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BUILDING CAPACITIES IN THE CIVIL SERVICE

Ethiopian Civil Service University
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Editorial Note

JADS is a re-instituted journal after some seven years of interruption. Having been re-instituted in February 2019, the new JADS Editorial Board embarked on a series of institutional and framework setting and building for the journal. Since then, three issues (Volume 6, Nos 1 & Volume 6 No 2 for the year 2019 year; and Vol 7 No 1 & No.2 for June 2020 & December 2020 issues) have been published. The present issue (Vol 8, No. 1, June 2021) is composed of five articles that have passed a rigorous review process.

The first article by Dr. Biniam examines the efficiency of Framework Agreement (FWA) procurement practice, and analyzes the perception towards the frame and to identify the major challenges of FWA based public procurement in Ethiopia, employing a descriptive approach and mixed methods design. The result indicates procurement planning, bid solicitation process, goods receiving and payment and conflict management were significant positive predictors of efficiency of FWA procurement practices.

In the second article, Dr Mitiku & Mr Abebe assess the effect of watershed management program on livelihood of households of selected sub watersheds in Humbo Districte, using instrumental variable (IV) method model. They argue that adoption of watershed program has positive and significant impact (31%) on HHDI of the sample households in the study area, concluding with adoption of watershed management program, household on livelihoods can improve.

The article by Dr Rahel, addresses the issue of maximizing tax potential in Ethiopia using a quantiative design approach. She argues tax effort, theoretically measured as the difference between tax revenue collected and tax potential is extremely low in the country. This problem becomes more complicated when GDP shows as a rather inverse predictor of tax potential, indicating massive work of tax base identification to enable tax ratio moves with the speed of GDP growth.

The fourth article by Mr. Dhaba assess factors affecting service delivery quality in public service institutions in Addis Ababa, employing both quantitative and qualitative approaches. It is argued in the article that work environment, technology and training are significant factors. However, lack of good leadership, inconsistent type of training with practical jobs, weak in organizational culture, lack of conducive environment in experience sharing, lack of good incentive systems which hinder the motivation of employees and lack of applying modern technology are pinpointed as limitations.

The last article by Mr. Taffa investigates the views and perceptions of users on disclosure and the extent of disclosure by the Ethiopian banking sector. The data collected from 509 respondents in different groups of information users were analyzed using percentage, mean and kruskal-wallis H test.the result shows that most of the user groups regard annual reports as the most important source of information and income statements as an important section of annual reports. The Kruskal-wallis H test shows that there was a significant difference among user groups on the frequency of annual report usage, purposes of annual reports, sources of information, the significance of the problems, and sections of annual reports.

Editor-in-Chief

Remedial Roles of Framework Agreement for Public Procurement Practices and Challenges in Ethiopia, ***Biniam Berhie***[1]

Abstract

Administrative and technical inefficiencies reduce the value creation by centralized public procurement practices. The main aims of the study are to examine the efficiency of Framework Agreement (FWA) procurement practice, to analyze the perception towards the frame and to identify the major challenges of FWA based public procurement in Ethiopia. The study employed a descriptive approach using an exploratory and explanatory design on data collected by survey questionnaire and key informant interview. The result indicated that procurement planning, bid solicitation process, goods receiving and payment and conflict management were significant positive predictors of efficiency of FWA procurement practices. Further, inadequate legal framework, loose coordination, incapable suppliers and market set-up, lack of capable and committed procurement professionals, low quality and quantity, delay on delivery, and loose contract management are the major challenges affecting the efficiency of FWA procurement. Moderate perception towards the frame by the procurement professionals has been identified. In conclusion, FWA procurement is yet to meet the purpose of ensuring value for money. Finally, policymakers and practitioners need to give the required attention to improve the efficiency level of FWA procurement of the country.

Keywords: Framework, Procurement, Practices, Efficiency, Ethiopia

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Introduction

A Framework Agreement (FWA) processed by a central coordination body is established to fulfil the requirement of different public entities of the government through a pre-negotiated procurement contract to reach a framework contract (FWC). The Ethiopian Federal Government Procurement and Property Administration Proclamation No. 649/2009 defined FWC as a general agreement (master contract) by fixing unit price and other terms and conditions (FDRE, 2009). Further, FWA is used as a delivery basis of supplies under a future specific contract. Commonly, a FWC is concluded with one or more suppliers with a master contract articulating all the terms and conditions (Albano, Ballarin, & Sparro, 2010). The Suppliers involved in the FWCs are called Framework Contract Suppliers (FWCS) and they are in a contractual obligation to deliver the terms of FWC (FDRE, 2009). The major justification for FWA procurement is to gain efficiency and thus a special procedure is followed during the acquisition.

In Ethiopia, the Procurement Proclamation No. 649/2009 (Article 61 – Procedure of FWC) stated that FWC is used to acquire and hire similar good and service requirements of the Public Bodies (PBs) through open tendering for three consecutive years. At a federal level, the procedure is initiated by the Public Procurement and Property Disposal Service (PPDS) a central government body established to execute the task by surveying similar requirements of PBs and issue a list that enumerates goods and services that can be procured in FWC (FDRE, 2010). Principally, PPDS has the purpose of enabling of acquisition of goods and services used commonly by PBs and items of national significance by considering quality, time, and cost that can reflect economies of scale (FDRE,

2010). Then, each PB prepares a forecast of requirements and communicates the PPDS. Following this, PPDS conclude and administer the contract. (MoFED, 2010; PPA, 2011).

Public procurement, as a field of study, has been given less attention by scholars of management sciences; however, this has improved recently. Particularly, public procurement has been linked with issues of economic growth, unemployment, and social inclusion (Arrowsmith, 2010; Gordon Murray, 2009; McCrudden, 2007). Currently, areas like e-procurement, green-procurement, performance-based contracting (PBC), and framework agreement based procurement (FWA) has become the central focus of the field of public procurement (Ambaw & Telgen, 2017; Sorte Junior, 2012). Moreover, public procurement requires an applicable solution for the specialists and future research and practice has to develop together.

Problem statement

The goal of FWA procurement is to ensure value for money in government spending while considering social, political and environmental issues into account (Bawole & Adjei-Bamfo, 2019). However, the process of framework agreement for contract procurement is filled with challenges, because, procurement is easier in theory than practice. FWA is challenged by delay in the delivery, stock-out of goods, delivery of goods and services below the specification, and maverick purchasing behaviour of employees (Karjalainen et al, 2009).

Centralized public procurement has the benefits of reduced cost due to economies of scale, standardization of goods and services, optimization of product and service quality, and creates a knowledge-sharing platform among procurement specialists. Thus, PBs with a small budget and human resources can acquire better quality goods and services with lower per-unit costs (Albano et al., 2010; PPA, 2011; Sorte Junior, 2012). However, the positive intentions may not generate positive results as PBs try to violate the FWA and act on their organizational interest, even though the actual total cost of ownership is higher.

Effective policy and procedure while conducting public procurement is considered as a key focus on Africa's economic investment frontier (Audu, Chika-James, & Rowlands, 2018). In contrast, Musanzikwa (2013) found out that most of the public procurement practices of developing countries are challenged by incompetent procurement staff with low salary ranges; award of tender without proper market inquires; overrun of time and cost; and rampant corruption activities. Furthermore, public procurement of low-income countries is affected by inappropriate procurement planning that lacks market inquiry and quality data; non-adherence to policies and procedures set by procurement laws and lack of leadership skill to direct and control (Chekol & Tehulu, 2014); poor public transparency and accountability (Okubena, 2016); incompetence of procurement professionals depicted by a misunderstanding of policies and functions of procurement (Musanzikwa, 2013). The Ethiopian public procurement practice in general and FWA is particular are facing these difficulties (Chekol & Tehulu, 2014; Tesfahun, 2011).

Concerning public procurement stages, advertisement of invitation to interest, evaluation of tender submitted by suppliers, and contract administration are highly vulnerable to poor practices and public corruption (Dzuke & Naude, 2017). Thus, e-procurement of the public procurement process suggested as a solution as it reaches a bigger pool of suppliers that can minimize the risk of adverse selection because of information asymmetry (Bawole & Adjei-Bamfo, 2019; Neupane, Soar, & Vaidya,

2014). Despite the importance of public procurement practices in facilitating economic, social, and environmental issues of developing countries like Ethiopia, limited empirical works have been conducted by considering FWA as a major focus (Albano et al., 2010; Albano & Sparro, 2008). According to Flynn and Davis (2014), considerable procurement researches have emanated from European and North American regions.

To contribute to the gap in empirical research related to this study, an informal interview and group discussion conducted with experts and managers from Addis Ababa Procurement and Property Disposal Agency, Amhara Regional State – Procurement and Property Disposal Agency, and other Public Bodies during training sessions provided at Ethiopian Civil Service University on the topic of FWA procurement management stated that despite an effort made by their respective agencies; framework contracting has been facing various challenges (such as lack of professional capacity of specialists and managers; poor law enforcement mechanisms; inefficient procurement process; poor contract administration; late and non-submission of procurement plan by the user agencies, shortage of foreign currencies; low financial capacity of suppliers; late delivery of goods, late payments) that require a research intervention and policy re-direction for smoother practices. The general objective of this study is therefore to examine the efficiency FWA procurement practice to improve public procurement in Ethiopia. The specific objectives are:

i. To examine the procedural efficiency of executing FWA procurement.
ii. To investigate the perceived challenges of FWA procurement practices.
iii. To analyze the perception towards FWA procurement practice by the PBs.

Materials and Methods

Choosing an appropriate method is not an easy task. This section presents the appropriate methodological issues used to address the research objectives. It has identified the research design, the population and sample, data collection strategies, and method of analysis.

Research Design and Approach

Exploratory research is used for a better understanding of the existing situation (Twinn, 1997). Furthermore, in-depth case analysis followed by a comparative case study design, is employed as the former strategy gives the flexibility to drill deeper into the phenomenon. A case study is used because it enables the study to focus on a given phenomenon and analyze it in detail (Dubois & Araujo, 2007; Karjalainen, 2011). However, descriptive and explanatory design is the most appropriate for this study as the study tries to describe the procedures on FWA and explain the perceived challenges and perceptions towards the frame. A mixed-method approach is also used at the data collection and analysis stages to access the advantages of both quantitative and qualitative data. werewasdone

Target Population

The current government structure of Ethiopia is a federal form with ten regional states and two city administrations in which the federal government plays a strategic role. The target population was the following: at a regional and city administration level, in Addis Ababa City Administration, 97; in Oromiya Regional State 56; in Amhara Regional State 52; in Afar Regional State 20; and from Dire Dawa City Administration 25. The rationale for focusing on these target populations is to give a fair representation of the FWA activities exercised in the country.

Sample Size

Various methods of sample size determination strategies can be used to identify representatives of the population which depends on the type of the study and the data needed (Punch, 2006). In this study, probability sampling was used to select PBs who participated in the FWA procurement practice. Furthermore, purposive sampling is used to collect qualitative data from the Agencies and Services. Specifically, critical case sampling is taken to insure logical generalization (Punch, 2006).As . Thus, for this study, 30 percent of the population frame of each stratum (stratified random sampling) is used.

Source of Data and Instruments

The primary source of data is collected from PBs (beneficiaries), agencies (at the federal and regional level), and services (at federal and regional level) using questionnaires and key informant interviews. **Questionnaire** – As self-constructed instruments suffer from external and internal validity, thus pre-test was conducted to improve the validity of the instrument. **Key Informant Interview** – interviews are important instruments used to collect qualitative data. For this study, self-developed instruments are used. The procedure for the development of the instruments was based on the existing literature in line with the research objectives.

Table 1: Summary of Sample Size Determination

No	Institutions	Population size	Sample size
1	Federal Government of Ethiopia	224	68
2	Addis Ababa City Administration	97	30
3	Oromiya Regional State	56	17
4	Amhara Regional State	52	16
5	Afar Regional State	20	6
6	Dire Dawa City Administration	25	8
Total		591	183

Source: Authors' construction, 2020 based on reports of agencies during the 2018/19 fiscal year.

The rationale for taking these institutions is based on the role they are playing in the FWA, their share in budget size, and inclusivity (better representation) of imagining regions and city administration.

Interview guideline was used to avoid out-off track data and response biases and to ensure standardization among responses. Finally, data saturation was considered for the validity of the data.

Reliability and validity – primary data collection instruments need to be valid and reliable (Harper, 2002). Reliability tests can measure the relevance and validity tests and check whether the data collection instrument is achieving the intended purposes. One way of ensuring validity and reliability is through pre-test (Chandran, 2004). Thus, a pre-test was conducted before the use of the instruments.

Method of analysis - Both quantitative and qualitative methods of analysis are employed.

Table 2: Summary of data type, source and method of analysis

ROs	Data type and source	Method of analysis
RO1	Quantitative data from PBs	Simple statistical tools including frequency, percentage, mean, and Spearman's rank correlation, and Ordinal regression analysis
RO2	Quantitative and Qualitative data from PBs	Simple statistical tools including frequency, percentage, mean and narrative analysis
RO3	Quantitative data from PBs and Agencies	Simple statistical tools including frequency, percentage, mean, Spearman's Rank Correlation

Source: Authors construction, 2020 Note: ROs – Research Objectives

The Ordinal regression model was estimated by identifying the dependent and independent variables on the quantitative data to investigate the procedural effects of FWA activity. Further, SPSS statistical package is consulted to facilitate the data analysis process for the reason that the model is suitable for non-parametric data.

Results and Discussions

Compliance with the framework contract by public bodies is crucial for the achievement of the benefits of centralized procurement (Karjalainen et al, 2009). And good practices in public procurement increase the effectiveness of public expenditure (WB, 2014). In the next sections, the results and discussions are presented.

Demographic characteristics - The majority of the age groups of the respondents are between 31-45years (66 percent) of which 77 percent are procurement specialists working on PBs. The majority of the participants have service year of 6-10years which indicated they had moderate years of experience in the field. The gender distribution indicated that female participants were fewer than male participants.

The Efficiency Of FWA Procurement Practices

The FWA procurement in Ethiopia was designed to acquire common user items (CUI) needed by most PBs. To identify the procedural effects of executing FWA procurement - the dependent variable – the overall efficiency of FWA procurement was used to measure the cost and related savings. Also, by focusing on the FWA procurement practices to be followed in the function of procuring common user items for the PBs; procurement planning, solicitation practice, goods receiving and payment, and conflict resolution are the independent variables devised. The descriptive statistic of the variables is presented as follows:

The Overall Efficiency Of FWA Procurement Practices

As evaluated by the respondents from the PBs who participated in the FWA procurement at the federal and regional governments of Ethiopia, the overall efficiency of FWA procurement is presented in the following table.

Table 3: The overall efficiency of FWA practice (Percent)

Statement	n	SA	MA	N	MD	SD
Simplified procurement practice	140	30	30.7	17.1	10.7	11.4
Increased flexibility	140	22.1	25.7	18.6	18.6	15
Consider the strategy of the country	140	19.3	30	28.6	9.3	12.9
Provide equal opportunity to bidders	140	27.9	21.4	22.9	11.4	16.4
Promote fair competition	138	24.6	27.5	18.1	9.4	20.3
Create value for money	140	27.9	30.7	22.1	8.6	10.7
Minimize price fluctuation problem	138	19.6	32.6	10.1	18.1	19.6
Minimized bid cancellation	140	26.4	31.4	11.4	17.9	12.9
Mean = 3.38; Median = 3.55; Mode = 3.64 Cronbach's alpha = 0.93						

Source: Own Survey, 2021

Efficiency in public procurement indicates the reduction of cost while maintaining the quality standard to achieve value for money to ensure prudent public expenditure management. The descriptive statistics indicated that the overall efficiency level of FWA procurement at a moderate stage with a mean, median, and mode of 3.38, 3.55, 3.64 respectively. This indicates that the framework is not evenly supporting PBs to increase their procurement effort to change their quantity demands as needed. Regarding the provision of an equal opportunity to bidders, a fourth of the respondents disagreed that the framework did not provide an equal opportunity to bidders. Also, a third of the respondents stated that the framework did not provide fair competition. This is in conformation to the claim that fewer and bigger bidders are participating in the FWA procurement that depletes the principle of equity for all bidders.

