency Medical Department	0.3	6	15/03/2022	14/09/2022	
Construction of two 100% in one staff house	0.09	4	15/03/2022	14/07/2022	
Construction of DED's 100% residential house	0.3	4	01/05/2022	01/09/2022	
Construction of Mlimani 100% Primary School-Dutwa	0.54	6	15/03/2023	14/09/2023	
Construction of Madukani 100% Primary School-Matongo	0.54	6	15/03/2023	14/09/2023	
Construction of Heads 100% of departments residential houses	0.24	4	30/05/2023	01/10/2023	

Source: Bariadi DC (2023)

In these examples, the reality is that applicability of force account requires availability of resources including sufficient manpower and financial resources for purchase of construction materials and supplies. At this point it is important to note that when a procuring entity engages a contractor, the responsibilities of executing the works shift to the contractor, the PE role is to ensure the contractor performs works as per the terms and conditions stipulated in the contract. In this arrangement the contractor has obligation to get all construction materials and supplies, personnel and construction equipment needed for quality performance

of works. The PE's responsibilities are to supervise the contractor so that he/she executes works at the desired quality, completion time and make eligible payments for works performed by the contractor (PPRA, 2020). Conversely, when a public entity decides to use force account to implement construction works, it acquires the responsibilities of purchasing construction materials and supplies and ensure that they are used for construction purpose without any wastage, ensure there is sufficient construction equipment, skilled and technical manpower and ensure works are of a desired quality (TPJ, 2018). In this situation there should be a permanent project supervisor from the PE who will be responsible for the quality performance of the works. Experience shows that theft and pilferage of construction materials on site by the workers/laborers is one of the big challenges that exist in the construction industry in Tanzania.

According to the Public Procurement Regulatory Authority (PPRA) and Controller and Auditor General (CAG) audit reports 2018/2019 one of the big challenges facing public institutions, particularly the LGAs is insufficient skilled manpower compared to the number of works they are required to supervise and lack of transport facilities e. g. cars and motorcycles for project monitoring and inspection. Matto (2021), in identifying the latent shortcomings of force account projects in Tanzania revealed that there were no sufficient civil engineers or civil technicians to supervise the force account works. The challenge is even more critical when projects are implemented using force account procedures instead of contractors (CAG, 2020). The Government has been insisting on the use of force account as the most appropriate method of contracting in public institutions projects like schools renovation projects, health centers construction etc., as a move to cut costs, empower local contractors and also facilitate attainment of best value for money (VFM) (Shengeza, 2018). The intention of using force account in executing projects is to complete the projects timely, at a realistic cost while keeping the quality (Tekka, 2017). Nevertheless, other construction methods have greatly been labeled to make corruption environment and therefore failing in achieving value for money for the completed projects (Tekka, 2017). As noted by PPRA audit reports, the prices charged by contractors through competitive tendering procedure are likely to be higher than those of force account because the contractor is required to offset the costs incurred in purchase of construction materials, use and mobilization of construction equipment and paying the workers. In top of those costs, the contractor has to compensate costs incurred as a statutory requirement such as corporate taxes, withholding taxes, service levy which he/she is required to fulfill. Then after compensating these costs he/she has to add a profit margin to sustain her/his business. The composition of these costs increases the total cost of the project hence lower VFM of the project. Force account does not involve a contractor hence transaction costs, statutory costs and profit margin are not considered in force account.

Despite the amendment of the public procurement Act, 2011 which provided a room for use of the national, international and restricted competitive tendering on fixed budget method when the procurement budget is fixed as means to reduce costs and achieve value for money in construction projects, still the government embarked on the use of force account procedures for implementation of the public construction projects. A method that was rarely practiced and experienced in construction projects in Tanzania especially in the LGAs. There has been an outcry in public Institutions of low quality, delayed completion and high cost of construction projects resulting from poor engagement of contractors, lack of adequate supervision, opportunistic behavior, lack of funds and commitment (CAG, 2020) and (Matto, 2021). It is on these grounds that was exceedingly emphasized on the use of force account. Shengeza (2018), on the study of procedures for effective application of force account for renovation and remodeling of government building projects identified problems faced by the participants for the application process of force account for renovation of government building projects. This was supported by Tekka (2017) who examined economic empowerment of local skilled labor through force account in building renovation from selected secondary schools and teachers training colleges located in different parts of Tanzania and acknowledged the uplifting of income and increased knowledge of unskilled and skilled labourers through force account. Likewise, Mbabazi & Mugurusi(2019), indicated that implementation of force account mechanism benefits procuring organizations, through: efficiency gains since the organization is able to execute works much faster than if it procured a contractor. They added that the procuring organization attains cost savings through the use of internal resources hence switching these savings to other service needs. It is also argued that the force account builds internal capacity of the procuring organization since works are executed and supervised by their own staff (Mbabazi & Mugurusi, 2019). However, the studies were qualitative. This study intended to

bridge the gap by assessing on the influence of force account in achieving value for money in construction works in Tanzania.

2 Theoretical Review

Transaction Cost Economic (TCE) is a theory considered in the study. TCE is the theory focusing on the organization of transactions that occur whenever a project, good or service is transferred from a provider to a user across a technologically separable interface. When transactions occur within an organization, the transaction costs can include managing and monitoring personnel and procuring inputs and capital equipment. The transaction costs of buying the same project, good or service from an external provider can include the costs of source selection, contract management, performance measurement, and dispute resolution. Thus, the organization of transactions, or “governance structure,” affects transaction costs. As against neoclassical economics, which is principally about price and output, depends on widely on marginal analysis, and defines the firm as a production function (which is a technological construction), TCE is all about the apportionment of economic activity through different modes of organization (markets, firms, bureaus, etc.), employs discrete structural analysis, and pronounces the organization as a governance structure (which is an organizational construction). The TCE was founded by Oliver E. Williamson in 1989 (Williamson, 2007)

The theory is related to this study because the study is about influence of force account in achieving value for money. Force account is the construction procedure where the procuring entity uses its own resources to undertake construction projects (Shengeza, 2018). On the other hands value for money involves completing a construction project in time, at a minimum/reasonable cost and with regards to user specifications (quality) (URT, 2013). At every stage of any project there are transaction costs. In force account transaction costs relates to costs of soliciting construction materials, skilled and unskilled local fundi (laborers), costs of meetings and transportation of materials, fuels, car maintenance, monitoring and supervision costs. These costs increase the cost of ownership of the project. On the other side some of transaction costs through force account will be eliminated these include costs of advertising tenders, preparation and printing of tendering documents, tender board meeting allowance for approval of procurement and award decisions, negotiation with tenderers, etc. Hence the crucial thing that should be considered in the force account application in construction projects is the tradeoff between the amount of transaction costs incurred when force account is used and that of an alternative method of procurement. This is because high transaction costs increase the cost of ownership of the project and hence reduces the value for money.

3 Empirical Literature Review

Tekka (2017) in a study on economic empowerment of local skilled labor through force account in building renovation on selected secondary schools and teachers training colleges located in different parts of Tanzania, disclosed that in spite of the challenges confronting the local fundi (labourers), the application of force account method greatly facilitated them to promote their income. Furthermore, the study divulged that the local fundi were paid greater under the force account method than when they were engaged under a contractor. All in all, the method was discovered to possess a positive impact to project participants. Shengeza (2018) derived the procedure from case study undertaken for renovation and remodeling of three teachers’ colleges and five secondary schools in different areas in Tanzania using force account. His principle findings consisted of two parts that are problems faced by the participants for the application process of force account for renovation of government building projects and the required procedures for application of force account for renovation of government building projects. Problems faced by participants were identified as misunderstanding of the overall coverage of the projects reports, the technical reports were too general hence not easy to apply, There were no general regulations and procedures identified of how to implement force account in the projects reports, there was a lack of uniformity in how to execute the works, Moreover, he discovered that in order to apply well force account during renovation for building projects there should be prepared general technical reports before and after implementation of the force account method. It is important to note here that the outcome of the study was based on the detailed investigation of preliminary reports on the reports submitted by consultants and observation for the work completed. The procedure can be flexibly used with little or no modifications for application of force

account for building projects, while the best practice guidelines can be considered for effective implementation of force account as per requirement by Public Procurement Regulatory Authority.

Matto (2021), investigated on the latent shortcomings of projects implemented under the force account Approach in Tanzania. The findings of this study revealed shortcomings related to project supervision, inadequate planning and designing of project which impede the project quality, cost and time. However, the study did not analyse on the effects of force account on Value for Money. Olusola, (2017) supported that value-for-money valuation for a project should be conducted before a project is commenced and after the project is completed to determine whether or not value for money has really been provided. Olusola also put out means by which VFM can be achieved on a project site, these comprises comprehensive risk analysis and proper risk allocation, determination for earlier project completion, limitation in project cost increase, correct assessment of the cost of the project, and development of a thorough specification. Almakari & Hong, (2017), found that political instability, poor contract management, low labor productivity, delay in progress payments, risk management strategies, poor site management and supervision, Staff training in the skill areas relevant to project, lack of materials and equipment were highly factors influencing cost overrun on construction projects in Yemen. Their study contributed an understanding of the impact of the political situation to the construction industry, which also opens an area for future research on how political instability can cause cost overrun (increase).

The literature review discussed above pertains to achievement of VFM in construction projects using force account. Value for money is a measure of the 3Es which are economy, efficiency and effectiveness. The 3Es are reflected on the cost incurred in construction; if the costs are below or within the estimated budget then we say the costs are economical; likewise, when the project is completed within the estimated completion time we conclude that the project has been effectively and efficiently performed. Lastly the quality of the project complements the 3Es as measure of VFM where the total benefit from the money invested is measured in terms of fitness for purpose, specification and total satisfaction of the client. In order to achieve these, various procurement procedures may be used one of which is force account. Force account has not been so popular in public institutions particularly in the Local Government Authorities though the Public Procurement Act and Regulations recognize as one the procedures for construction projects. However, currently much emphasis is put by the government on the use of force account for construction of public projects compare to previous times. For a long time, there has been an outcry in public Institutions of low quality, delayed completion and high cost of construction projects resulting from poor engagement of contractors, high costs of completed projects, lack of adequate supervision, opportunistic behavior, lack of funds and commitment.