Public procurement has to consider the country's strategies. The respondents testified that FWA procurement considers the country's strategies in account with 22.2 percent disagreement. Regarding the achievement of value for money, the majority of respondents (58.6 percent) agreed that FWA procurement has added value for money in the utilization of public funds through procurement. However, still, a fair share of respondents did not agree with the claim. Interviewees commented that the current focus on the reduction of the purchase price shall be supported by other considerations like social inclusion and environmental protection. Empirically, Alban and Sparro (2010) suggested that value for money in public procurement need to include high quality to price ratio for PBs and the society in general. FWA procurement is expected to reduce the price fluctuation during the framework period. However, respondents indicated that unpredictable price fluctuation reduced the price benefit that the frameworks intended to achieve. Still, 52.2 percent of respondents stated that FWA procurement helps to minimize price fluctuations. On the other hand, the interview result indicated that inflation and currency devaluation were the main factors for the frequent change in price and the price adjustment question of suppliers. To examine the level of support that FWA procurement brought to PBs, respondents were asked to rate their level of agreement on the reduced bid cancellation and 57.8 percent indicated their level of agreement.

This implies that a moderate level of efficiency is achieved regarding time and money-saving by avoiding bid cancellation.

The Spearman Rank Correlation

Due to the non-parametric nature of the data collected, Spearman Rank Correlation is used to check the relationship among the variables.

Spearman's rank correlation result indicated that the efficiency of FWA procurement practice has a significant correlation with all the other variables. A stronger correlation between efficiency and conflict resolution with 0.82 followed by goods receiving and payment with 0.76, then procurement planning with 0.72, and finally solicitation process with 0.69. Thus, the dependent and independent variables have a large correlation. To support the correlation result, an ordinal regression model was established; the next section discusses the regression estimator.

Result Of An Ordinal Regression Estimator

Spearman's rank correlation indicated that all explanatory variables were positively correlated with the efficiency of FWA procurement practices. Using a non-parametric method, the following model is estimated to check the significance level and magnitude of relationship among the efficiency of FWA procurement practice and the independent variables.

$$EFF = \beta_0 + \beta_1 Plan + \beta_2 Sol + \beta_3 GRP + \beta_4 CR + \varepsilon$$

Where: EFF – effectiveness of FWA procurement; Plan – procurement planning; Sol – solicitation of bid; GRP – goods receiving and payment; CR – conflict resolution

After testing for the necessary assumptions required by the Ordinal regression estimator, with a significant Model Fitting Information, insignificant Goodness-of-Fit, Pseudo R-square of 0.75 (measured in Nagelkerke) that is – adequate explanatory variables are included and insignificant output on the Test of Parallel Lines which do not violate the assumption (the test results are annexed at the end). Then, the following table depicts the parameter estimates.

The parameter estimate indicated that procurement planning (Plan), bid solicitation process (Sol), goods receiving and payment (GRP) and conflict resolution (CR) were of FWA procurement practices of the selected PBs of Ethiopia.

Table 4: Spearman's rank correlation on the efficiency of FWA procurement

			EFF	Plan	Sol	GRP	CR
Spearman's rho	EFF	Correlation Coefficient	1.000				
		Sig. (2-tailed)	.				
		N	144				
	Plan	Correlation Coefficient	.718**	1.000			
		Sig. (2-tailed)	.000	.			
		N	130	130			
	Sol	Correlation Coefficient	.695**	.692**	1.000		
		Sig. (2-tailed)	.000	.000	.		
		N	140	130	140		
	GRP	Correlation Coefficient	.764**	.690**	.674**	1.000	
		Sig. (2-tailed)	.000	.000	.000	.	
		N	143	129	139	143	
	CR	Correlation Coefficient	.820**	.756**	.671**	.805**	1.000
		Sig. (2-tailed)	.000	.000	.000	.000	.
		N	142	128	138	142	142

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Own computation using SPSS, 2021 Note - EFF – effectiveness of FWA procurement; Plan – procurement planning; Sol – solicitation of bid; GRP – goods receiving and payment; CR – conflict resolution

Table 5: Ordinal regression estimation

Parameter Estimates

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Location	Plan	.660	.262	6.329	1	.012	.146	1.174
	Sol	.772	.222	12.049	1	.001	.336	1.208
	GRP	1.163	.266	19.152	1	.000	.642	1.683
	CR	1.192	.318	14.024	1	.000	.568	1.816

Link function: Logit.

Source: Own computation using SPSS, 2021

Procurement Planning

Procurement planning aimed to coordinate and integrate the procurement practices by reducing ill-procurement that violates the principles of public procurement (UN, 2006). Specifically, procurement planning is a technical and legal requirement in the Ethiopian public procurement practices. According to the procurement proclamation, all PBs are required to prepare, approve and report their procurement plan to the

responsible bodies at both the federal and regional levels. For instance Proclamation 649/2009 Art (22) demands that all PBs prepare a procurement plan by align it with the budget and then report it to the PPA before August 6 (*Hamle 30*) of the Ethiopian Calendar. In addition, when the method of procurement is indicated in the procurement plan, FWA procurement has to be identified for the CUI included goods and services.

The parameter estimate of the Ordinal regression revealed that procurement planning was a significant positive predictor of efficiency of FWA procurement practice in the selected PBs. Further, the following descriptive statistics indicates the contribution of FWA in the procurement planning function of PBs.

allocated budget. Here, the remaining participants did not agree on the claim showing that the involvement of FWA in their procurement plan is not significant. However, 58 percent of participants agreed that their need assessment effort has decreased because the CUI is assessed by the framework and they can focus on the other procurements of their organization. With the split response, participants identified that 58.5 percent did not agree on the socio-economic consideration while preparing the FWA procurement. Moreover, FWA procurement has to incorporate the PBs objective into account. Here, half of the respondents identified that PBs objective is considered while planning the FWA procurement. This indicates that PBs own specific objectives has been depleted because

Table 6: Contribution of FWA for Procurement Planning of PBs (Percent)

Statement	#	SA	MA	N	MD	SD
Improved procurement planning	139	24.5	36	18	11.5	10.1
Increased alignment of PP with budget	139	17.3	34.5	23	16.5	8.6
Decreased effort for need assessment	135	19.3	38.5	19.3	14.1	8.9
Included the socio-economic condition of suppliers	135	12.6	28.9	31.1	17	10.4
Considered the objectives of PBs	138	21.7	28.3	18.8	20.3	10.9
Mean = 3.4; Median = 3.4; Mode = 3.4; Cronbach's alpha = 0.87						

Source: Own Survey, 2021

The descriptive statistics on the level of contribution that FWA procurement added to the procurement planning of PBs indicated a moderate achievement of 3.4 for all mean, median and mode. This is an indication that FWA procurement is contributing to the improvement of the procurement planning practice of PBs. More than 60 percent of respondents indicated that the FWA has a contribution to an improvement in their procurement planning. Further 51.8 agreed that due to FWA procurement practice they can align their procurement plan with the

Solicitation Procedure

Solicitation function is an effort by which procurement practitioners aimed to increase competition to create efficiency over the use of public money. The method selected and the bid document preparation define the solicitation process. FWA is expected to increase process efficiency to PBs. The parameter estimate of the Ordinal regression reviled that the bid solicitation process was a significant positive predictor of the efficiency of FWA procurement practice in the selected PBs.

Table 7: Contribution of FWA for facilitating the bid solicitation procedure (Percent)

Statement	#	SA	MA	N	MD	SD
Avoid ambiguity on method selection	143	35.7	31.5	9.1	11.9	11.9
Increase open bidding	142	35.2	39.4	10.6	9.2	5.6
Decrease the complexity of bid document preparation	144	33.3	29.9	13.2	11.8	11.8
Reduce fragmentation of procurement	142	22.5	33.8	13.4	14.1	16.2
Improve specification preparation	142	35.2	26.8	13.4	14.8	9.9
Mean = 3.7; Median = 3.8; Mode = 3.8; Cronbach's alpha = 0.85						

Source: Own Survey, 2021

The overall descriptive statistics result about the contribution of FWA procurement on the facilitation of the bid solicitation procedures of PBs showed moderate agreement with a mean of 3.7 and median and mode of 3.8. The majority of respondents (67.2 percent) indicated their level of agreement towards the reduction of ambiguity in the method selection also 74.6 percent indicated that FWA procurement has increased the use of the open bidding method of procurement. Further, 63.2 percent of respondents testified that FWA has reduced the complexity on the bid preparation efforts of the PBs and 62 percent of participants acknowledged that FWA has improved specification preparation efforts of PBs whereas, only 56.3 percent of respondents identified that the framework has reduced procurement fragmentation. Therefore, despite the effort made by the coordinators of FWA to reduce the fragmentation of public procurement, the data indicated that it did not achieve the purpose.

Goods Receiving And Payment

The parameter estimate of the Ordinal regression identified that goods receiving and payment was a significant positive predictor of efficiency of FWA procurement practice in the selected PBs. Furthermore, to

examine the contribution of FWA in the goods receiving and payment functions of PBs, descriptive statistics are presented.

Table 8: Contribution of FWA for goods receiving and payment (Percent)

Statement	#	SA	MA	N	MD	SD
Ease goods receiving	143	26.6	36.4	8.4	21	7.7
Decreased transport cost	143	21.7	30.1	12.6	14	21.7
The improved choice to change the quantity	142	16.3	20.4	25.4	23.9	13.4
Reduce time to make payment	142	23.9	35.9	17.6	11.3	11.3
Increased coordination of PP and budget units	141	19.1	29.1	17.7	19.1	14.9
Decrease the complexity of making payment	143	25.9	36.4	15.4	9.1	13.3
Mean = 3.3; Median = 3.3; Mode = 3.3; Cronbach's alpha = 0.86						

Source: Own Survey, 2021

The overall result of the central tendency indicated a neutral contribution of FWA procurement to the goods receiving and payment functions of PBs with a mean, median, and mode of 3.3. Element-wise, 63 percent of respondents agreed that the frame has eased the goods receiving function whereas half of them agreed that the cost of transportation decreased. This implies that the cost of transportation is dependent on the location of PBs, meaning – those who are closer to the suppliers enjoyed the reduced cost while those who are far from the suppliers are suffering an additional transport cost. In line with this result, Albano and Sparro (2010) identified that demand heterogeneity like physical location reduces the efficiency of centralized procurement.

On the other hand, concerning flexibility to change quantity requirement, 63 percent of respondents did not agree to indicate that PBs are restricted to receiving goods with a defined quantity with little room for quantity choice.

Coordination between the procurement and budget units plays a key role in facilitating procurement-related payments and adding efficiency. The study result indicated that half of the respondents did not agree on the increased coordination between the units. Thus, due to loose coordination, efficiency in FWA procurement has been lost. However, 63 percent of the respondents agreed that frame has reduced the complexity of making procurement-related payments.

Conflict Resolution

Conflict in procurement arises when the contracting parties failed to fulfill their duties and responsibilities. FWA is expected to reduce the conflict between the PBs and suppliers by formulating uniform terms and conditions that can govern the procurement process. The parameter estimate of the Ordinal regression identified that conflict resolution was a significant positive predictor of efficiency of FWA procurement practice in the selected PBs.

Table 9: Contribution of FWA for conflict resolution (Percent)

Statement	#	SA	MA	N	MD	SD
Reduce negotiation effort	140	19.3	31.4	21.4	13.6	14.3
Reduced conflict	139	23.7	31.7	21.6	15.1	7.9
Improved data management	141	27	30.5	20.6	13.5	8.5
Reduced cost of litigation	138	23.9	37.7	16.7	15.9	5.8
Increased compliance rate of suppliers	139	14.4	27.3	23.7	20.9	13.7
Facilitate timely payment to suppliers	141	22	29.8	22	17.7	8.5
Mean = 3.4; Median = 3.4; Mode = 3.1 Cronbach's alpha = 0.86						

Source: Own Survey, 2021

The descriptive statistic result of mean and median is 3.4 indicating a lower limit to the level of moderate agreement on the overall contribution of FWA procurement on reduction of conflicts.

The mode result 3.1 indicated a neutral contribution to the frame on the conflict resolution effort of PBs. Construct wise, 51 percent of respondents indicated an agreement on the reduction of negotiation efforts of PBs while the remaining did not. This split result indicates that PBs are still making an extra effort on negotiation with suppliers despite the existence of the framework on the price term and related considerations. Parallel to this, 55 percent agreed on the reduction of conflict with the suppliers. Further, 58 percent agreed on the improvement of procurement data management capacity of PBs whereas the remaining did not agree. This mixed result implies that FWA practice has to work towards improving the data management of PBs.

If not handled properly, conflicts on public procurement might end up with resolution through literation that can add cost to both the contracting parties. Our result indicated that 62 percent of the respondents indicated an agreement on the reduction of the cost of litigation due to the practice of FWA procurement. This is due to the centralized contract management done by the coordinating authorities. Meanwhile, only 38 percent of respondents agreed on the increment of compliance level by the suppliers. This low level of suppliers' compliance to the FWA contract is depleting the efficiency of FWA procurement practice and requires attention. On the other hand, timely payment to suppliers increases their level of compliance and dependability. Only 52 percent of the respondents agreed on the facilitation of the frame to the timely payment to suppliers. This indicates that timely payment to the suppliers is not performed properly and requires attention.

Challenges Of FWA Procurement Practices

Procurement is one of the complicated government operations faced with multi-directional challenges. Thus, an investigation on the challenges of FWA practices was conducted to identify and correct them in the future.

current procurement laws do not consider the current economic and market condition of the country. They hinted that the existing legal framework lags behind the fast-moving global market condition. According to Junior (2013), successful centralized procurement should have procurement units that are free from private interest and pressure from political leaders.

Table 10: Challenges encountered in FWA procurement practices by the PBs (Percent)

Major challenges	#	SA	MA	N	MD	SD	Mean
Lack of top management support	143	29.4	31.3	16.7	15.3	6.9	3.61
Lack of qualified procurement specialists	142	24.3	29.9	20.8	13.9	9.7	3.46
Vulnerability for high-level corruption	142	13.9	29.2	25.7	13.2	16.7	3.11
Increase piecemeal purchase	141	17.4	27.1	21.5	18.8	13.2	3.17
Invite fewer bidders	141	35.5	22	16.3	11.3	14.9	3.52
Lack of common understanding	141	20.6	24.1	27.7	17	10.6	3.27
Low awareness of procurement specialists	140	16.4	28.6	22.9	19.3	12.9	3.16
Frequent conciliation of bid	139	15.1	26.6	23	19.4	15.8	3.06
Lack of objective evaluation	139	16.5	13.7	21.6	25.9	22.3	2.76
Promote unethical behaviours	143	10.5	14.7	25.9	21.7	27.3	2.59

Source: Own Survey, 2021

Among the major challenges in the FWA procurement practices of the selected PBs were the lack of top management support with a mean of 3.61, involvement of fewer suppliers with a mean of 3.52, lack of qualified procurement specialists to execute the frame (mean 3.46), lack of common understanding between the central coordination authority and the PBs with the mean of 3.27, increase in the piecemeal purchases with the mean of 3.17 and low level of awareness from the procurement officers of the PBs with a mean of 3.16.

Legal Framework and Top managements support: According to the interview result conducted with procurement specialists at the federal and regional government noted that the legal framework governing FWA procurement is not updated on a regular interval. Interviewees indicated that the

However, strong support to the system is needed to facilitate the transaction between the PBs and suppliers. For this study, top management officials that are accountable for the overall activities of PBs are selected. Here, respondents identified that the level of support from the top management is minimum and taken as a "*scapegoat*" for the poor procurement performance of the organization. For instance, a procurement officer from the PBs testified that top managers use FWA procurement as an excuse for the delay in the delivery of goods (for both FWA procurement-related and other decentralized procurement.) This assessment is in line with the findings of Ndercaj & Ringwald (2014) who identified that the public procurement administration is suffering from a lack of experienced managers.

Loose Coordination: The misunderstanding between the principal and agents is making FWA inefficient. Agency theory taught us that the agents are responsible for the interest of the principals. However, in the FWA arena, the collaboration of the principals to support the effort of the agents is found to be a relevant factor for the efficiency of public procurement. For instance, when the procurement agents at the federal and regional government go through the procurement process to reach a FWA on behalf of the PBs (the principals) to make sure that all the benefits of the agreement are achieved (due to misunderstanding and limited awareness) PBs failed to exercise the final critical steps of the procurement claiming that the agencies were not supporting their specific organizational demands.

Suppliers and the Market: Efficiency in FWA cannot be achieved without vibrant market conditions. The study identified that the current market condition and the suppliers that operate it did not suit the demands of FWA. Procurement specialists expressed their observation that FWA requires capable supplies that can meet huge demands of PBs at different times with different quality requirements. However, the existing suppliers were not in a position to meet the contractual agreements due to capacity and sometimes willingness to exercise their obligation. One of the key issues that suppliers claimed as a reason for not meeting the requirement was the issue of hard currency shortage that the market is facing. Further, the level of inflation that the country is accounting for is not helping suppliers to fulfill their contractual responsibility. In addition, the unpredictability of quantity requirements from the PBs made suppliers act contrary to what was agreed in the framework. Thus, the late arrival of goods and inconsistency in delivery by suppliers require attention.