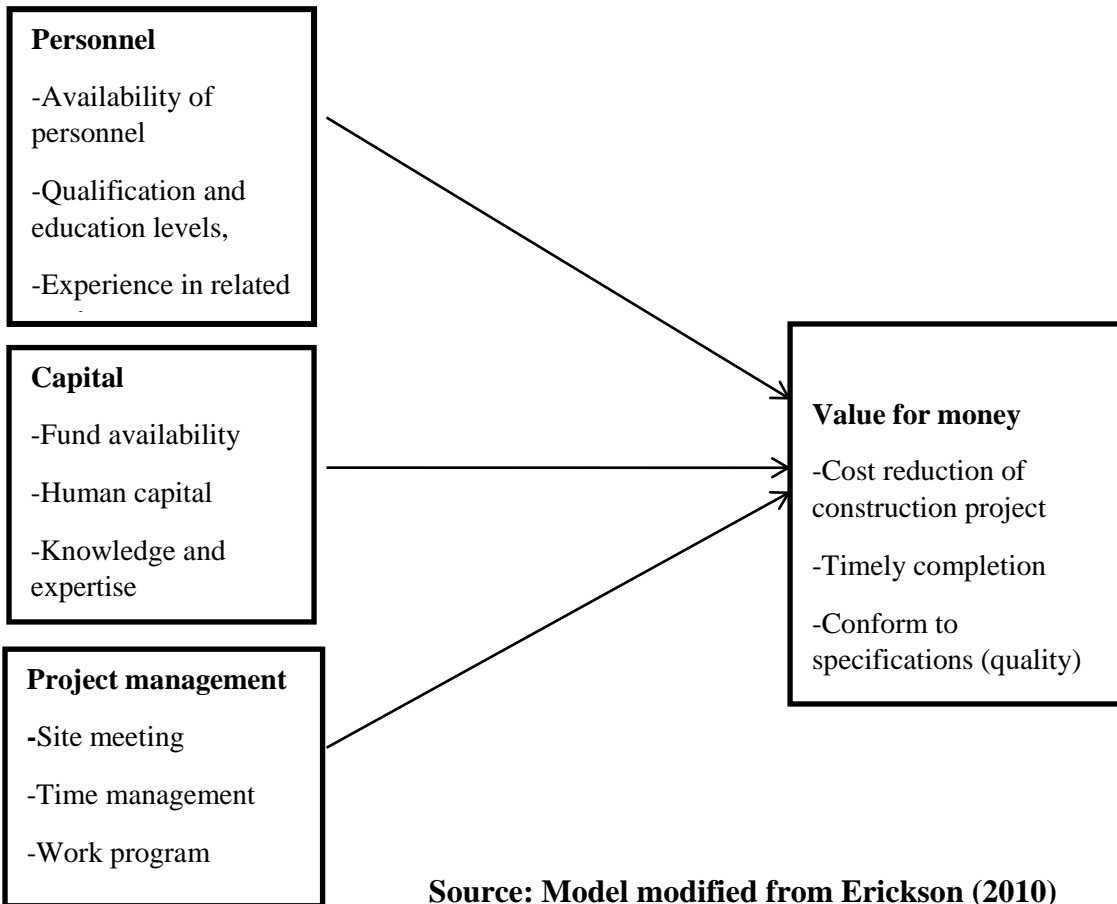
The CAG reports 2016/2017 found major problems in constructed projects using public fund where some of projects were abandoned uncompleted, high cost of completed projects and delayed completion of the project etc. It is on these grounds that it has being exceedingly emphasized on the use of force account. Given this emphasis on use of force account in construction projects in Public Institutions; very little has been explored on the influence of force account that is the use of organizational resources in construction of projects in view of achieving value for money. Though some authors have written on force account in management of construction projects, no literature explains the influence of force account in achieving value for money (right cost, right time and right quality) on construction projects as compared to other competitive methods of procurement. It is in this study the researcher intended to fill this gap by assessing the influence of force account in achieving value for money on construction projects in Local Government Authorities in Tanzania.

3.1 Conceptual Framework

This described the relationships between various variables of the study. Figure 1 below portrays the conceptual framework for this study. The illustrations of the conceptual framework is that force account uses in house equipment, financial and personnel resources for construction projects performance which is reflected by cost performance, time performance and quality performance of the projects.

Independent Variables (IVs)

Dependent Variables (DV)



Source: Model modified from Erickson (2010)

Personnel and Value for Money

In view of force account as procedure for buildings construction in public Institutions, LGAs in particular; the Procuring Entity should have sufficient own resources in order to realize Value for Money. According to URT, (2013) force account can be applied if the procuring entity has qualified personnel to carry out and supervise the required works. Personnel are one of the resources. Personnel are people who are directly involved in design, procurement and supervision of buildings construction. These are Civil engineers, technicians, Procurement experts and supporting staff. Civil Engineers and Technicians play the role of preparing drawings, specifications and Bills of Quantities (BOQs) for buildings. However, they also make interpretation of drawings, specifications and Bills of Quantities (BOQs) during actual construction of buildings. Achieving value for money in buildings construction requires well and clear prepared drawings, specifications and BOQs.

VFM is realized when the project is completed in time, below or within the budgeted cost and according to specifications. This cannot be achieved if the PE does not have qualified personnel such as Engineers and technicians, because Engineers and Technicians are needed to control cost increase (growth) of the buildings constructed by controlling completion time of the buildings; since it has cost implication such as rise of price of construction materials if the building is not completed in time. Almkartari & Hong, (2017), noted that best value for money can be achieved when there is maximum combination of the cost, quality and sustainability to encounter customer needs. Sufficient personnel also, control variations and additional works that is change in scope of the works which increases the costs of the building being constructed consequently, reducing VFM of the building. This is in line with Olusola, (2017) that VFM, should convey organization objectives at the lowest reasonable cost while attaining constant improvement with the three key components of best value which are effectiveness, efficiency and economy supported by the demonstration of continual development.

On the other hand, procurement officers as key personnel in implementation of buildings construction through force account play a great role in achieving value for money in buildings construction. Value for money inter alia is determined by the quality of construction materials, the costs at which materials are

procured and time materials are delivered. Low quality of materials results to poor quality of the building hence no VFM and high costs of construction materials renders buildings completed at high costs hence no VFM. To get rid of these problems, the PE should have qualified, experienced, competent and ethical procurement experts who will ensure buildings and construction materials are procured at low cost with high quality and delivered on time as these leads to early completion of project hence achieving VFM of the buildings. From the above statements it is apparent that Procuring Entity's personnel contribute much in achieving value for money in buildings construction through force account.

Therefore, the study intends to test on the following hypothesis: -

Null Hypothesis (Ho): Organizational Personnel do not influence value for money in construction of health centers' buildings in Bariadi Town Council.

Alternate Hypothesis (Ha): Organizational personnel influence value for money in construction of health centers' buildings in Bariadi Town Council.

Capital and Value for Money

One of the resources needed for application of force account is capital. Evans, (2016), defines capital as tangible and intangible resources, such as machines, funds, patents, brands, human capital, construction processes and practices, knowledge and expertise which enable constructability and productivity.

According to URT (2013) "force account" involves construction by the procuring entity itself, where procuring entity uses its own equipment or hired labour or fund. Funds are needed for purchase of construction materials, fuel for equipment, and pay wages for laborers, pay allowances and supervision costs. Also, equipment and machineries are needed in buildings construction for facilitation of buildings construction. These pickups, excavators, compactors, concrete mixers, trucks, motor graders etc. All these together are referred as capital of the organization. Human capital is defined in the Oxford English Dictionary as "the skills the labor force possesses and is regarded as a resource or asset." It encompasses the notion that there are investments in people (e.g., education, training, health) and that these investments increase an individual's productivity. According to Gupta, Verhoeven, Tiongson, Baldacci, & Clements, (2002), human capital is the stock of skills that the labor force possesses. In order to achieve VFM in force account, human capital is mandatory as the knowledge and skills of labor in construction is needed to ensure works are constructed according to the required standards. Olusola, Oluwatosin, & alabi (2017), noted that Value for money in buildings construction is determined by cost of construction, quality of construction materials and time of completion of the building. It is obvious without capital it is impossible to buy quality construction materials, to complete the works in time and within the cost of the building. Because all these requires capital i.e. funds and equipment. Funds enable timely purchase of building materials, payments of labor and administrative costs related to the project such as supervision, printing of reports, project documents, and design of the building project without which Value for money will not be achieved. Moreover, equipment as one of the capital in buildings construction has a big impact on value for money in buildings construction. Equipment are needed to facilitate supervision of the project, to bring construction materials to site such as concretes, gravels, clearing and leveling of the site, compacting of the ground etc., testing of building blocks strength. All these impact on the value for money of the buildings since lack of these instruments renders delayed completion, poor quality and cost increase of the project, hence jeopardizing VFM of the building project. Therefore, capital of an organization plays big role in achieving value for money in buildings construction. In view of the above concepts, the study envisages to test the following hypothesis: -

Null Hypothesis (Ho): Organizational Capital does not influence value for money in construction of health centers' buildings in Bariadi Town Council.

Alternative Hypothesis (Ha): Organizational Capital influence value for money in construction of health centers' buildings in Bariadi Town Council.

Project Management and Value for Money

Value for money in buildings construction is achieved when there is close monitoring and management of the project. According to Bowen (2018), buildings project management involves Project Integration Management, Scope Management, time management, cost Management, Quality Management, Human

Resources Management, Communications Management and Risk Management. Tristancho (2023), supported that Project Integration management as collection of processes required to ensure that the various elements (materials, laborers, and equipment) of the buildings projects are properly coordinated. Scope management defines work required and then making sure all of that work and only that work is done. Time management is the process of planning and exercising conscious control of time spent on specific activities during construction, especially to increase effectiveness, efficiency or contractibility so that no more costs are incurred by PE due to delay of buildings completion (Rashid et al., 2015). Cost management involves planning and controlling the budget of a building construction. Cost management allows organization to predict impending expenditures to help reduce the chance of going over budget. Quality management ensures that buildings constructionist consistent with specifications. It has four main components: quality planning, quality assurance, quality control and quality improvement. Quality management is focused also on the means to achieve it. These components of building project management are important in achievement of value for money in buildings construction. Hence, buildings project management play a crucial part in achieving value for money in construction of health centers' buildings. In view of the above concepts, this study tests the following hypothesis;

Null Hypothesis (Ho): Project management does not influence value for money in construction of health centers' buildings in Bariadi Town council.