Professional Capacity and Commitment: The capacity of procurement professionals to exercise their duties and responsibilities is one of the critical challenges in FWA procurement. The interview result indicated that the capacity of procurement specialists at the agency and PBs level was not adequate. Senior procurement specialists identified that FWA procurement requires skill and experience to look at the big picture of the benefits to be received at all levels of procurement, not just the price reduction. In addition, the survey result indicated that the lack of qualified procurement specialists and low level of awareness have challenged the practice of the frame. This implies that the qualification and commitment of procurement people in the PBs require attention.

Quality and Quantity: According to Sorte Junior (2012) efficient centralized public procurement optimizes quality and reduces cost through economies of scale. However, the delivery of "poor" quality goods is challenging the efficiency of FWA at all levels of government procurement in Ethiopia. Senior experts at the central coordinating agencies explained that the definition of *quality goods* for them meant a good that is "*fit for the purpose*" by using the Ethiopian standards to verify the goods delivered to the PBs. This implies that the delivery of quality goods from the FWA procurement has not been achieved yet. This finding conforms with Hiidensalo (2016) who identified that delivery sub-standard quality goods affected the performance of centralized public procurement. On the other hand, the delivery of goods in the right quantity has been the issue in the FWA procurement. Respondents identified that "stockout" is mentioned for the reason for PBs purchase order request. This forced PBs to order an unnecessary quantity of goods due to the fear that they may not get the right quantity. Therefore, the lowest price award criteria used in the FWA has to be supported by improved quality and quantity delivery.

Timely Delivery: Interviewees on the selected jurisdiction stated that - the most frequent challenge in the FWA procurement is the delay in delivery of ordered goods. They also indicated that year-end rush procurements have been noticed due to the delayed delivery and out-of-stock responses by suppliers that forced PBs to look for an alternative delivery using the decentralized system. As indicated in the survey result, PBs are being challenged by piecemeal purchasing. Thus, this delivery delay has reduced the expected efficiency benefit of the frame.

Contract Management: Inadequate contract management reduces the efficiency of procurement practices. Participants of the interview identified that the current FWA procurement practice lacks the proper contract evaluation and follow-up. They identified that the frame is huge to be handled by the centrally coordinating authority. Besides the contract management has been hampered by the need identification and planning practices of the PBs.

Perception towards FWA

The perception of procurement specialists towards the frame determines the efficiency of FWA procurement practices.

Table 11: Perception towards FWA procurement practices by the PBs (Percent)

Statement	#	SA	MA	N	MD	SD	Mean
Improve compliance with regulation	141	29.1	38.3	15.6	9.2	7.8	3.72
Add burden to procurement specialists	141	16.3	28.4	20.6	22	12.8	3.13
Increase grand corruption	139	16.5	18	29.5	14.4	21.6	2.94
Made my task simple	141	24.8	36.2	17.7	12.8	8.5	3.56
Reduced sophisticated methods	138	15.2	24.6	24.6	15.9	19.6	3.00
Make me less relevant	142	12	26.1	19.7	26.1	16.2	2.92
Reduce alternatives of offer	140	19.3	22.9	25	22.9	10	3.17
Reduced organizational level corruption	140	25.7	28.6	22.9	16.4	4.4	3.51
Weaken my professional exposure	141	19.1	21.3	24.1	21.3	14.2	3.10
Improved my incentives	139	23	23	30.1	22.3	11.5	3.24
Good on paper than in practice	138	16.9	25.4	35.5	16.7	11.6	3.07
Reduce my sense of control	140	10	31.4	19.3	17.9	21.4	2.91
Increased trust in suppliers	140	19.3	22.6	25	22.9	10	3.19
Reduce solidarity to local suppliers	140	13.6	20	25.7	29	28.7	2.86

Source: Own Survey, 2021

The mean result on the perception of procurement professionals in the selected PBs indicated that – improvement of compliance with the procurement laws with a moderate agreement mean of 3.72, made their task simple with a mean of 3.56, reduced the organizational level corruption with a mean of 3.51. On the other hand – improved incentive, increased trust in suppliers, reduced alternative offer, added burden, weaken their professional exposure, good on paper, reduced sophistication of method selection, increased grand corruption, made them less relevant, reduced their sense of control, and reduced solidarity to local suppliers with a mean of 3.24 to 2.86.

Furthermore, to investigate the relationship among the perception of procurement specialists and managers of PBs towards FWA procurement is dependent on the dependent variables (gender, age, experience, and job position); a Spearman Rank Correlation analysis was performed.

The Spearman's rank correlation result indicated a low and insignificant relationship among the perception of procurement specialists in the selected PBs with their age group, job title, year of service, and gender group. However, the job title and gender group of the respondents has a positive correlation whereas the age group and service year of respondents are negatively correlated.

The result of the key informant interview revealed that the perception of procurement specialists towards the reduction of their relevance in the procurement of their organization due to the existence of FWA indicated a twofold argument. Few of them testified that FWA procurement limited their exercise on professional interests. Others indicated that the FWA procurement made them free from the routine comment user-item procurement to focus on the strategic procurement of their organization by

reducing the burden of elongated procurement procedures.

Senior procurement specialists explained that the awareness level towards FWA procurement is limited to a few people who participated in the initial inception of the modality. Above all, they indicated that procurement officials at the PBs are not looking at the big picture at country-level achievement of value for money, rather they focus on their own organization's interest which is focused on short-term price reduction. The perception towards FWA procurement varies from region to region and physical distance between the central coordination body and the PBs. For instance, PBs approximate to the center reported a positive perception towards the practice than those far from the center.

Conclusion

Efficiency in the FWA procurement realized when PBs consider total value for money for their operations and the society as a whole. This study identified that the focus on cost control has to be supported by other considerations like the overall benefit to the society and broader policy objectives. Moreover, in addition to support from the political leaders and administrators, coordination among the key players in the FWA procurement has enormous relevance. Furthermore, communication between the central coordinating agencies and PBs increases the efficiency gained from FWA procurement. But the level of awareness towards FWA procurement by procurement specialists at the PBs is at its early stage.

All in all, as one senior person who participated in the establishment of FWA procurement system in Ethiopia identified, "*no one is fully happy with what they procure*" even at a personal level compared to the FWA procurement for thousands of PBs with diverse needs and requirements. Here, specialists have to understand that there is no perfect procurement, rather the right quality with the right price and right quantity at the right time from the right supplier has to be given due attention.

Recommendations

When the demands of PBs are properly aggregated, they will become a significant market power by dictating the supply of goods and services needed by the government. In the government of Ethiopia however, this potential has not been utilized adequately. Also, facilitate technical pieces of advice that are relevant to the day-to-day operation of the FWA operations.

Well-coordinated and integrated FWA procurement can enhance the efficiency of public procurement. Thus, by crafting a smooth communication channel among the centrally coordinating agency, PBs, and suppliers, the desired procurement efficiency can be realized. Finally, the study calls upon policymakers that – the benefits of FWA procurement will be realized when adequate attention is given to the efficacy in the practice of the frame and reduce the challenges faced through a coordinated effort by the centrally coordinating agencies and the PBs.

Author Contributions

The author conceived the idea, designed the proposal and instruments, conducted the statistical analysis, and wrote the manuscript.

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Impact of Sub Watershed Management Program on Household Livelihoods of Humbo District in Southern Ethiopia: Instrumental Variable Approach,

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Abstract

This study is aimed at assessing effect of watershed management program on livelihood of households of selected sub watersheds in Humbo District. To carry out the study objectives, from econometrics models instrumental variable (IV) method was applied from among different impact evaluation methods with the sample size of 330 households. The results of econometric estimation revealed that household age, education, adoption, consumption expenditure, material possession, extension contact, productivity of crops, upstream and downstream and employment were positively and significantly related with HHDI at 1%, 5% and 10% level of significance. To examine the validity of instrumental variables estimation, different diagnosis tests like normality tests of the model, endogeneity test, tests of weak instruments, tests of over identifying restriction, multicollinearity and heteroskedasticity were employed. After identification and testing of IV result, the 2SLS estimation was conducted for evaluating Impact. Accordingly, adoption of watershed program has positive and significant impact (31%) on HHDI of the sample households in the study area. Therefore, the result indicate that with adoption of watershed management program, household on livelihoods can improve.

Keywords: adoption, HHDI, IV, 2SLS estimation, Watershed management, Ethiopia

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Introduction

Trends in watershed management studies indicate that managing water and land resources in integrated way in watershed approach helps to achieve economic development without compromising the protection of environment. Worldwide, India, China, Nepal, Philippines and Indonesia, have achieved remarkably small scale and large scale watershed based development programs (Gebregziabher, 2012). Also in Africa, Kenya, Niger, Burkina Faso and Mali, have mainly used participatory conservation and watershed-based approaches (Wang et al, 2016).

Coming to Ethiopia, historically, development of watershed approach began in the 1980's. The initiative was first made in response to environmental degradation following the occurrence drought in 1970s (Tessema and Tripathi, 2015). Later, large watershed programs was implemented in about 40 thousand hectares (Desta et al, 2005). Studies in southern Ethiopia also indicate that community based participatory integrated watershed management was commonly implemented activities(Wolka, 2015). In the region particularly Wolaita Zone, watershed management activities were on improving trend to restore degraded lands revealed in terms of deep galleys. In this perspective, Humbo District was examplery as part of Wolyta Zone.

As far as studies on impact evaluation of watershed management, they were focused on PSM model for analysis. Halibo (2010) studied the impacts of integrated watershed management program on food security and Emily Schmidt and Tadesse (2012) studied Household and pilot level impact of sustainable land and watershed management practice in the Blue Nile. Some also studied other aspects of watershed management, Meta, et al (2018) studied factors affecting farmers

participation in watershed management programs in the Northern Highlands of Ethiopia, Wolka and Negash (2014) studied Farmers' adoption of soil and water conservation technology, and Kerse (2017) studied factors affecting adoption of soil and water conservation practices. However, these studies did not clearly show and rigorously evaluate how water shed adoption can affect household livelihoods particularly using instrumental variable method. Thus, the objective of this study was to investigate impact of watershed management program on household livelihoods in adopters and non-adopters' sub-watersheds of Humbo Districts.

Materials and Methods

Study Area

The study was undertaken in Humbo District of southern Ethiopia located 400 km from capital city of the country, 180 km from Region town, 18 km away from Wolyta Zone capital. It was bounded by Mirababaya District in South, Sodo Zuria District in North, Damot Woyde and Lokabaya distracts in East, and by Ofa District in West. The total population of Humbo District was about 157,070 with a total area of 86,646 ha. With regard land distribution, area coverage of arable land 35,057 ha (40.47%), grazing land of 8,585 ha (9.9%), natural forest of 24,845 ha (28.64%), water 12,000 ha (13.84%), cultivable land of 1,010 ha (1.10%), and others land of 5149 ha (5.9%).

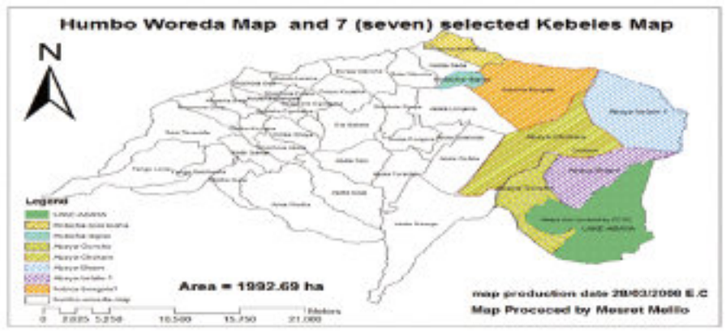
The District is divided in to two agro ecological zones; that is Weyna Dega (30%), Qola (70%). The study area located in Abaya-Chamo watershed management project Kebeles of Humbo District. The study is carried out in Arenguade Limat and Dogiso project and non-project sub watersheds of Hobicha Borkoshe Kebele respectively, and Bogota and Beda project and non-project sub watersheds of Hobicha Dogiso Kebele respectively.

Data Collection Technique

Data were collected both from primary and secondary sources. Primary data are collected from selected households in the study area through schedule. Secondary data were collected from published and unpublished sources. A structured questionnaire is prepared and used to collect primary data through household survey.

Sampling Framework

Project & non-project sub watersheds were selected using purposive sampling techniques. This was being based on the availability of baseline socio-economic and biophysical data. The non-project sub-watersheds selected being based on the neighboring with the project sub watersheds. But when sampling households cluster and systematic random sampling (upper stream and lower stream of the sub watersheds) techniques are used. From the total of



2,862 household populations,351 sample households were selected using Yamane (1967) formula. Being based on the sizes of the samples are proportional to the sizes of total household, (Kothari, 2004), the sample size was determined for project & non project sub watersheds.

Model specification

Theoretical Model

A watershed is as an area in which all water drains to a common point. Watershed management is effective use of both land and water. The major influences of watershed development program includes 1) improvement in productivity and production of crops, land cover & use change and cropping pattern , agricultural technologies, milk production, 2) attitude and participation of the communities in watershed management program, socio-economic condition like income, employment, assets, health, education and energy use, 3) environment, 4) use of land, water, human and livestock resources, 5) development of institutions for implementation of watershed development activities, and, 6) ensuring sustainability of improvements (Palanisami and Kumar, 2009). The major purpose of integrated watershed development is to improve the livelihoods of the community through comprehensive and integrated natural resource development (Desta et al, 2005).

Three classifications of livelihood strategies were identified within sustainable livelihoods framework. These include agricultural intensification, livelihood diversification and migration. Rural communities either gain livelihood from agriculture (including livestock rearing, aquaculture, forestry etc.) through processes of intensification (more output per unit area through capital investment or increases in labour inputs) or extensification (more land under cultivation), or diversify to a range of off-farm income earning activities, or move away and seek a livelihood, either temporarily or permanently, elsewhere. Or, more commonly, you pursue a combination of strategies together or in sequence (Scoones, 1998).

The study creates a comparing group using statistical design. Let Yi is dependent variable (livelihood) for household i.

For participant (program participant), T_i=1, and the value of Y_i under treatment is represented as $Y_i(1)$.

For non-participant (non-program participant), T_i=0, and the value of Y_i under non treatment is represented as Y_i (0). Therefore, the mean impact of the program represented as: $D = E(Y_i(1)|T_i = 1) - E(Y_i(0)|T_i = 0)$

The challenge is that the treated and non-treated groups may not be the same prior to the intervention, so the expected difference between those groups may not be due entirely to program intervention. If then adds and subtracts the expected outcome for non-participants had they participated in the program (project in this study case), .

$$D = [E(Y_i(1)|T_i = 1) - E(Y_i(0)|T_i = 0)] + [E(Y_i(0)|T_i = 1) - E(Y_i(0)|T_i = 1)]$$
$$D = ATE + E(Y_i(0)|T_i = 1) - E(Y_i(0)|T_i = 0)$$
$$D = ATE + B$$

Where, ATE is the average treatment effect $(E(Y_i(1)|T_i = 1) - E(Y_i(0)|T_i = 1)$ namely, the average of outcomes of participant relative to non participant, as if non participating households were also treated. The term B is the extent of selection bias. The basic objective of a sound impact assessment is then to find ways to get rid of selection bias ($B = 0$) or to find ways to account for it (Khandker et al, 2009).

The study used IV approach, selection bias on unobserved characteristics is corrected by finding a variable (or instrument) that is correlated with participation but not correlated with unobserved characteristics

affecting the outcome; this instrument is used to predict participation.

Considering the estimated equation that describes outcomes of program and non-program sub watersheds:

$$Y_i = \alpha X_i + \beta T_i + \varepsilon_i$$

Where, T_i is a dummy equal to 1 for those who participate and 0 for those who do not participate. X_i is a set of other observed characteristics of the individual, and an error term reflecting unobserved characteristics that also affect Y_i.

There will exist an endogeneity problem, because of deliberate placement of the program in the study area (no randomization). Therefore, selection bias is a problem. That is, cov(T, ε) ≠ 0 implies violation of one of the key assumptions of OLS in obtaining unbiased estimates: independence of regressors from the disturbance term ε. The correlation between T_i and naturally biases the other estimates in the equation, including the estimate of the program effect β.

The IV aims to clean up the correlation between T and ε. That is, the variation in T that is uncorrelated with ε needs to be isolated. To do so, one needs to find an instrumental variable, denoted Z, that satisfies the following conditions:

1. Correlated with T: cov(Z,T) ≠ 0

2. Uncorrelated with ε: cov(Z,ε) = 0

Thus, instrument Z affects selection into the program but is not correlated with factors affecting the outcomes (also known as an *exclusion restriction*).

TWO-STAGE LEAST SQUARES APPROACH TO INSTRUMENTAL VARIABLES(IVs)

To isolate the part of the treatment variable that is independent of other unobserved characteristics affecting the outcome, one first regresses the treatment on the instrument Z (Khandker et al, 2009). This process is known as the *first-stage regression*:

$$T_i = \gamma Z_i + \varphi X_i + \mu_i$$

The predicted treatment from this regression , therefore reflects the part of the treatment affected only by Z and thus embodies only exogenous variation in the treatment. is then substituted for treatment create the following reduced-form outcome regression:

$$Y_i = \alpha X_i + \beta[\gamma Z_i + \varphi X_i + \mu_i] + \varepsilon_i$$

Through instrumenting, therefore, T is cleaned of its correlation with the error term. If the assumptions cov(T, Z) ≠ 0 and cov(Z , ε) = 0 hold, then IV consistently identifies the mean impact of the program attributable to the instrument.

Analysis of the Study

The level of socio-economic and demographic characteristics were analyzed and explained using descriptive statistical analysis and the selected dependent and independent variables were analyzed using Instrumental Variable estimation (VI) to estimate the impact of watershed management. The analysis was done using Stata MP 13 software.

Definition of Variables Used

Dependent Variable: Livelihoods:

According to Lodha and Gosain (2008), to quantify the livelihoods of rural sub watersheds household development index (HHDI) is used. HHDI represents the position of particular household within a given population with respect to the set of four indicators- income(x_1), literacy(x_2), land holding(x_3) and livestock holding(x_4).

Annual income(x_1): It operationalize as the total income earned by the respondents from both agriculture and sources other than agriculture in the previous year as expressed by the respondents in birr.

Literacy rate (x_2): Literacy is an important indicator judging the quality of human resource. It was calculated by deducting the population below five years of age (non-school going) from the total sampled population (Thakur, et al, 2014).

$$\text{literacy Rate (\%)} = \frac{\text{total number of literate persons}}{\text{total population} - \text{population below 5 years}} * 100$$

Land holding (x_3): It refers to the size of hectares of land possessed by the sample households.

Livestock possession (x_4): It refers to the number of herd size expressed in Tropical Livestock Unit (TLU).TLU is livestock numbers converted to a common unit. The conversion factors are for cattle=0.7, sheep and goats=0.1, and chicken=0.01 TLU (Ulrike, 2005).

Maximum and minimum values of the indicators are identified for each indicator. The development measure then placed a household in the range of zero to one as defined by the difference between maximum and minimum.

Thus I_{ij} is the development indicators for the j^{th} household with respect to the i^{th} indicator and it is defined as:

$$I_{ij} = \frac{x_{ij} - minx_{ij}}{max\, x_{ij} - min\, x_{ij}}$$

To measure the HHDI for the j^{th} household, is by taking the simple average of all development indicators:

$(HHDI)_j = \sum_{i=1}^{n} I_{ij}/n$, where n is the number of indicators

HHDI values: UNDP's Human Development Report (HDR) classifies all countries into four clusters depending up on their HDI. Countries with an HDI of 0.800 or above are considers high in human development; 0.500 – 0.799 are medium and less than 0.500 low in human development (UNDP, 2003). Lodha and Gosain(2008) introduced one more category within the low development segment. Therefore all household belonging to the study area grouped into four clusters, depending on the HHDI values. Stressed household if the HHDI index is less than 0.200 , Household with low development if the HHDI index is in the range 0.200 to 0.499, Medium developed household if the HHDI index is in the range 0.500 to 0.799 and High developed household HHDI index is in the range 0.800 to 1.000.

Independent Variables

Adoption: This has been operationally defined as the extent of adoption of watershed management projects. Respondents will classify accordingly as adopter and non adopter. On a two point continuum non adoption, and adoption. Each practice was given a score of zero, and one for non adoption, and adoption respectively. The scoring and categorization of respondents was done in accordance with the procedure followed by Shambulingapappa B.G. (2011)

Age: It is refers to the chronological age of the respondents, in years completed at the time of investigation. The description of age of respondents was done as followed by Sebhatu Seyoum Halibo (2010).

Education: The continuous variable education operationalise as the number of years of formal education acquired by the respondents. The description of education of respondents was done as followed by Ziller et al (2003).

Gender: Gender is sexual characteristics of respondents. It is measured on two point continuum *i.e.*, male and female with score of 1 and 0 respectively. The scoring and categorization of respondents was done in accordance with the procedure followed by Solomon Addisu et al (2013).

Productivity of crops: Productivity refers to the economic production of plant product of economic importance, expressed in standard units per unit area. The important crops of the area are selected for the study purpose. The yield data on the above crops are collected during interview with the farmers. The continuous measurement of productivity of crops was done as followed by Sebhatu Seyoum Halibo (2010) and Thakur et al (2014).

Material possession: It refers to the possession of major household materials and farm implements utilized for agricultural operations in the farm by an individual farmer**.** The scoring and categorization of respondents was done in accordance with the procedure followed by Lodha and K.Gosain (2008)

Consumption expenditure: It is Induced consumption by households on goods and services that varies with income and expressed in annual amount of birr. The continuous measurement of consumption expenditure was done as followed by Shambulingapappa(2011)

Employment: the number of employed people other than own farming activity. It measured on two point continuum *i.e.*, employed and unemployed with score of 1 and 0 respectively. The scoring and categorization of respondents was done in accordance with the procedure followed by Deai et al (2009).

Extension contact: Extension contact is defined as the frequency of contact of respondent with the different extension personnel and extension agencies for seeking information about watershed practices. It will measured on three point continuum *i.e.*, regular, occasional and never with score of 2, 1 and 0 respectively. The scoring and categorization of respondents was done in accordance with the procedure followed by Kerse (2017).

Participation: Participation is defined as the extent of respondents participated in soil and water conservation practice. It will measured on three point continuum *i.e.*, regular, occasional and never with score of 2, 1 and 0 respectively. The scoring and categorization of respondents was done in accordance with the procedure followed by Pradeep Dogra (2012) and Maniyannan S. et al (2007).

Upstream and Downstream (UAD): it is defined as the respondents permanent place of residents in the up and down stream of watersheds in the study area. It was measured on two point continuum *i.e.*, up and downstream with score of 1 and 0 respectively. The scoring and categorization of respondents was done in accordance with the procedure followed by FAO (2006).

Results and Discussion

Descriptive Statistical Analysis

Descriptive statistical analysis was based on household survey through schedule from the adopters and non-adopters of watershed management program of Humbo Districts namely Arenguade Limat, Dogiso, Bogota, and Beda sub watersheds. The two sub watersheds of Arenguade Limat and Bogota are project areas where 180 household heads were interviewed whereas Dogiso and Beda are non project areas in which 150 non participants' household heads were interviewed.

The result showed that majorities (84%) of the respondents were male and 85% of the adopters and 83% of the non adopters were

male. Average age of the respondents was 38 years (Table 1). The mean age of the adopters (39 years) years was not significantly different from non-adopters (38 years).

The 2SLS estimation result revealed that a household was found to be significant and positively related with HHDI. This can be explained by the fact that older farmers have relatively better experience and understanding about livelihood impact of participating on watershed development as compared to the younger ones. But this result was contrary to the finding of Sebhatu (2010) which found out older farmer labor capability was much lower than that of young generation.

Table 1: Demographic characteristics by adoption status

Variable	Pooled data (N=330)	Adopters (N=180)	Non adopters (N=150)
Gender in %			
Male	84	85	83
Female	16	15	17
Educational Background			
Illiterate	49	33	68
Primary	12	12	11
Secondary	23	28	17
High school	10	16	4
College	6	12	0
Average age of household heads	38	39	38
Average household size	7	6	8

Source: own survey result, 2019

Table 2 summarizes descriptive statistics for all variable included in the analysis for 2017/18. The dependent variable, HHDI, has a mean of 0.407. This implies that the HHDI of both adopters and non-adopters fall under low development index (0.2-0.499). The main explanatory variable, adoption, has a mean value of about 0.55. The standard deviation is 0.49.

Table 2: Summary Statistics of Adopters and Non-Adopter

Variables	Mean	Stad. Dev.	Min.	Max.	N
HHDI	0.4075761	0.38067518	0.005	0.906	330
Adoption	0.5454545	0.4986858	0	1	330
Gender	0.8363636	0.3677248	0	1	330
Age	38.98182	7.288891	26	68	330
Education	3.858594	4.250619	0	12	330
Consumption expenditure	37,247.52	11,015.82	25557	75931	330
Productivity of crops	32.73636	3.300999	29	38	330
Material possession	0.5363636	0.4991431	0	1	330
Extension contact	0.5454545	[illegible]	0	1	330
Employment	0.4939394	0.5007125	0	1	330
Participation of SWC	0.568697	0.8459901	0	1	330
Training	0.5393939	0.4992026	0	1	330
Perception	0.7151515	0.4520277	0	1	330
Upstream and downstream	0.5000000	0.5007593	0	1	330

Source: own survey result, 2019

Econometric Result

The econometrics function was used to estimate the treatment effects of adoption on household livelihoods in terms of HHDI (Household Human Development Index). The potential IVs used in the estimation were: Household training of SWC, and household perception about soil erosion, which are stems from Mengiste (2009) and Mutuku (2017) respectively.

Diagnostic Tests Of 2SLS Estimation

Normality Tests of The Model

The response of dependent variable for explanatory has to be normal distribution. The violation of this assumption occurs when there are outliers in data set, and leads to problems of wider confidence intervals and wrong hypothesis testing (Jeffery M. Wooldridge, 2012). SK tests for normality in table 4, revealed that the observations were normally distributed. That is, the regression is normally distributed.

Table 3: Skewness/Kurtosis Tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Resid	330	0.9447	0.3484	0.89	0.6407

Tests of endogeneity: Stata has a command "estat endog" that performs an F-test and chi-square test following method=logies called the Wu- Hausman test and Durbin test, respectively. The null hypothesis is that variables are exogenous.

Ho: variables are exogenous

Durbin (score) chi2(1) = 3.47517 (p = 0.0623)

Wu-Hausman F(1,318) = 3.38444 (p = 0.0667)

The result shows that the null hypothesis is rejected at 10% level, implying that IV is better model than OLS. In other words, the explanatory variable adoption of watershed management is endogenous variable.

Tests of weak instruments: Stata has a command "estat firststage" that performs an F-test. The null hypothesis is that the instruments are weak. The partial R-square (0.523) in the result measures the correlation between the instruments and the endogenous variable. It indicated good correlation and satisfies instrument relevancy condition. The F-statistic in result is 28.77, which is larger

than any of the critical values of Wald test shown in Table 5. Therefore, the null hypothesis is rejected which says the null hypothesis are weak.

Table 4: First-stage regression summary statistics

Variable	Adjusted R-sq.	Partial R-sq.	F(2,338)	Prob > F
adoption	0.5004	0.0969	0.523	28.76925	0.0002

Minimum eigenvalue statistic = 28.76925

Critical Values		# of endogenous regressors:	1
Ho: Instruments are weak		# of excluded instruments:	2
		5%	10%	20%	30%
2SLS relative bias		(not available)			
		10%	15%	20%	25%
2SLS Size of nominal 5% Wald test		19.93	11.59	8.75	7.25
LIML Size of nominal 5% Wald test		8.68	5.33	4.42	3.92

Tests of over identifying restriction: Stata has a command "estat overid" that performs an chi-square following methodologies called the Sargan test and Basmann test. The null hypothesis is that the instruments set are valid and the model is correctly specified. The test result showed that both Sargan test and Basmann test p-value are not significant, implying that the instruments are valid.

Tests of overidentifying restrictions:

Sargan (score) chi2(1) = .157221 (p = 0.6917)

Basmann chi2(1) = .151577 (p = 0.6970)

2SLS Estimation Result

The findings of the 2sls IV estimation are presented in table 3. The result revealed that, watershed management program had a significant impact (31 percent) on household livelihoods

Instrumental variables (2SLS) regression

Number of obs =	330
Wald chi2(10) =	493.17
Prob > chi2 =	0.0000
R-squared =	0.6005
Root MSE =	0.11541

Table 5: The 2SLS estimation result

Variables	Estimated coefficients	(S.E)	(Z)	P>|z|
Adoption	0.3092	0.1833	1.69	0.092*
Gender	-0.0450	0.0292	-1.56	0.118
Age	0.0282	0.0169	1.66	0.096*
Education	0.6199	0.0078	7.92	0.000***
Consumption	0.6282	0.6490	9.70	0.000***
Productivity	0.0177	0.0104	1.67	0.095*
Possession	0.0703	0.0256	2.74	0.006***
Extension	0.1004	0.0491	2.04	0.041**
Employment	0.1168	0.0602	1.94	0.052**
Participation	0.0478	0.0291	1.65	0.102
UAD	-0.1078	0.0351	3.07	0.024**
Constant	-0.5147	0.3135	-1.64	0.101

*, **, and *** significant at 10%,5% and 5% probability level.

Source: own survey result, 2019

Among the hypothesized explanatory variables included in the model, extension contact, upstream and downstream and employment variables were found affecting the dependent variable at 5% significant level. Whereas, adoption, age and productivity were influencing livelihood at 10% significant level. The remaining education, consumption expenditure and material possession have influence at 1% significant level. The discussion of each variable will be given in accordance with their characteristics presented as follows.

Age of the Households

Age of the household was hypothesizing to be negatively associated with HHDI. But the 2SLS estimation result revealed that it was found to be positively associated with HHDI. This can be explained by the fact that older farmers have relatively low capacity to deliver works since water shade was found to be too laborious. This result was consistent with the finding of Sebhatu Seyoum Halibo(2010) by which older farmer labor capability was much lower than that of young generation.

Educational Status of the Household Head

As hypothesized, having formal education improves the HHDI of households. Education was found to affect HHDI of household positively at 1% significant level. The coefficient of education suggests for a unit increase in education, average HHDI increase by 61.99% per additional year of education. The positive association shows that a better educated household seems to have better HHDI through managing development indicators for HHD than low level of the uneducated household. This result was in lined with the findings of Ziller et al (2003).

Extension Contact

Agricultural extension services in Ethiopia are carried out at the kebele level using extension officers. There are three extension officers, also known as development agents (DAs) in each kebele specializing in plant sciences/crop protection, natural resources management, and livestock production. In this study, agricultural extension services are intended to educate farmers and assist in resolving their agriculture-related problems, thereby motivating them to decide to participate in watershed management programs hence increased production. In the same line of study expectation, the regression analysis of this variable revealed that frequency of agricultural extension service is found to be statistically positive and significant at 5% significant level. This means the frequency of extension contact increases farmers decision to participate in the watershed management program rises. The coefficient of this variable shows that a unit increase in extension contact on average increases HHDI by 10.04%. Belete Limani Kerse (2017) study also revealed that better access to extension has strong and positive influence on the livelihoods of the household. This implies that farmers who have access to extension service are more likely to aware of various management practices.

Productivity of Crops

As hypothesized, productivity of crops found to affect the HHDI significantly positive at 10% significant level. This was due to increase in the land productivity which resulted from continuous watershed management activities. The coefficient of this variable suggests that a unit increase productivity of crops, average HHDI increase by 1.8%. This result was in lined with the findings of Sebhatu Seyoum Halibo (2010) and Thakur D.R. et al (2014).

Household Consumption Expenditure

Consumption expenditure of household was hypothesized as to have significant positive relationship with HHDI. According to the 2SLS regression result, household consumption expenditure found significantly positive at 1% level of significance. The effect on HHDI was 62.82%. this could be due to the fact that the livelihood has direct relation with consumption expenditure. This result has been supported by Shambulingapappa (2011).

Material Possession

The possession of farm implements found significantly positive at 1% significance level. The effect on HHDI was 7%; which was due to application of farm equipment in agricultural production. This finding was supported by Pradeep P.Lodha and Ashuin K.Gosain (2008).

Employment

Household employment found significantly positive at 5% level of significance. The coefficients of the employment in 2SLS estimation result suggested that a unit increase in employment of household, average HHDI increases by 11.68%. this was because in better managed watershed area there would be more opportunity of employment. This finding was supported by Rajeshawari Deai et al (2009).

Upstream and Downstream (UAD)

As hypothesized, Upstream and downstream found to affect the HHDI significantly negative at 5% significant level. This was due to the fact that downstream households had better HHDI values than that of upstream and better watershed program adoption.. The coefficient of this variable suggests that being an upstream, average HHDI decrease by 10.78%. This result was in lined with the findings of Mena (2018).