Alternative Hypothesis (Ha): Project management influences value for money in construction of health centers' buildings in Bariadi Town Council.

4 Methodology

4.1 Research approach and design

The study used a quantitative approach in data collection and analysis. A cross-sectional survey research design was applied to assess on the influence of force account in achieving value for money in Bariadi Town Council. The cross sectional research design was chosen because the nature of the study was about assessment of Force Account in achieving VFM which involved gathering information about individuals at only one point in time. Moreover, researcher used hypotheses to shape and specifically focus the purpose of the study. The survey study provided a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population (Creswell, 2014). The survey study numerically explained value for money in construction projects by force account procedures and collect data at one point in time. Key features included formal and systematic measurement and the use of statistics. This means that the researcher intended to measure the relationship between resources availability (financial, equipment, human capital and capability) in force account and VFM attainment in construction projects in terms of cost, time and quality dimensions.

4.2 Study setting and sample size

The data were collected from Bariadi Town Council which is found in Simiyu Region which lays on the North of Tanzania and South East of Lake Victoria. The council was purposely selected because it was one of the Local Government Authorities in Tanzania that implemented projects by Force Account and received funds from central government for construction of Health centers buildings with directives to use force account in implementing some projects (Shengeza, 2018). The database from Bariadi DC PROFILE, 2022, shows a total of 474 employees representing various actors and departments: Procurement committee, receiving and inspection committee, Construction committee, Works department, Administration department, Procurement unit, Internal Audit Unit, Legal Unit, Health management team, Ward development committee. Basing on this facts, the sampling frame for the study involved 474 population. The Saunders, (2011) formula was used to get the sample size. The formula is provided below:

$$n = \frac{N}{1 + N(e)^2}$$

Where n = sample size, N = Population size = 474 and e = Level of precision = (e=0.05)

$$n = \frac{474}{1 + 474(0.05)^2}$$

Therefore, the sample size of this study was 217.

4.3 Data collection

Questionnaires were used in collecting the quantitative data. This technique was used because respondents were easily available and not so much occupied by administrative activities. According to Phellas, Bloch, & Seale (2011), questionnaires may be used when respondents are easily attainable, dispersed over a wide area, interviewing each respondent would be excessive. The researcher designed a set of questions to generate the data necessary for accomplishing a research project's objectives (Kothari, 2004). A questionnaire with closed ended questions was used in data collection. The questionnaires were administered to the staff from various departments, procurement, receiving and inspection and construction committees. The questionnaire was also distributed to the health management team and ward development committee members of the district councils, where each respondent was given a time to fill and later on the researcher collected back the questionnaires. A five point likert-scale of 1 to 5 was adopted to assess the degree of significance of each course.

Similarly, the validity and reliability of the instruments were improved using the qualitative aspect. Furthermore, internal reliability was improved by using a Likert scale with an ordinal ranking from strongly disagree to strongly agree.

4.4 Data analysis

The data entry exercise was verified for correctness by using mean and frequency distribution. Thereafter, the preliminary analysis was carried out by computing mean, variance, and standard deviation. Likewise, the data were checked for normality by computing the skewness and kurtosis (Gawali, 2021). On the same basis, regression analysis was employed to test the variation of VfM variable explained by the variation in the force account variable by computing R square and adjusted R square. In this case, a multiple regression model was used to examine the combined effect of an independent variable (Force Account) had on the dependent variable (VfM). Concerning this, the p-value and t statistic was used to examine the significance level of the coefficients at 95%. The ANOVA for regression was adopted to examine the goodness of fit of the model (Saunders, Lewis, & Thornhill, 2016). Finally, the three developed hypotheses were tested and verified for either rejection or acceptance. The analysis was performed using IBM SPSS Statistics software version 29 and 5% level of significance.

5 Results

The overall data collected encompassed 196 respondents. In examination of the data record using mean and frequency distribution, no cases had values beyond the required range from 1 to 5. The variables of the current study were measured on a scale of 1 to 5, with a mid-value of 3. The results show that the mean value of all variables was ranged within 3 representing positive attributes on the aspects of the force account and VfM. Also, cost reduction variable (1.245), quality standards variable (1.225), timely completion variable (1.029) and contract management variable (0.813) are extremely important perceived attributes because of the highest variance and standard deviation. Equally, the organizational personnel variable (0.764) and organizational capital variable (0.789) are less important perceived attributes because of the lowest variance and standard deviation. Additionally, normality of the measured data was checked by computing skewness and kurtosis. According to Gawali, (2021), the adequate range for normality is the value between -1 and +1. Based on this interpretation, it was perceived that the values of skewness and kurtosis for all elements were within the acceptable range. Thus, since all 6 items fell within the range, the data was assumed to be fairly normally distributed. Table 2 presents the results of descriptive statistics and normality tests.