Conclusion & Recommendation

This study analysed the impact of watershed management program on livelihoods of households. The IV (instrumental variable) estimation method was used to account selection bias due to observable and unobservable variables that influence the outcome variable, using training of SWC and perception about soil erosion variables as an instrumental variable for the endogenous variable. With this approach, it was found out that participating on watershed management has a positive and significant impact on livelihood of households. Thus, the program participants have enjoyed a 31% impact on their livelihoods. Since training and awareness creation was as a compliment to participating on watershed programs, strategy which maintains continuous participation and enhancing the willingness and ability of farmers is very crucial. Therefore, strengthening learning opportunities pertaining to integrated watershed management through facilitating programs via establishing farmers' training centers and strengthening extension contact are vital.

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Optimizing Tax potential in Ethiopia, *Rahel Jigi1 Kitessa*

Abstract

In designing a tax policy, governments often face when and how to mobilize revenues. Crucial to those questions include, are we already collecting more revenue than the economy can produce or not? The current study has precisely addressed this question in the case of Ethiopia. Tax effort prediction is made via an error correction model. The finding shows that tax effort, theoretically measured as the difference between tax revenue collected and tax potential is extremely low in the country. This problem becomes more complicated when GDP shows as a rather inverse predictor of tax potential, indicating massive work of tax base identification to enable tax ratio moves with the speed of GDP growth.

Keywords: *Tax Policy; Tax effort, Public Finance, Economic Development, Tax ration, Tax Administration*

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Introduction

The tax system of a country is one of the key indicators of public sector administration. A good tax policy will ideally have relevant information to use taxation as an economic tool and method of raising optimal revenue. Among the key information for taxation is optimal revenue mobilization. Scholars in public finance have long identified optimal revenue as a key input for tax policy formulation and sustainable development among others (Stiglitz, 2000; Grubber, 2016). However, developing countries often face a problem of important input for designing tax policy in line with country-specific requirements (Bahl & Bird, 2008). Among these input data, the tax capacity of the country which is closely associated with tax potential and tax effort in literature are the major areas of interest (Moor et al, 2007; Besley and Perssin, 2013; Bird, 2014).

Various empirical works have assessed the determinants of government revenue to increase understanding of optimal taxation. Historically, since the first attempt to quantify the factors that affect a country's revenue share by Willimson (1961), two types of factors were identified as determinants; the stage of development and the size of foreign trade. The first study that utilized statistical results to analyze the tax effort was by Lotz and Morss (1967). Since then numerous studies were carried out in the arguing for broader determinants of tax capacity and tax effort there of (see Plasschaert, 1962; Hinrichs, 1966; Thorn, 1967; Weiss, 1969; Shin, 1969; Lotz and Morss, 1970).

More recently, literature has attempted to included various additional variables in the prediction of tax potential. Agbeyegbe et al. (2006) examined the role of trade liberalization and exchange rate. This study has expanded the previous work of early literature that has focused on the role of the exchange rate to drive cross country and cross-region comparison of tax ratios. Bird et al (2008) included the role of citizens' perception of corruption and accountability in the country on the revenue of the country. Bird argued that in addition to studying the supply side of tax ration determinants it might also be crucial to add the demand-side variables. However, as we see it later, our model does not adopt Birds' argument of tax ratio predictors. Furthermore, Bird (2014), assessed to what extent societal institutions including rule of law affect revenue share.

Mansour (2014), has contributed an important milestone in providing tax revenue dataset for Sub-Saharan Africa that covers a period of 1980-2010. This has enabled the emergence of many tax-related studies that utilized the data for tax-ratio analysis in Sub Saharan region (Goujon and Yohou; Closset et al, 2016; Feindouno and Goujon, 2016; Pichard, 2016)

The effect of foreign aid on tax ratio is also widely studied within this literature (Knack, 2009; Prichard et al., 2013; Brun et al., 2011; Crivelli and Gupta; Yohou et al., 2016; Thornton, 2014).

Hence, literaturehas exerted efforts to come up with better predictors of countries' tax potential with a lion's share conducted at the regional level, especially in sub-Saharan countries. The aim was two folds; the first one is to contribute to the precise estimation of tax potential and tax effort in this region. The second is to give a glimpse of tax ratio in this region with the intention of promoting a strong tax system as a favorable tool to strengthen a region with a financial power.

However, governments often face, when and how to mobilize revenues. Crucial of those questions include, are we already collecting more revenue than the economy can produce or not? The current study precisely addressed this question. This paper addressed this question albeit contributing to the method of analysis by employing the error correction method to establish long-run relationship of tax ratio and classical structural variables. Specifically, this study seeks to answer two main research questions:

Question 1: What is the level of tax effort as compared to tax potential in Ethiopia?
Question 2: What are the determinants of tax effort in Ethiopia?

The objective of these questions is to create rigorous evidence of the estimated tax effort in Ethiopia. The study gives an insight into the potential of tax and relates it to the tax effort which helps to design important policy based on the current initial study while providing evidence and a stepping stone for consequent studies which can be developed in the current paper.

The Model and Data

Before specifications of the model are presented, it is important to provide a definition of important concepts that are central to this paper. In line with previous literature which has wielded considerable work on differentiating between tax capacity and tax effort, two of these terms are treated differently in this paper. Hence, tax capacity is the revenue that can be raised by a country as predicted by structural variables while tax effort is defined as a prediction that is believed to capture the extent to which the country's capacity is being utilized. Following this standard definition in literature, in this paper distinctions between terms are adopted. Hence, the definition of tax capacity or potential tax level is different from the tax effort. The potential tax level is the level of the tax collection, as predicted by the structural factors of an economy but are

independent of authorities' willingness at least in the short run (Brun et al. 2011a; Goujon and Wagner, 2016).

These structural factors include trade openness, the level of development, and the sectoral composition of the economic variables. The tax effort measures the extent to which the actual level of tax revenues deviates from the potential tax as predicted by these structural factors. Tax effort in this study then is considered as the result of political will and policies, represented as follows. The general representation of this concept is presented as follows.

Tax ratio is assumed to be a function of taxable capacity and tax effort (E). Effort ration in a country is then

$$E = (T/Y)/(T^{\wedge}/Y)$$

$$E = T/T^{\wedge} \quad (1)$$

This can be rewritten in an econometric regression of the actual tax revenue at year t (TR_t) on the structural determinants of tax (X_t):

$$TR_t = \beta X_t + E_t \quad (2)$$

The residual of the regression (E_t) derived from the regression represents the tax effort:

$$E_{it} = T_t - \hat{\beta} X_t \quad (3)$$

Tax effort is then considered as relatively low (high) if the observed tax is lower (higher) than the predicted tax βˆXt, resulting in a negative (positive) value of Et. Hence, tax effort measures revealed an estimate of the willingness and capacity in mobilizing and collecting tax above what was predicted by the structural variables .

The model that predict the revenue that the economy could generate or potential tax revenue stated as followings

$$TaxRevenuet = \beta o + \beta 1 GDPpercapitat + \beta 2\ openesst + \beta 3\ Inflationt + \beta 4 ManufacturSectort + \beta 5 AgricultureRelatedt + \beta 6\ ExpenseofGDPt + \varepsilon_t \quad (4)$$

The variables (independent variables) should be those elements on which revenue mobilization depends. One of these variables is a classical indicator of the country's income, which is, GDP. Income indicators such as GDP have been used in standard tax effort literature as a potential explaining variable of the country's tax generation capacity. Another indicator of tax capacity is the country's level of development as explained by sectoral composition. It is often the case that tax capacity is found to be correlated with the level of manufacturing and service industry achieved. Hence, manufacturing sectors and industrial sectors (manufacturing including construction sector) are expected to positively correlate with higher tax capacity while the agricultural sector is found to be negatively correlated with tax capacity. Therefore, the sectorial contribution of the industry and manufacturing sector is used as the explaining variables in our model. Inflation is used as a control variable to account for the change in consumer prices across years. The other classical element of tax capacity structure in the literature is openness to foreign trade. This is also included in the model to have a positive relationship with tax capacity.

One issue that was considered in this model is multicollinearity. For instance by taking GDP and other sectoral contributors such as the manufacturing sector might result in multicollinearity. To avoid this their percentage contribution to GDP was considered.

Hence, this study is designed to be analytical applying statistical analysis explained in detail in the next section. World Development Indicators (WDI) data

and the Ministry of Revenue (MOR) database were utilized. The data covered 33 years of data of revenue and other important data that are considered to be determinants of revenue. The primary data were also used for clarification and triangulation of the secondary data collected from different databases.

Method of Data Analysis

Econometric Analysis

In this study to estimate the level of tax effort and determinants of tax capacity, econometric analysis was used, while the long-run and short-run effect of structural variables on tax –ratio was examined.

This helps to capture the degree of impact and their level of significance of the structural variables on tax ratio, while estimating the tax effort needed.

Unit Root Test

Time series data have the problem of non-stationarity. Nonstationary time series has a time-varying mean, time-varying variance, or both. Therefore, for the purpose of forecasting, such nonstationary time series have little practicable value.

For testing the stationarity, i.e. to test for the existence of unit-roots of the variables Dickey-Fuller (DF)/Augmented Dickey-Fuller (ADF) was used in this study. Augmented Dicky-Fuller (ADF) test is one of the widely used approaches of unit root testing.

The simplest starting point for testing stationarity is an autoregressive model of order one, AR(1), of the form:

$$Y_t = \theta Y_{t-1} + \varepsilon\, u_t \quad \ldots\ldots (5)$$

What we need to examine here is whether θ is equal to 1 (unity and hence unit root)

By subtracting Y_{t-1} from both sides of equation (7), we can obtain a more convenient version of the test:

$$Y_t - Y_{t-1} = \theta Y_{t-1} - Y_{t-1} + \varepsilon\, u_t$$

$$\Delta Y_t = Y_{t-1}(\theta - 1) + \varepsilon\, u_t$$

$$\Delta Y_t = \gamma Y_{t-1} + u_t \quad \ldots\ldots (6)$$

Where $\gamma = (\theta - 1)$, the null hypothesis is H_0: $\gamma = 0$ and the alternative hypothesis is H_1: $\gamma \neq 0$, if $\gamma = 0$ then Y_t follows a random walk model.

As the error term is unlikely to white noise, Dickey and fuller extend their test procedure suggesting an augmented version of the test which includes extra lagged terms of the dependent variable in order to eliminate autocorrelation. The lag length on these extra terms is either determined by the Akaki information criterion or Schewartz Byyesian criterion or more usefully the lag length necessary to whiten the residuals. The three possible forms of the ADF test are given by the following equations:

$$\Delta Y_t = \gamma Y_{t-1} + \sum_{i=1}^{p} \beta_i \Delta Y_{t-i} + U_t \quad \ldots\ldots (7)$$

$$\Delta Y_t = \alpha_0 + \gamma Y_{t-1} + \sum_{i=1}^{p} \beta_i \Delta Y_{t-i} + U_t \quad \ldots\ldots (8)$$

$$\Delta Y_t = \alpha_0 + \gamma Y_{t-1} + \sum_{i=1}^{p} \beta_i \Delta Y_{t-i} + \alpha_1 t + U_t \quad \ldots\ldots (9)$$

The difference between the three regressions again concerns the presence of the deterministic elements. Hence, due to the above advantages over DF test, the researcher has used the ADF test of stationarity. In addition, the lag-length of the ARDL model is determined by Akaike Information Criterion (AIC).

Co-integration and Error Correction Model

Co-integration offers a way of mitigating the problem of non-stationary series without loss of long-run relationships if any. For any non-stationary series (i.e.) series where p is the order of integration), if there exists a linear combination of the series that is stationary [I (0)], the series is referred to as co-integrated and the resulting regression is not spurious. There are different ways of testing the presence of co-integration between various series: Engle-Granger Procedure, Single Equation Error Correction Model, Johansen Procedure, and ARDL approach.

Engle-Granger Approach is one of the widely used tests of Co-integration. It is a residual-based test of co-integration. In

order to apply the Engle-Granger procedure, first, all the variables must be integrated in the same order. Once the variables are found to have the same order of integration, the next step is estimating the co-integrating parameter through OLS and test for co-integration. To do this, we have to calculate residuals from the estimated equation and test its stationarity, usually by ADF test if the residuals are stationary, which implies that the variables are co-integrated.

The second stage involves forming the error correction model, where the error correction term is the residual from the co-integrating relationship, lagged once. This term tells us the speed of adjustment to the long-run equilibrium. However, using the Engle-Granger method has some weaknesses. For instance, if we have more than two variables, there may be more than one co-integrating vector. But it can find out only one co-integrating vector. Second, a co-integration test may depend on the direction of the variable put on the left side of the co-integration. That means the method does not allow the variables on the right-hand side to be potentially endogenous.

Johansen maximum Likelihood (1988) co-integration method is one of the technique that solves the above shortcomings of the Engle-Granger procedure. Basically, it can estimate more than one co-integration relationship, if the data set contains two or more time series. However, since Johansen co-integration techniques require that all the variables in the system have equal order of integration, i.e the application of the Johansen technique will fail when the underlying regressors have different orders of integration, especially when some of the variables are I(0) (Pesaran, Shin, and Smith, 2001). That means the trace and maximum eigenvalue tests may lead to erroneous co-integrating relations with other variables in the model when *I*(0) variables are present in the system (Harris, 1999).

To overcome this problem, Pesaran and Shin developed a new Autoregressive Distributed Lag (ARDL) model which has more advantages than the Johnson cointegration approach. First, the ARDL approach can be applied irrespective of whether the regressors are I(1) and I(0). Second, while the Johansen co-integration techniques require large data samples for validity, the ARDL procedure provides statistically significant results in small samples. Therefore, due to the above-mentioned advantages, the study has used the ARDL method of co-integration

The ARDL approach involves two steps for estimating the long-run relationship. The first step is to examine the existence of a long-run relationship among all variables in an equation and the second step is to estimate the long-run and short-run coefficients of the model. We run the second step only if we find a co-integration relationship in the first step.

The generalized ARDL (p, q) model can be shown as follows:

$$\Delta Y_t = \theta + \sum_{i=1}^{p} \sigma i \Delta Y_{t-i} + \sum_{i=0}^{p} \rho i \Delta X_{t-i} + \pi ECT_{t-1} + \nu_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (11)$$

The above model is said “autoregressive” since it includes p lags of the dependent variable. At the same time, it is also a “distributed lag” model because it includes q lags of the explanatory variable. After testing the existence of a long-run relationship between the variables through the Bound Testing, an Error Correction Model (ECM) will be formed. If and are *I(1, 1),* the long-run model can then be reformulated into an error correction model (ECM) which integrates short- and long-run dynamics of the model.

An ECM takes the following form.

$$Y_t = C + \alpha_0 Y_{t-1} + \cdots + \alpha_p Y_{t-p} + \beta_0 X_t + \cdots + \beta_q X_{t-q} + V_t \dots\dots (10)$$

Where C, t and v are intercept, time trend and white noise error term respectively and Y_t and Xt are stationary variables.

Wher e is one-period lag of the residual term (disequilibrium) from the long-run relationship, is a white noise error term, and are parameters. Equation (11) can be estimated by the usual OLS method since all its terms (in first differences) are I(0) and therefore standard hypothesis testing using *t*-ratios and related diagnostic tests can be conducted on the error term.

Theoretically, the coefficient of the one-period lag of the disequilibrium term should be negative (i.e. < 0) and significant if the disequilibrium is to be corrected in the subsequent period and long-run equilibrium restored. In this light, the coefficient of the error term represents the speed of adjustment to the long-run equilibrium.

Diagnostic Test

I. Heteroskedasticity Tests

The model procedure now provides two tests for heteroskedasticity of the errors: White's test and the modified Breusch-Pagan test. Both White's test and the Breusch-Pagan are based on the residuals of the fitted model. For systems of equations, these tests are computed separately for the residuals of each equation. The residuals of estimation are used to investigate the heteroskedasticity of the true disturbances.

Testing heteroskedasticity of the errors is a major challenge in high dimensional regressions where the number of covariates is large compared to the sample size. Traditional procedures such as the White and the Breusch-Pagan tests typically suffer from low sizes and powers (Zhaoyuan and Jianfeng, 2016).

Serial Correlation is a correlation among members of the series of error terms ordered in time. It is mainly caused by incorrect functional forms, autoregressions, manipulation of data, data conversion, and non-stationarity of the data (Wooldridge, 2009).

The problem of serial correlation can be detected using the graphical method, Geary test, Durbin- Watson *d* test and Breusch-Godfrey (BG) test. In this study, the BG test that is based on the Lagrange Multiplier principle is chosen since other tests have drawbacks that made the BG test to be chosen. Though the graphical method is powerful and suggestive, its detection power is more of a qualitative nature than others making it less preferred. The drawback of the Geary test is that it has no assumptions about the probability distribution from which the observations are drawn. Due to these reasons, the Breusch-Godfrey (BG) test of serial correlation is the best option at hand.