Item	Mean	SD	Variance	Skewness	Kurtosis
Force Account					
Organizational personnel	3.02	.764	.583	-.461	-.020
Organizational capital	2.75	.789	.623	-.164	-.369

Contract management	2.83	.813	.660	-.241	-.499
Value for money					
Cost reduction	2.96	1.245	1.550	.423	-.909
Timely completion	2.17	1.029	1.059	.868	.527
Conformity to specifications (quality)	2.52	1.225	1.501	.662	-.370

Meanwhile, the study adopted cross-sectional survey which involved gathering information about individuals at only one point in time. Based on Podsakoff & MacKenzie, (2003), this approach may be affected by common method bias. To normalize this, Harman's single-factor test approach was used to test for the common method bias. The results show that a single factor accounted for only 34.697% of the variance which is less than 50% indicating the absence of common method bias (Podsakoff & Organ, 1986).

5.1 Regression analysis

Multiple regression analysis was used to determine the relationship between organizational personnel, organizational capital and contract management (Independent variables) and Value for money (dependent variable). The results of the regression are presented in table 3-5

R	R Square	Adjusted R Square	Std. Error of the Estimate
.470 ^a	.221	.208	3.15738

From table 3, the values of R and R² of the fitted model were 0.470 and 0.221 respectively. Hence, the R value (0.470) indicating a positive linear relationship between Force account and VfM. Similarly, R² tells how much of the variance in the dependent variable (Value for money) is explained by the IVs (which include organization personnel, organization capital, and project management). The value for R² is 0.221. This means that organization personnel, organization capital, project management account for 22.1% of the variance in Value for Money. Implying that apart from these variables there are other factors in construction of buildings that influence or determine value for money.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	533.330	3	177.777	17.833	.000 ^b
	Residual	1884.152	189	9.969		
	Total	2417.482	192			

- a. Dependent Variable: Value for Money
- b. Predictors: (Constant), Project Management, Organization capital, Organization personnel

The table 4 above is the ANOVA summary that tells whether the model is statistically adequate. This done by using F-value and P-Value: When P-value (Sig. Value) is less than or equal to 5%; it indicates that the regression equation is a better predictor for population values (The model can be generalized in the population). Looking at the table, F-value is 17.8; p-value<0.001. This means that the sample selected was representative of the population.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.479	1.156		2.144	.033
	Organization personnel	.258	.068	.292	3.789	.000
	Organization capital	.001	.063	.001	.008	.993
	Project Management	.073	.022	.253	3.381	.001

a. Dependent Variable: Value for Money

The table 5 above tells which of the variables included in the model contributed to the prediction of the dependent variable. This is observed by looking in the column labeled Beta under Standardised Coefficients. In this case we are interested in comparing the contribution of each independent variable; by looking down the Beta column and finding which beta value is the largest; the largest beta coefficient is 0.292, which is for organizational personnel. This means that this variable makes the strongest unique contribution to explaining the dependent variable, when the variance explained by all other variables in the model is controlled for. The Beta value for project management variable is 0.253, and for organizational capital is 0.001. The contribution for organizational capital variable is very low.

Also the P-value (column marked Sig.) tells whether this variable is making a statistically significant unique contribution to the equation. If the P (Sig.) value is less than 0.05 (.01, .0001, etc.), then the variable is making a significant unique contribution to the prediction of the dependent variable. If greater than 0.05, then we conclude that variable is not making a significant unique contribution to the prediction of dependent variable. In table above IVs (organizational personnel and project management) make a significant contribution to value for money because their sig. values are less than 0.05 (5%) that is sig. values are 0.00 and 0.01 respectively. However, organizational capital does not contribute significantly to VFM because its sig. value is greater than 5% i.e 0.99 (99%).

6 Discussion and implications

The first hypothesis (H1) stated that Organizational personnel influences value for money in construction of buildings in Tanzania. The coefficient is positive and the p-value was significant thus this hypothesis was supported. This denotes that the organizational personnel in force account procedure predicts VfM. Hence, public procuring entities are required to ensure that they have adequate and qualified personnel to implement projects by force account. As supported by Shengeza (2018), for efficient use of force account the procuring entity should have qualified personnel to carry out and supervise the required works. Further, the goal for using force account should be ascertained. The authors advocates that in order to apply force account effectively, the supervising personnel has major role in collaboration with procuring entity and executing team based on well detailed documents prepared before and after construction during implementation of this methods. This finding agrees with observation Fleming, (2013), who accorded that force account is usually used to execute simple works and it is used where; the Procuring Entity has the equipment and personnel to undertake the works. Thus, a proper application of force account is likely to produce the best results in the procuring entities.

The second hypothesis (H2) was related to organizational capital. It articulated that organizational Capital influences value for money in construction of buildings in Tanzania. Table 5 portrays the p-value was not significant (.993) and therefore the hypothesis was not accepted. The third hypothesis (H3) stated that project management affects value for money in construction of buildings in Tanzania. This hypothesis was supported because the p-value was significant (.001). Thus, contract management predicts VfM. Thus, procuring entities should have a contract management team to monitor and control the works implemented by force account, the team will be led by the project manager or supervisor. Therefore, the contract supervisor should be appointed to manage the force account project including quality aspects. The contract supervisor should have appropriate qualifications and experience to manage the contract. The force account project manager should prepare appropriate reports reflecting the implementation the project. With this respects, the quality implementation reports must be shared with all parts. Furthermore, materials or goods procured and delivered should be inspected and examined by the construction team that has relevant expertise before they are used. In this case, the project has a great chance of attracting high value through reduced wastes in terms of materials, time overruns, cost overruns and defective works. This recommendation is in agreement with those of Matto, Ame, & Nsimbila, (2021) who emphasizes that effective and efficient contract management enhance value for money in public procurement. Similar findings by Tekka, (2017) indicates that force account in its construction projects with the intension of accomplishing the construction work timely, under reasonable cost while maintaining the quality entails monitoring the quality of delivery, including ensuring good specifications, appointment of the contract supervisor and formation of inspection committee.