III. Normality test

In the literature, there are several tests for normality such as histogram of residuals normal probability plot (NPP), Anderson-Darling and Jarque-Bera tests. The Jarque-Bera test for normality is employed in this research.

Data Presentation and Analysis

This section presents data, along with descriptive and statistical analysis of the time series data and experimental data.

Descriptive Statistics

The tax revenue of the country and the tax ratio across the past 33 years is presented in Table 1 and Figure 1. The data indicates that

the country's tax revenue was consistently increasing every year during the past three decades. The data analysis in this section is made by categorizing the timing into three, the first, the decade and the third decade.

Table 1: Summary Statistics

	1990-2000	2001-2010	2011-2020
Tax revenue (% of GDP)	8.533	8.421	8.255
	(1.958)	(1.005)	(0.836)
Tax revenue in LCU	3.831	11.43	103.8
(In Billions)	(1.825)	(5.932)	(49.14)
Openness	2.054	6.753	22.50
(In Billions, US$)	(0.515)	(3.875)	(4.501)
Inflation, consumer prices (annual %)	7.531	11.04	13.44
	(11.35)	(14.28)	(8.336)
Industry (including construction), value added (% of GDP)	9.335	11.65	16.69
	(2.140)	(1.051)	(7.082)
Population	56.09	75.46	99.61
(In Millions)	(5.567)	(6.390)	(8.246)
Manufacturing, value added (% of GDP)	4.757	5.032	4.647
	(1.241)	(0.718)	(1.055)
Agriculture, forestry, and fishing, value added (% of GDP)	53.63	41.87	37.60
	(5.614)	(2.934)	(4.367)
National Income	7.340	11.03	41.95
(In Billions current US$)	(2.339)	(6.753)	(14.33)
GDP per capita (current US$)	168.7	192.2	598.3
	(55.54)	(95.24)	(180.9)
Observations	10	10	10

mean coefficients; sd in parentheses

The average yearly growth of tax revenue of the country was relatively low in the first two decades. For instance, the average revenue collected in the first decade was 3.83 billion ETB. In the second decade, the average revenue collected increased to 11. 43 ETB with relatively low annual growth. On the contrary, there was an interesting spike in revenue collected after 2010. In this time period increase in revenue showed exponential growth, with an average of 103.8 ETB. This result is interesting as the economy seemed to have ignored the international recession that took place in 2008. Moreover, this could be a priori indicator, as can be seen from Table 1, that the economy's openness to foreign trade which is a classical indicator of the country's tax capacity was minimal in the first and second decades of the target year.

Here,openness to trade is calculated by summing the total exports and imports level of the country.

Similarly, with the increase in tax revenue and foreign trade, different indicators of the country's level of development such as per capita GDP and the national income showed a substantial increase in the economy of the country when compared across decades. For instance, in the first decade, the average national income was 7.43 Billion USD. In the second decade the national income showed an average increase of 11.03 USD, while the average increase in the third decade, i.e. 2010 it was 41.95 USD. Hence the percentage increase in the third decade is significantly greater than the average increase in the second decade from what was achieved in the first decade.

Even though both tax revenue and GDP per capita were visibly increasing, the average tax ratio across the three decades did not show an increasing trend. This first

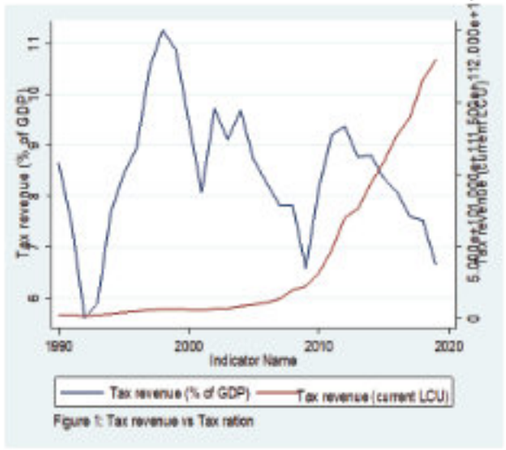

Figure 1: Tax revenue vs Tax ration

indicator of the country's inability to increase the tax ratio is clearly shown in Figure 1. Figure 1 shows a sharp spike in tax revenue, with no indication of an increase in tax-GDP ratio across the three-time periods. While figure two shows comparison of tax ratios, it actually indicated a decrease in tax ratio across the years.

This shows that in the past three decades, tax revenue was increasing but not at the same speed as the GDP. For a better understanding, the inferential statistics below has presented a detail statistical analysis of this issue.

Estimation of Tax effort

Estimation of tax effort follows the concept that the speed with which tax ratio was increasing in the country was not in line with increase with the country's tax capacity. Hence, estimating whether tax effort is positive or negative is the starting point for the policy for expanding the tax base and tax rates. The tax capacity is in turn explained with structural variables according to a prior justification of their relationship with tax capacity. A simplified model to present arguments prior to justification of tax capacity predictors are presented in the equation below.

$$TaxRevenue_t = \beta_0 + \beta_1 GDPpercapita_t + \beta_2 openexst + \beta_3 Inflation_t + \beta_4 ManufacturSector_t + \beta_5 AgricultureRelated_t + \beta_6 ExpenseofGDP_t + \varepsilon_t$$

Tax Effort Prediction via Error Correction Model

When two or more variables are individually non-stationary; but a linear combination of the variables are stationary, we can use the Error correction model to estimate long-run steady-state with error correction term. Error correction model takes advantage of co-integrating relationships. In line with the theoretical argument of Tax effort estimation in the methodology part, the Error correction model gives us the error correction term as shown in equation 5.

$$ECT_t - 1 = [(Y_t - 1) - (\hat{Y}_t - 1)]\mu \quad (12)$$

μ is the coefficient of ECT. μ is interpreted in such a way that if it is negative and less than 1, then ECT indicates that there will be long-run convergence of the model. This indicates that the predictors of tax ration included in the model will have long-run predicting power of the country's tax

capacity. In addition, the current disequilibrium will be corrected given the estimated tax effort by the speed of adjustment term implemented by the government.

Furthermore, the error correction term is defined not as the time required to correct the deviation from disequilibrium. By definition, the error correction mechanism is asymptotic since it takes infinite time to adjust. This shows that it is not logical to associate μ with time. Hence, μ is interpreted as the speed of adjustment, as convergence takes infinite time.

This ECT is calculated following several steps. The first step was to verify that variables are integrated of order one, that non-stationary in levels but stationary in differences. Hence all variables of interest do meet the above criteria. This step was proceeded by calculations of optimal lag for each variable as allowed by ARDL model. The maximum optimal lag for all variables was 2. The second step was to examine the short-run relationship before co integrating or long-run relationships between the variables are examined. The result of this analysis is presented in Table 2 below. It verifies that there is a cointegrating relationship and finally estimation and interpretion of the error correction model as well as tax effort.

Short-Run Predictors Of Tax Capacity

Short-run relationship between variables is estimated using ARDL model

$$Y_t = \gamma_{oj} + \sum_{i=1}^{p} \delta_j Y_{t-i} + \sum_{i=0}^{q} \beta' X t - i + \varepsilon_{jt} \quad (13)$$

Where is a vector and the variables in are allowed to be purely I(0) or I(1) of cointegrated; □ and δ are coefficients; γ is constant; j=1, …k; p,q are optimal lag orders; is a vector of the error terms-unobserved zero-mean white noise vector process (serially uncorrelated or independent).

In our model

Y_t is Tax Revenue and

X are *GDPpercapitat, Openess to trade, Inflation, Manufacturing secotr, Agricultural sector, Expense of government*

Hence the result of ARDL regression is presented in Table 2. The short-run relationship between tax ratio and its predictors is presented in Table 2 below.

The lag of tax ration is positively related to the current level of tax revenue, i.e. a percentage increase in tax revenue in the last period is related to 0.35 percent increase in tax ratio in the current period. On the current data and policy, we have the country's GDP per capita is negatively related to the tax ration. This means that the tax ratio is not increasing with an increase in per capita GDP, but rather seems to be decreasing with it. This shows whatever value is added via the economic activity that is being captured by GDP, the government is not raising revenue from it. Openness to foreign trade is positively and significantly related to the tax ratio. As classical predictors of tax capacity, this finding is in line with other findings in this literature as well (Fenochietto and Pessino, 2013; Pichard, et al., 2014; Yohou et al, 2016). The average inflation rate seems to be not related to the tax ration, however, the inflation that lagged in one year is related positively and significantly to the tax ration. This might be explained by the soundness of expansionary fiscal policy that could be implemented with the existence of inflation. The more inflation, the more the tax that could be imposed to stabilize the economy.

Analysis of the role different economic sectors have on tax ratio is also interesting.

As can be seen in Table 2, both the manufacturing sector and Agriculture and related sectors increased value is positively related to in tax ration. For instance, a one percent increase in value-added to GDP by the manufacturing sector will increase the tax ratio by 70 percent, while a one percent increase in value-added to GDP by the manufacturing sector with one lagged period, will increase the tax ratio by 68 percent. Similarly, an increase by one percent in value-added by agriculture, forestry, and fishing as measured by the percentage of GDP, will increase the tax ratio by 0.13 percent.

Correspondingly, an increase by one percent in the second lag of value added by the agriculture, forestry, and fishing sector will increase the tax ratio by 0.13 percent. Hence, the manufacturing sector is a strong predictor of tax capacity. The relationship between government expenditure and tax ratio is positive except in lag one where it indicates a negative relationship. The persistent positive relationship of government expenses and tax ratio might indicate the notion that tax resources are essential to finance public infrastructure. The negative relationship in lagged

Table 2: Short-Run Relationship

	Tax revenue (% of GDP)
L. Tax revenue (% of GDP)	0.350***
	(0.0634)
GDP per capita (current US$)	-0.0209***
	(0.00258)
L.GDP per capita (current US$)	-0.00501
	(0.00275)
Openness	4.04e-10***
	(7.63e-11)
L.openess	1.23e-10
	(7.06e-11)
L2.openess	2.44e-10**
	(7.90e-11)
Inflation, consumer prices (annual %)	-0.0109
	(0.00652)
L.Inflation, consumer prices (annual %)	0.0269**
	(0.00897)
Manufacturing, value added (% of GDP)	0.700***
	(0.161)
L.Manufacturing, value added (% of GDP)	0.680***
	(0.0993)
Agriculture, forestry, and fishing, value added (% of GDP)	0.133***
	(0.0344)
L.Agriculture, forestry, and fishing, value added (% of GDP)	-0.0296
	(0.0471)
L2.Agriculture, forestry, and fishing, value added (% of GDP)	0.131***
	(0.0210)
Expense (% of GDP)	0.110**
	(0.0336)
L.Expense (% of GDP)	-0.0721*
	(0.0378)
L2.Expense (% of GDP)	0.152***
	(0.0360)
Constant	-13.91***
	(2.356)
Observations	24
Adjusted R^2	0.980

Standard errors in parentheses $^{+}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

variables might be because of unexpected shocks or lack of proper planning from the government side.

Hence, from these findings, one can conclude that in the short run it seems that increasing foreign trade, via import and export activities, increasing economic activities in all sectors of the economy, but giving more emphasis on manufacturing sectors will increase the tax capacity of the country. The finding is in line with economic theory but some divergence is also observed. For instance, the agricultural sector was historically considered hard to the tax sector and usually indicates a negative relationship with the tax capacity of countries (see Yohou and Goujon, 2018; Chelliah et al., 1975; Leuthold, 1991; Tanzi, 1992; Stotsky and WoldeMariam, 1997). Furthermore tax ratio's positive relationship with lagged two of inflation may indicate that the government has been using an expansionary fiscal policy that takes inflation information as an input to increase taxes. The next step in our tax effort analysis is to examine if the above short-run relationship also holds in the long run. Hence the test of Cointegration bound to these variables is conducted. Table 3 below presents this test.

The ARDL bound test decision rule is to reject the null hypothesis of no existence of long-run relationship among dependent and independent variables if F statistics is higher than F critical values of (I, I) or first-order integration between series for all the variables. Since F-statistics is clearly higher for (I, 1) all series we reject the null hypothesis, establishing a long run between variables (*see Table 3)*.

With this result, we can proceed to predict the future correction to the disparity between tax ration and the potential of the country from regressors identified in our model. Table 4 presents the predicted tax effort-defined speed of adjustment of error in error correction models.

Table 4 shows the long-run prediction between the current tax ratio and regressors given the current economic policy that the country has. The speed of adjustment required to achieve long-run stable state is 0.65 percentage points. In the long run, value-added both in the manufacturing sector and agricultural related sectors, as well as general government need for expenses, are associated to tax ration in positive and significant manners.

The long-run relationship between GDP per capita shows negative and significant at a 1% significant level. That is one percent change in GDP per capita is associated with a 0.04 decrease in tax ratio. This might be because of three main reasons. The first might be a clear indication that the tax base identification and tax rate calculation of the current tax policy has ignored the economic activities that could increase the collection of the tax revenue. The second is that the negative relationship between tax ratio and per capita GDP might be because of exerting much effort on wrong tax bases. For instance, the majority of business income taxpayers pay their taxes via a presumptive tax mechanism, the method that lacks the principle of certainty when imposing taxes. The third is, such disparity can also be from the weakness of official GDP calculation/data to include the role of the contribution of the informal sector to the economy. However, a detailed answer to this question is left for further study

Furthermore, Figure 2 shows that obviously the predicted tax potential of the country and the current average collected tax GDP ratio have a great disparity; with collected tax revenue being incredibly smaller than the predicted tax potential of the country given the regressors.

Hence, analysis of our data shows that thecountry's tax system displays two major caveats. The first is its inability to collect

taxes with the speed of economic growth. The second is, in line with the problem raised above, there is the low effort exerted on tax collection compared to the country's tax potential as indicated by structural variables (see Figure 2).

Table 3: Bound test of Co Integration among the Variables

Pesaran/Shin/Smith (2001) ARDL Bounds Test

H0: no levels relationship — F = 35.540, t = -10.247

Critical Values (0.1-0.01), F-statistic, Case 3

	I_0 L_1	I_1 L_1	I_0 L_05	I_1 L_05	I_0 L_025	I_1 L_025	I_0 L_01	I_1 L_01
k_6	2.12	3.23	2.45	3.61	2.75	3.99	3.15	4.43

accept if F < critical value for I(0) regressors
reject if F > critical value for I(1) regressors

Critical Values (0.1-0.01), t-statistic, Case 3

	I_0 L_1	I_1 L_1	I_0 L_05	I_1 L_05	I_0 L_025	I_1 L_025	I_0 L_01	I_1 L_01
k_6	-2.57	-4.04	-2.86	-4.38	-3.13	-4.66	-3.43	-4.99

accept if t > critical value for I(0) regressors
reject if t < critical value for I(1) regressors

k: # of non-deterministic regressors in long-run relationship
Critical values from Pesaran/Shin/Smith (2001)

Test of Diagnostics

Serial Correlations

Test of autocorrelation or serial correlation is done using Durbin-Watson statistics. As can be seen, from Table 5 the Durbin-Watson statistics show no serial correlation among the variables. In the same way, the Breusch-Godfrey test for autocorrelation confirms that we cannot reject the null hypothesis of no serial correlation among the variables.

Test of Homoskedasticity

Table 6 shows the White test of homoscedasticity for our model. Given the non-significance of P values for IM-statistics, we cannot reject the hypothesis of homoscedasticity of the variables in this model.

Test of Normality

The test of normality is the test done using Jarque-Bera test. Jarque-Bera statistics for normality is 0.9145. Hence, we cannot reject the null hypothesis of normality of the model.

Table 4: Long run Determinant of Tax Revenue via Error Correction Model

	D.Tax revenue (% of GDP)
ADJ	
L.Tax revenue (% of GDP)	-0.650***
	(0.0634)
LR	
GDP per capita (current US$)	-0.0399***
	(0.00350)
Openess to foreign trade	1.19e-09***
	(1.06e-10)
Inflation, consumer prices (annual %)	0.0246
	(0.0196)
Manufacturing, value added (% of GDP)	2.124***
	(0.266)
Agriculture, forestry, and fishing, value added (% of GDP)	0.361***
	(0.0399)
Expense (% of GDP)	0.293***
	(0.0837)
Observations	24
Adjusted R^2	0.953

Standard errors in parentheses $^{*}p<0.10$, $^{**}p<0.05$, $^{***}p<0.01$

Figure 2: Tax Potential vs Tax ratio

Hence, the results of our diagnostic tests show that our model can be taken seriously and inference from it can a useful input for

Table 5: Test of Serial Correlation

```
Number of gaps in sample:  1

Durbin-Watson d-statistic( 17,    24) =  3.120018

Number of gaps in sample:  1

Breusch-Godfrey LM test for autocorrelation
```

lags(p)	chi2	df	Prob > chi2
2	16.695	2	0.0002

H0: no serial correlation

Conclusion

Tax policy is a crucial tool for development and other desirable social goals. Moreover, it is one of the valuable/most essential tools to strengthen a country with a . However, governments often face challenges on when and how to mobilize re-financial power venues. The need for revenue mobilization makes it a requirement to examine whether or not optimal revenue that the economy can produce is not being already collected.