6.1 Theoretical implications

The study results indicate how Transaction Cost Economics theory (TCE) can be used to determine the relationship between force account and VfM in construction of buildings. TCE advocates that when a transaction occurs within an organization there costs that are associated with such transaction and these may include but not limited to costs of source selection, contract management, performance measurement, and dispute resolution, managing and monitoring personnel and procuring inputs and capital equipment. The application of force account procedure in construction eliminates some of these costs, such as costs of advertising tenders, preparation and printing of tendering documents, tender board meeting allowance for approval of procurement and award decisions, negotiation with tenderers. This leads to reduction of total cost of ownership of the project, hence VfM achievement. Therefore, construction through force account can comprehensively be analyzed by the Transaction Cost Economics.

6.2 Managerial implication

The findings of this study can be useful to procuring entities, particularly contract management team when undertaking their projects. As reveal in the findings, force account requires availability of qualified personnel, closely monitoring of the works; procuring entities management should ensure availability of qualified personnel before using force account. Force account needs close follow up during its implementation, hence management should ensure there is an effective system of contract supervision. In force account some of the costs associated with construction such as service levies, Value Added Taxes and tendering costs are eliminated, thus, procuring entities may plan its budget by cost plus incentive fees basis, where the project can be done on actual cost with an estimated percentage margin of the labourers.

6.3 Social implication

The study has a potential implication to the communities. Force account procedure provides opportunity to the community to participate in construction as labourers(skilled and unskilled), suppliers and providers of various goods and services to the projects such as construction materials, labour, catering services for labourers at construction site. The study emphasize that force account influence value for money in construction. This enables increased number of projects implemented by the procedure, leading to communities' social welfare improvement since more people are employed in the sector as force account application continues in projects' implementation.

7 Conclusions and areas for further study

The study assessed on influence of force account on value for money in construction buildings in Tanzania. The results indicate organizational personnel and project management have significant contribution on achieving VfM in construction of buildings. Implying that attainment of VFM in construction of health centers buildings was much influenced by the people engaged in supervision of the construction and the level at which project was managed. However, organizational capital was not significant attribute in predicting VfM. Therefore, availability of personnel and effective project supervision affect VfM in construction by force account. Hence, the study concludes that proper application of force account in construction of buildings improves VfM in Tanzania.

7.1 Areas for further research

This study is not an end itself; it gives a way for further studies on force account. Future researchers should conduct a research on the assessment of the quality assurance in construction of projects using Force Account. This is because in this study quality assurance of projects constructed using force account was not involved and it is a very crucial issue in construction of projects. Another proposed study area this study recommends is a study on influence of force account in roads construction performance. Furthermore, prospective researchers may undertake a study on the application of force account in private sector procurement.

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Reference

1. Almaktari, A. M., & Hong, J. N. (2017). Aber Mohamed Almaktari, The Factors influencing Cost Overrun on Construction Projects in Yemen, 8(11), 582–589.
2. Ansell, M., Holmes, M., Evans, R., Pasquire, C., & Price, A. (2009). Delivering best value in highways major maintenance schemes: case study. . *Journal of Construction Engineering and Management*, 135(4), 235–245.
3. Bowen, R. (2018). Monitoring and controlling the projec
t <https://www.brighthubpm.com/monitoring-projects/> retrieved on 6th December 2018 unpublished.
4. CAG. (2020). Performance Audit Reports. Dodoma: URT.
5. Ceric, A. (2012). The principal-agent theory and the role of project managers in construction: guidelines for future research. Ceric, A. (2012). The principal-agent theory and the role of project managers in construction: gu Proceedings of the Joint CIB International Conference, Management of Construction: Research to Practice, , (pp. 766–776.).
6. Creswell, J. W. (2014). Research design.
7. DeCorla-Souza, P., Lee, D., Timothy, D., & Mayer, J. (2013). Comparing public-private partnerships with conventional procurement: incorporating considerations from benefit-cost analysis. *Transportation Research Record*. . *Journal of the Transportation Research*.
8. Evans, P. C. (2016). Organizational Capital, (1).
9. Fleming, F. (2013). Evaluation methods for assessing Value for Money, (October).
10. Gawali, S. (2021). Skewness and Kurtosis: Quick Guide.
11. Gupta, S., Verhoeven, M., Tiongson, E. R., Baldacci, E., & Clements, B. (2002). Gupta, S., Verhoeven, M., Tiongson, E. R., Baldacc Human capital, *Handbook of Cliometrics*. *World Development*, 22(2), 45. [https://doi.org/10.1016/S1570-677X\(03\)00035-2](https://doi.org/10.1016/S1570-677X(03)00035-2).
12. Johnson, J. B. (1995). Resource Dependence Theory: A Political Economy Model of Organizations. *International Encyclopaedia of Public Policy and Administration*, 1–22.
13. KeNHA. (2020). Annual Report for the year 2020-2021. Kenya National Highways Authority.
14. Kothari, C. R. (2004). Reserach Methodoloy; Methods and Techniques (Second rev). New Delhi, Bangalore: New Age International (P) Limited Publishers.
15. Mamiro, R. (2010). Value for money: The limping pillar in public procurement-experience from Tanzania. In 4th International Public Procurement Conference.
16. Matto, M. C. (2021). Identifying the latent shortcomings of force account projects in Tanzania: the case of construction projects in the education sector. *Emerald Insight*, 787-791.
17. Matto, M. C. (2021). Implementation of Force Account Projects in Tanzania: Success, Shortcomings and Way Forward. Research Gate (p. 3). Research Gate.
18. Matto, M. C., Ame, A. M., & Nsimbila, P. M. (2021). Influence of contract management on value for. *Int. J. Procurement Management*, Vol. 14, No. 6, 2021.
19. Mbabazi, F., & Mugurusi, G. (2019). Adoption of force account mechanism in road maintenance works' procurement: stakeholders' opinions in Uganda",.
20. Memon, A. H., Rahman, I. A., Abdulah, M. R., & Azis, A. A. (2011). Factors affecting construction cost in Mara large construction project: perspective of project management consultant. *International Journal of Sustainable Construction Engineering and and Technology*, 1(2),41-54.
21. Memon, A. H., Rahman, I. A., Asmi, I. A., & Azis, A. (2011). Memon, A. H., Rahma Preliminary Study on Causative Factors Leading to Construction Cost Overrun, 2(1), 57–71.
22. Mendez, V. (2017). Mendez, V. M. (2017). Force Account Guidance Order, 104(December).