Hence, it is the aim of this study to precisely address the above-raised question, i.e. whether the potential to more tax collection exist and if enough effort is exerted to collect tax in line with the tax potential. Hence, the finding of this study indicates that tax effort, theoretically measured as the difference between tax revenue collected and tax potential is extremely low. This problem becomesmore complicated when GDP shows as a rather inverse predictor of tax potential, indicating massive work of tax base identification to enable tax ratio moves with the speed of GDP growth.

Hence this paper recommends that with the help of further study, increasing the tax base to allow revenue collection that also induces the GDP growth is crucial. For this, a further reshuffling of tax bases and refocusing on different bases for increased tax collection on different sources than previously identified might be needed.

Hence, analysis of our data shows that the country's tax system displays two major caveats. The first is its inability to collect taxes with the speed of economic growth. The second is, in line with the problem raised above, there is the low effort exerted on tax collection compared to the country's tax potential as indicated by structural variables.

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Factors Affecting Service Delivery Quality in Yeka Sub-City of Addis Ababa, *Daba Moti**

Abstract

Effective delivery of services is one of the most direct ways to promote the economic growth of a country. However, public services are characterized poorly. The main objective of this study was to assess factors affecting service delivery quality in public service institutions in Addis Ababa. Questionnaires, interviews, and focused group discussions were used to collect data. The data was collected from 320 respondents. The study employed both quantitative and qualitative approaches. The SPSS statistics was used for both the descriptive and inferential analysis. The findings indicate that the quantitative mean values show acceptable results. Work environment, technology and training are the significant factors. However, lack of good leadership, inconsistent type of training with practical jobs, weak in organizational culture, lack of conducive environment in experience sharing, lack of well incentive systems which hinder the motivation of employees and lack of applying modern technology are pinpointed as limitations. Therefore, concerned bodies ahould take corrective measures.

Keywords: Service delivery, leadership, technology

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Introduction

In countries around the world, local governments and other local public sector bodies are responsible for delivering the public services that people rely on the day-to-day: schools for their children, public health services, access to clean water, clean streets, sanitation for the urban poor, and so on, which intern lead to the economic growth of countries (Benjamin, T., 2017).

The concept of service delivery has gained increased attention in the public administration literature. Over the last three decades, governmental cost-cutting on the one hand and growing public pressure on the other have served as the impetus to the modernization and improvement of public services in urban areas (Caemmerer, B. & Dewar, A., 2013). Service delivery quality is one of the most important competitive factors in today’s public service institutions. Service delivery is the act of taking care of the customers’ needs by providing professional, helpful, high-quality service and assistance before, during, and after the customers’ needs are met. Developing demand-driven customer services have a crucial role in public service institutions. Public institutions work to identify needs and provide quality services in the short-term, mid-term, and long-time (Khan, R.,Khan, F. & Khan, M., 2011). In countries around the world, the public sector delivers the services that people rely on daily to get ahead in life. Beyond providing for basic human needs, public-sector services also help unlock the economic potential of the people who receive them by enhancing their knowledge, skills, and attitudes and connecting them with jobs. Thus, delivering quality services in public institutions is one of the most direct ways to promote the economic potential of citizens. Public sector institutions should start by

understanding that citizens are their customers (Pauline, A., 2018).

The concept of public service sector reform has evolved from isolated occurrences and is now seen largely as a global issue. The practice of service providers associated with public sector reform programs has led to the formalization of effective and quality service provision. Since the early 2000s, the global development agenda and the focus of the international development community have come to a consensus that governments have a responsibility to provide quality services for a range of basic services that facilitate human well-being and economic progress. Any public government institution should provide an efficient and effective public service with the intention to ensure the existence and trust of its citizens. Delivering effective and high-quality service is a means in favor of a continuous competitive benefit to citizens (Ayenew, M. 2016).

The adoption of the federal civil service system in Ethiopia seems to have strong conviction. The existence of an efficient, effective, and quality civil service serves as the backbone of sustainable development. This capacity building in these services is made because of the conviction that building the capacity of employees in public institutions enhances the service satisfaction of its citizens. To enhance the capacity of public institutions in Ethiopia and to create an ideal environment for economic growth and development, the public sector institutions have gone through a series of reform processes including civil service reform. The reform phase began in September 2001, with the launch of the Public Sector Capacity Building Support Program (PSCAP), which also revived the Civil Service Reform Program (CSRP). The Government has moved quickly to prepare the CSRP for its full implementation across all regions and levels of government (Adebabay, A., 2011).

The Ethiopian government has begun implementing reform in service delivery due to quality service delivery dissatisfaction of citizens and growing consensus that it is the root cause of all-round crises in the public sector (Chanyalew, M., 2014). The main rationale behind civil service reform in Ethiopia is the need to reinvent public service. Therefore, it is necessary to assess the factors affecting service delivery quality for further improvement of service provision.

Statement of the Problem

The Second Growth and Transformation Plan (GTP II) has set out an objective to envision transforming the Ethiopian economy into a lower middle-income category by 2025 via increasing the productivity and competitiveness of the public sector institutions through effective and quality service delivery to citizens; and thereby realizing economic development of the country (National Planning Commission, 2016). There is a definite relationship between service delivery and economic development. The effectiveness of service delivery, which is the important factor, must be measured in accordance with its determinant factors to ensure that the limited resources are used economically and efficiently (Ramafamba, E. & Mears, R., 2012).

Although the adoption of the Federal Civil Service System in Ethiopia seems to have a strong conviction in that the existence of an efficient and effective civil service delivery quality, the system has been facing many challenges. The convenient workplace conditions for staff are requirements for improving productivity and quality of outcomes; however, working conditions in many public institutions lack safety, health, and comfort issues. Working under inconvenient conditions may end up with low performance and face occupational health diseases causing high absenteeism and turnover. There are many organizations in which employees encounter working conditions problems related to environmental and physical factors (Pech, R. & Slade, B., 2006).

The Addis Ababa City Administration faced difficulties in providing effective and quality services to its citizens. The local communities lost their land. Rivers were contaminated by waste released from companies. According to the study by Bekelcha, K. (2019), labor exploitation and numbers of workers in several companies were disabled. Banks faced problems in relation to the formal follow system after training was conducted. Inequitable salary; unfair promotion; limitation in participating employees in decision making were the major problems. Mean value for motivation, leadership, organizational culture, and working environment were below average which indicates that there was a limitation in practicing quality service provision (Getamesay, B., 2016). Low employee's capacity led to a decrease in the provision of quality services of the public health sector; inadequate technology adoption in the provision of health service led to a decrease in the provision of service quality; the ineffective communication channels affected delivery service quality in the public health sector; and insufficient financial resources resulted to decrease in the provision of health service quality (Kenneth, N., 2012).

Low use of technology in civil service organizations, weak work environment and staff capacity negatively affect the quality of service delivery to the citizens which had a negative impact on the development of the country (Balqeysa, A., 2017). The ineffective civil service provision process like limited resources, poor communication of the reform objective, a small amount of remuneration, and lack of local ownership of reform were the major problems (Yosef, T., 2011). Comprehensive grievance and complaints handling mechanisms including a need for sensitization of customers about their rights and privileges, and the need to adopt and implement reward systems are some of the limitations in order to consistently improve better service delivery in all public institutions (Gezae, A., 2017).

From these past researches' findings, it can be said that public service institutions have faced challenges in service delivery quality to the citizens. It requires the assessment of its service delivery quality level. Therefore, it is necessary to conduct a study that assesses and realizes expectations of the goals of the institutions' service delivery quality. This study is worthwhile by identifying the factors and fills the current gap in quality service delivery performances. It also identifies the overall responses that describe the gaps in the study area. Thus, the above statements guide the study in building up the following research questions.

Research Questions:

1. What are the performances of service delivery quality of the institutions?
2. To what extent of the overall determinant factors affect service delivery quality?
3. What are the challenges for quality service delivery?

Geographically, this study covers the employees of selected *woredas* in Yeka Sub-City. The significance of this study lies in identifying determinant factors affecting service delivery quality in the study area. The findings of the study have identified the gaps that help the institutions to solve practical problems and improve their quality of service provisions. The result of the study has also highlighted the key determinant factors affecting service delivery quality that will develop dynamic improvements in service delivery quality of the study area. Due to time and resource constraints, the scope of the study areas was restricted to only few woredas.

Literature Review

Definitions and Concepts of Service Delivery Quality

Defining service delivery quality first requires a common definition of service. Services refer to economic activities offered by one party to another, most commonly employing time-based performances to bring about desired results in recipients themselves or in objects or assets for which purchasers have responsibility. Quality is the degree of goodness or worth of something. Service quality is generally viewed as the output of the service delivery system. A product or service is said to be of high quality if it has attributes or features that meet the expectations of its consumers or users. Quality is the degree of goodness or worth of something. A product or service is said to be of high quality if it has attributes or features that meet the expectations of its consumers or users. (Balqeysa, A., 2017 & Kenneth, N. , 2012).

Services refer to economic activities offered by one party to another, most commonly employing time based performances to bring about desired results in recipients themselves or in objects or assets for which purchasers have responsibility. Service quality is an assessment of how well a delivered service conforms to the client's expectations. Service business operators often assess the service quality provided to their customers in order to improve their service, to quickly identify problems, and to better assess client satisfaction. Service quality is a focused evaluation that reflects the customer's perception of specific dimensions of service namely reliability, responsiveness, assurance, empathy, and tangibles. Public institutions are able to identify the problem quickly, improve their service provision, and better assess client expectations. Service quality is generally viewed as the output of the service delivery system, especially in the case of pure service systems. Moreover, service quality and provision are linked to consumer satisfaction (Balqeysa, A., 2017, Getamesay, B., 2016 & Ramya, N., Kowsalya, A. & Dharanipriya, K., 2019).

Service delivery is a component of business that defines the interaction between providers and clients where the provider offers a service, whether that be information or a task, and the client either finds value or loses value as a resul**t.** Service is a product or activity that meets the needs of a user or can be applied by a user. To be effective, services should possess these attributes that include available and timely (at time and space scales that the user needs); dependable and reliable (delivered on time to the required user specification); usable (presented in user-specific formats so that the client can fully understand); Useful (to respond appropriately to user needs); credible (for the user to confidently apply to decision making); authentic (entitled to be accepted by stakeholders in the given decision contexts); Responsive and flexible (to the evolving user needs); sustainable (affordable and consistent over time); and expandable (to be applicable to different kinds of services (Ramafamba, E., & Mears, R. 2012). Effective service delivery, then, is a continuous, cyclic process for developing and delivering user focused quality services (Pauline, A., 2018 & Chepchumba, R., 2017).

In countries around the world, the public sector institutions deliver the services that citizens rely on daily to get ahead in life, such as schools for their children, public health services, access to clean drinking water, living houses, and infrastructures (UNDP, 2016). The basic human needs help the economic potential of the public institutions' staffs who receive them by enhancing their skills, strengthening their health, and connecting them with jobs. Thus, strengthening the effective and equitable

delivery of quality services is a direct way to promote the economic development of the citizens. Capacity building in the areas of service delivery is the major area of human resource development function of particular relevance to the effective use of human resources. The recognition of the importance of education, training, a conducive working environment, and employees motivation in recent years has been heavily influenced by the intensification of competition and the relative success of public institutions (Chepchumba, R., 2017, Getamesay, B., 2016, Tuwei, R. & Tarus, B., 2017 and Benjamin, T. 2017).

Developing demand-driven quality services have a crucial role in institutional development. Public institutions work to identify the needs of their citizens in the short-term, mid-term, and long-time. Service delivery is a component of business that defines the interaction between providers and receivers where the provider offers services. A service delivery quality framework is a set of principles, policies, and constraints used to guide the design, development, operation, and retirement of services provided by service providers with a view to offering a consistent service experience to a specific user community in a specific institutional context. Designing the service delivery quality system should focus on what creates value for the institutions and how to engage frontline employees to deliver the services (Khan, R., 2011, Getamesay, B., 2016 and Carneiro, P., & Lee, S., 2011).

Organizational culture is the set of overriding principles according to which management controls, maintains, and develops the social process that manifests itself as delivery of service and gives value to customers. Once a superior service delivery quality system and a realistic service concept have been established, there is no other component as fundamental to the long-term success of a service organization as its culture. The practice of organizational culture that commonly includes beliefs, values, attitudes, and practices of the employees of the institution is a powerful force in determining the health and wellbeing of the public institutions (Morshed, A., 2020, Christopher, T., 2012 & Alom, M. M., 2020).

Employee engagement represents an affective, motivational, work-related state of mind characterized by feelings of persistence, fulfillment, enthusiasm, absorption, and dedication. It has become an intriguing issue for human resource professionals due to its potentially optimal means of redefining the employee-organization relationship (Soni, B., 2013, Shuck, B. & Kevin, R. 2013). Employee engagement includes employee attitude activities, purpose-driven leadership, and human resource processes. Even the best-designed processes and systems will only be effective if carried out by people with higher engagement. Engagement is the moderator between the design and the execution of the service excellence model (Vigoda-Gadot, E., Eldor, L. & Schohat, L. M., 2013, Nada, M. M. & Fard, R. Y., 2013).

Conceptual Framework

The study is mainly based on the conceptual framework which was adopted from Getamesay, B. (2016) and Carneiro, P., & Lee, S. (2011). Getamesay, B. (2016) used variables that include leadership style, training, organizational culture, motivation, and work environment. On the other hand, Balqeysa, A. (2017) used working environment, staff capacity, remuneration, and technology. Based on these two frameworks and taking some modification, the conceptual framework is adopted having six independent variables that encompass their items and one dependent variable. The framework helps to see the relationship and to what extent the independent variables affect service delivery quality and which

variables contribute significant effect to the dependent

Empirical Evidences

Chepchumba, R. (2017) studied the effect of work environment on service delivery. He found that the work environment has a significant and negative effect on service delivery quality.

Figure 1.1: Conceptual Framework

The employees disagreed that they feel in control of their work and capable of competently carrying out their daily tasks (mean = 2). This could mean that there is no mutual support in terms of job prospects among the employees since they are unable to keep encounters with other staff work-centered rather than ego-centered. Similarly, the employees disagreed that the administrative team provides an environment in which they feel safe and secure (mean = 1.87, SD = 0.332). This could suggest that employees feel insecure in their work environment.

Kanyua,F. N. & Thiane, K. (2017) conducted a study on how leadership style influences the implementation of service delivery. The study found that the county government has a policy on leadership style. They also found that workers were not free to make most decisions without consulting their seniors. Decisions are made by their seniors.

Boamah, R. (2014) conducted a study on the effect of motivation on employees' performance in service provisions. The study revealed that promotion and opportunity for advancement are a major motivating factors. The study has also revealed that motivation level is low. The study identified the root causes of motivation problems that include the lowest wages and salaries.

Christopher, T. (2012) examined the impact of organizational culture on employee creativity and service provision. The study described that its Pearson's Correlation coefficient shows 0.716). The result showed a strong and positive relationship between organizational culture and employee creativity which enables the provision of services. Employee creativity and motivation were positively related to effective service provision. Employee autonomy had the greatest and positive impact on creativity whilst financial reward (for creative work) was negatively correlated with employee creativity. Based on this study, it was concluded that organizational culture impacts employee performance in public service provision.

Materials and Methods

Study Design

The research design focused on descriptive and inferential analysis. This study used two kinds of data collection methods, quantitative and qualitative, with the closed and open-ended questionnaire. Although the result of the research might highly be dependent on the primary data that was gathered through the questionnaire and discussions.

The importance of collecting and considering primary and secondary as well as qualitative and quantitative data was used to triangulate and supplement the diverse data generated from different sources which in return used to make the research findings reliable. Data quality was assured using appropriate data collection process techniques such as giving orientation to data collectors about the contents of the questionnaire and frequent supervisions; data collectors assisted the respondents in case of difficulties; reporting problems have been countered at the time of data collection immediately by the researcher, and taking appropriate measures. Questionnaires were checked for missing values and

inconsistency. Those found to have lots of missing values and inconsistencies were excluded from the study and considered as non-response. Finally, after data screening, data coding and entry were made by the principal investigator with the help of data entry professionals.