23. Olusola, S. (2017). Achieving Value for Money (VFM) in Construction Projects, 9(2), 54–64.
24. Olusola, S., Oluwatosin, T., & alabi, O. (2017). Achieving Value for Money (VFM) in Construction Projects. *Civil and Environmental Research*, ISSN 2224-5790 (Paper) ISSN 2225-0514 (Online), Vol.9, No.2, 2017.
25. Phellas, C. N., Bloch, A., & Seale, C. (2011). PhStructured methods: interviews, questionnaires and observation. *Researching Society and Culture*, 3.
26. PM. (2021, 1 6). <https://www.africa-press.net/tanzania/all-news/govt-city-construction-release-funds-timely-pm>. Retrieved from <https://www.africa-press.net/tanzania/all-news/govt-city-construction-release-funds-timely-pm>: www.africa-press.net › tanzania › all-new
27. Podsakoff, P., & MacKenzie, S. (2003). Common Method Bias.
28. Podsakoff, P., & Organ, D. (1986). 'Self-reports in organizational research: problems and prospect. *Journal of Management*, Vol. 12, No. 4, pp.531–544.
29. PPRA. (2018). Report Of Procurement Audits In Seventy Six Procuring Entities. Dar es Salaam: URT.
30. PPRA. (2020). Guideline for Carrying out Works under Force Account. Dodoma: PPRA.
31. Rashid, M. M., Beecham, S., & Chowdhury, R. K. (2015). Statistical downscaling of CMIP5 outputs for projecting future changes in rainfall in the Onkaparinga catchment. *Science of the Total Environment*, 530, 171–182.
32. Saunders, M. N. (2011). *Research methods for business students*, 5/e. Pearson Education India.
33. Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research Methods for Business Students*, 7th ed.,.
34. Shengeza, J. (2018). Procedure on Effective Application of Force Account as a Method of Procurement for Renovation and Remodelling of Government Building Projects,. *Journal of Civil, Construction and Environmental Engineering*, 2(6), 153–158.
<https://doi.org/10.11648/j.jccee.20170206.12>.
35. Tekka, R. S. (2017). Economic Empowerment of Local Skilled Labour Through force account. *Journal of Civil, Construction and Environmental Engineering*.
36. TPJ. (2018). Tanzania Procurement Journal- unpublished. TPJ, XI. Tanzania Procurement Journal.
37. Tristancho, C. (2023, August 9). Project Integration Management – A Quick Guide. Retrieved from <https://www.projectmanager.com/blog/project-integration-management-a-quick-guide>: <https://www.projectmanager.com/blog/project-integration-management-a-quick-guide>
38. URT. (2011). The Public Procurement Act, 2011, (9), 1–98. Dar es Salaam: URT.
39. URT. (2013). The United Republic of Tanzania, Public Procurement Regulations-2013, 94(48), 112–114. Dar es Salaam.
40. URT. (2013). The United Republic of Tanzania, Public Procurement Regulations-2013, 94(48), 112–114., 2013). URT.
41. URT. (2022, 6 4). The Public Procurement Act, revised edition. GOVERNMENT NOTICE No. 461. Dodoma, Tanzania: THE GOVERNMENT PRESS, DODOMA-TANZANIA.
42. Wells, J. (2017). Labour Subcontracting In The Construction Industries Of Developing Countries : An Assessment From Two Perspectives.
43. Williamson, O. (2007). Transaction Cost Economics: An Introduction. *Economics Discussion Paper*, 0–33. <https://doi.org/10.1017/CBO9781107415324.004>.