Study Population and Sample Size Calculation

The study population was employees of woreda 11 and woreda 12 in Yeka Sub-City. Sample respondents were selected from individual employees, experts, low and middle-level managements using a simple random sampling method. The sample of this study is calculated by using Taro Yamane formula (Yamane, 1967). The sample size is calculated at a 95% confidence level and a 5% margin of error. The sample size calculation requires a proportional sampling technique in the institutions. The sample size was 357 respondents out of which 320 were correctly filled and returned. In addition to the structured questionnaire, three focused group discussions and six interviews were conducted.

Data Collection Instruments

Data collection instruments (structured questionnaire, key informant interview, and focused group discussion questions) were used to collect the data from the respondents. The questionnaire was prepared in terms of close-ended responsive which is numerical and open-ended responsive which is non-numerical. The closed-ended quantitative method was organized using the Likert five scale format. The information was also gained from key informant interviewees and focused group discussions with managers. Focus groups are especially effective for capturing information about social norms, different opinions within a population and from a diverse range of people. The secondary data sources were also gathered and used from the policy documents of the institutions and research findings of various scholars on the topic under investigation.

Data Analysis Method

After the completion of the data collection process data screening, coding, entering, and analyzing was made so as to check the consistency and validity of data collected with different tools. Both quantitative and qualitative data were used for the analysis. Data from questionnaires were analyzed through both descriptive and inferential statistics using SPSS software version 25. To measure the service delivery quality level a 5 point scale has been used which is denoted by 1=SD, 2=D, 3=M, 4=A, and 5=SA. The descriptive statistics (frequency distribution, percentile, minimum, maximum, mean, and standard deviation) were used to examine the general level of the determinant factors.

The inferential statistics (correlation and regression analysis) were used to consider the validity and reliability of this study. A measuring instrument is valid if it provides consistent results. Pearson correlation coefficient is a static tool that indicates the degree to which two variables are related to one another (Kothari, C., 2004). It is commonly used as a measure of the internal consistency test score for a sample of examinees. Thus, for testing the relationship between and among the variables, the Pearson correlation coefficient was calculated. The correlation coefficient between 0.8 and 0.95 are considered to have very good quality, scales with a coefficient between 0.7 and 0.8 are considered to have good reliability, and a coefficient between 0.6 and 0.7 indicates fair validity. The sign of a correlation coefficient (+ or -) indicates the direction of the relationship between -1.00 and +1.00. Variables may be positively or negatively correlated. A positive correlation indicates a direct positive relationship between two

variables. A negative correlation, on the other hand, indicates an inverse, negative relationship between two variables (Zikmund, B. & Griffin, M., 2010).

The independent variables treated in the study are leadership, organizational culture, working environment, motivation, technology, and training of staff. On the other side, service delivery quality is considered as the dependent variable. In order to measure the extent of the effects of the independent variables on the dependent variable, Multiple Regression Mathematical Equation was used. Linear regression is a form of predictive model which is widely used in many real world applications.

$SDQ= \beta_0+\beta_1LS+\beta_2TR+\beta_3OC+\beta_4MT+\beta_5TC+\beta_6WE$

Where:-

SDQ = Service Delivery Quality

LS = Leadership

TR = Training

OC = Organizational Culture

MT = Motivation

TC = Technology

WE = Working Environment

With the help of the above given equation, the effects of independent variables on the dependent variable were measured. B_0 is the intercept term that gives the mean effect on the dependent variable of all the variables excluded from the equation. Its interpretation is the average value of SDQ when the stated independent variables are set equal to zero. B_1, β_2, β_3, β_4, β_5, and β_6 refer to the coefficient of their respective independent variables which measure the change in the mean value of SDQ per unit change in their respective independent variables.

Result and Discussions

Responses of the Respondents

In this section, details are given to the items of the assessment of factors affecting service delivery quality in service provisions of the institutions to the citizens. The respondents' responses in the assessment process were used as an instrument for identifying the determinant factors of service delivery quality. The responses of respondents reveal differences in determinant factors. The respondents' responses are either strongly disagree, disagree, moderate, agree, or strongly agree. According to Chileshe, N. & Kikwasi, G. (2014), the performance of determinant factors less than 49.9% is considered as low, in between 50% - 64.9% is considered as average and greater than or equal to 65% is considered as high performance.

The results in terms of the overall bundle of the determinant factors are described in Table 1.Table 2 also describes the aggregate mean values of all the responses of the items of the determinant factors as follows.

Leadership Style

Accordingly, 103 (32%) of respondents responded to moderate, 50 (16%) responded to agree and only 9 (3%) rated to strongly agree. On the other hand, 61 (19%) of the respondents responded to strongly disagree and 97 (30%) of the respondents responded to disagree. Generally, 158 (49%) of the respondents responded to less than moderate level while 162 (51%) of respondents responded to moderate level and above. The aggregate mean value of the responses on leadership style also describes 2.9219 which is above cut-off point, 2.5. These results describe that leadership style contributes to the average level of performance to service delivery quality of the institutions.

Lack of supervision values the ideas of employees; lack of freedom and participation of employees in decision making; lack of supervision in supporting employees in developing the capacity of employees in service delivery; biasedness of management and lack of basic necessary knowledge, skills, and attitude of managers were also pinpointed from the focused group discussions and interviews conducted. The qualitative data also supports the result of the quantitative data.

Training

Seventy (22%) of respondents responded to moderate, 32 (10%) responded to agree and no one rated to strongly agree. On the other hand, 102 (32%) of the respondents responded to strongly disagree and 116 (36%) of the respondents responded to disagree. Generally, 218 (68%) of the respondents responded to less than moderate level while 102 (32%) of respondents responded to moderate level and above. The aggregate mean value of the responses on training also describes 2.3417 which is below cut-off point, 2.5. These results describe that training contributes to low level of performance.

Table 1 The average responses of the overall bundle of the determinant factors

Determinant Factors		Response Level				
		St. disagree	Disagree	Moderate	Agree	St. agree
Leadership style	Freq.	61	97	103	50	9
	Percent	19	30	32	16	3
Training	Freq.	102	116	70	32	8
	Percent	32	36	22	10	8
Organizational Culture	Freq.	48	62	111	61	38
	Percent	15	19	35	19	12
Motivation	Freq.	48	105	112	43	12
	Percent	15	33	36	14	3
Technology	Freq.	65	107	102	39	7
	Percent	20	33	32	12	2
Work Environment	Freq.	107	114	68	24	7
	Percent	33	36	22	7	2
Average Response	Freq.	72	100	94	42	12
Overall Percent	Percent	22.4	31.3	29.5	13	3.8
N= 320						

Source: Own survey, 2021

The focused group discussions and interviews identified similar problems that include lack of training need assessment; lack of practical training; lack of consistent and sustainable training; and lack of on-job training. The qualitative data supports the result of the quantitative data. Thus both quantitative and qualitative data describe the low performance of training that affects the quality of service provisions to the citizens of the institutions.

Organizational Culture

One hundred eleven (35%) of respondents responded to moderate, 61 (19%) responded to agree and 38 (12%) rated to strongly agree. On the other hand, 48 (15%) of the respondents responded to strongly disagree and 62 (19%) of the respondents responded to disagree. Generally, 110 (34%) of the respondents responded to less than moderate level while 210 (66%) of respondents responded to moderate level and above.

Table 2: The Minimum, Maximum, Mean And Standard Deviation Values Of The Overall Determinant Variables

Variables	Minimum	Maximum	Mean	Std. Deviation
Leadership Style	1.00	5.00	2.9219	1.16603
Training	1.00	5.00	2.3417	.98752
Organizational Culture	1.00	5.00	2.8708	1.01674
Motivation	1.00	5.00	2.8708	1.01674
Technology	1.00	5.00	2.6234	.98638
Work Environment	1.00	5.00	2.3391	1.03385
Average Mean Value			2.6406	

Source: Own survey, 2021

The aggregate mean value of the responses on organizational culture also describes 2.8708 which is above cut-off point, 2.5. These results describe that organizational culture contributes to high level of performance. Although the quantitative data describes high performance in determining service quality, it is not free from some limitations. The focused group discussions and interviews identified problems that include lack of shared values; lack of team spirit; and lack of experience sharing among employees.

Motivation

One hundred twelve (35%) responses showed moderate, 43 (14%) responses reflected agree, and only 12 (3%) showed strongly agree. On the other hand, 48 (15%) of the respondents responded to strongly disagree and 105 (33%) of the respondents responded to disagree. Generally, 153 (48%) of the respondents responded to less than moderate level while 167 (52%) of respondents responded to moderate level and

above. The aggregate mean value of the responses on motivation also describes 2.8708 which is above cut-off point, 2.5. These results describe that motivation contributes to high level of performance. Focused group discussions and interviews identified similar problems that include unsatisfactory salary in relation to jobs; no recognition to hard-working employees; unfair way of staff promotion; and no incentive systems which hinder the performance of the dependent variable.

Technology

One hundred two (32%) of respondents responded to moderate, 39 (12%) responded to agree and only 7 (2%) rated to strongly agree. On the other hand, 65 (20%) of the respondents responded to strongly disagrees and 107 (34%) of the respondents responded to disagree. Generally, 172(54%) of the respondents responded to less than moderate level while 148 (46%) of respondents responded to moderate level and above. The aggregate mean value of the responses on technology also describes 2.6234 which is above cut-off point, 2.5. These results describe that technology contributes to low level of performance. Focused group discussions and interviews also identified problems that include no adoption of new technology; services are not provided with the help of technology; and lack of ICT skills that hinder the provision of service delivery.

Work Environment

As data showed, Sixty eight (22%) of the respondents chose moderate, 24(7%) responded agree and only 7 (2%) rated strongly agree. On the other hand, 107(33%) of the respondents responded strongly disagrees and 114(36%) of the respondents responded to disagree. Generally, 221(69%) of the respondents responded to less than moderate level while 99 (31%) of respondents responded to moderate level and above. The aggregate mean value of the responses on work environment also describes 2.2391 which is below cut-off point, 2.5. These results describe that work environment contributes to low level of performance. As the quantitative data describes poor performance of using work environment in the institutions, the qualitative data also pinpoints some limitations. Focused group discussions and interviews identified problems that include inadequate provision of facilities and resources; uncomfortable and inconvenient infrastructures; poor office layout which is difficult in getting offices of the service providers of the institutions and improper seating arrangements in the office. The qualitative data supports the result of the quantitative data.

Generally, the responses of the individual items are summarized under each determinant factor. Each frequency describes the average responses of each item of the determinant factors. Thus, the response to a moderate level and above to organizational culture is 66%, leadership style is 51%, motivation is 52%, technology is 47%, training is 32%, and work environment is 31%. The average mean value of all the independent variables describes 2.6446 which is above cut-off point. From these results, it can be said that the implementation performances of the average of overall responses of the determinant factors describe average performance in contributing to the quality of service delivery of the institutions.

Reliability of the Instruments

For testing the reliability of the data instrument, Cronbach's Alpha was calculated to test the reliability of the research instrument. Table 4.3 describes the reliability of the construct items that were evaluated using Cronbach's coefficient alpha. The average result of the reliability test of the variables was 0.860 which exceeds the minimum acceptable cut-off point. One of the most commonly used indicators of internal consistency is Cronbach's alpha coefficient. Ideally, the Cronbach alpha coefficient of a scale should be above 0.7 (Pallant, J. & Bailey, C., 2005).

The result of the reliability test of each item shows the internal consistency reliability. This suggested that the internal reliability in this study was acceptable and signified to be good in all determinant factors. The data gathered in terms of the items of the determinant factors were used for regression analysis. The results of the reliability test of each item is described as in table 3.

Table 3 Reliability Analysis Of The Determinant Factors

Determinant Variables	No. of items	Cronbach's alpha
Leadership Style	7	0.790
Training	5	0.873
Organizational Culture	5	0.800
Motivation	5	0.721
Technology	4	0.741
Work Environment	4	0.759
Overall quality	4	0.705
Valid N (listwise)=320	34	

Source: Own survey, 2021

The Relationships Between And Among The Variables

Determining the degree of association between the determinant variables and the dependent variable is the main purpose of conducting an analysis using Pearson correlation.

Table 4 describes the correlation analysis between the independent variables and the dependent variable; and among the independent variables. The result shows that the existing practices of training ($r=0.587$, $p<0.01$), technology ($r= 0.618$, $p<0.01$), and work environment ($r= 0.635$, $p<0.01$) have substantial association, positive relationship and statistical significant at 0.01 level. Leadership style ($r= 0.445$, $p<0.01$), organizational culture ($r= 0.386$, $p<0.01$) and motivation ($r= 0.386$, $p<0.01$) have moderate association, positive relationship and statistical significant at 0.01 level. This means an increase in training activities will bring an increment in employees' job performance.

Table 4 Pearson Correlation Between Independent Variables And Dependent Variable

Variables	OSQ	OLS	OTR	OCC	OME	OTC	OWE
Overall Service Quality (OSQ)	1	.445**	.587**	.386**	.386**	.618**	.626**
Leadership Style (OLS)	.445**	1	.477**	.588**	.588**	.464**	.384**
Training (OTR)	.587**	.477**	1	.483**	.458**	.515**	.424**
Organizational Culture(OCC)	.386**	.588**	.480**	1	1.000**	.473**	.321**
Motivation (OME)	.386**	.588**	.480**	1.000**	1	.473**	.321**
Technology (OTC)	.618**	.464**	.515**	.473**	.473**	1	.473**
Work Environment (OWE)	.626**	.384**	.424**	.321**	.321**	.473**	1

**. Correlation is significant at the 0.01 level (2-tailed). N=320

Source: Own survey, 2021

Regression analysis is a systematic method that is used to investigate the effect of one or more predictor variables on the dependent variable. Regression analysis is a reliable method of identifying which variables have an impact on the dependent variable. The process of performing a regression allows to confidently to determine which factors matter most, which factors can be ignored, and how these factors influence each other. Thus, this multiple regression is used in order to investigate the effect of each and the overall bundle of determinant factors on the dependent variable.

The coefficient of determination (denoted by R^2) is a key output of regression analysis. It is interpreted as the proportion of the variance in the dependent variable that is predictable from the independent variables. The coefficient of determination is the square of the correlation (r) between the predicted variable and actual variable; thus, it ranges from 0 to 1. An R^2 between 0 and 1 indicates the extent to which the dependent variable is predictable. The measure of autocorrelation will always have a value between 0 and 4. A value of 2.0 indicates that there is no autocorrelation detected in the sample. Values from 0 to less than 2 indicate positive autocorrelation and values from 2 to 4 indicate negative autocorrelation. The result of the Durbin-Watson value is 1.824 that is significant and approximate to 2. The F value is 74.545 at 0.000 significant level

which shows that the model is good as its value is less than 0.05. The result F= 74.545 which is greater than 1 and P<0.01 indicates that the combination of determinant factors have positive effect on service delivery quality which is statistically significant and confident at 99%.

Table 5 shows the relative contribution of each independent variable by taking the beta value under the unstandardized coefficients. The higher the beta value indicates the strongest its contribution to

Table 5 Multiple Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	.172	.124		1.386	.167
Leadership Style	.090	.039	.110	2.318	.021
Training	.233	.047	.240	4.948	.000
Organizational Culture	.069	.053	.087	1.311	.191
Motivation	.112	.064	.119	1.763	.079
Technology	.281	.046	.289	6.127	.000
Work Environment	.338	.039	.354	8.568	.000

a. Dependent Variable: GOSQ

Source: Own survey, 2021

Accordingly, work environment (Beta=0.338) shows a one-unit increase in the work environment would lead to a 0.338 unit increase in the level of service delivery quality and follow by technology (B=0.281), training (B=0.233), and leadership style (B=0.090). The statistical significance of each variable also shows that all these four variables have a statistically significant contribution (Sig < 0.05) for the prediction of the service delivery quality.

Organizational culture and motivation contribute to the dependent variable with beta values of B= 0.069 and B= 0.112 respectively. The statistical significance of these two variables shows that they do have a statistically insignificant contribution to the prediction of the dependent variable. They do have statistically less effect to make a significant prediction on service delivery quality.

The equation of multiple regressions is built on the dependent variable and independent variables. The objective of using a regression equation is to make it more effective at describing and predicting the stated variables based on their contributions to the dependent variable. Therefore, using the result in the regression coefficient described in table 4. 5, the estimated regression model is shown below.

SDQ = 0.172+0.090LS+0.233TR+0.069OC+0.112 MT+0.281TC+0.338 WE

From the above regression model, it was found that provision of service quality would be at 0.172 holding all independent variables constant at zero. The beta value of an independent variable (Leadership Style) is 0.090 with a t-value, 2.318 and a significant level of .021. This indicates that a unit increase in leadership style would lead to an increase in the provision of service quality by a factor of 0.090. The beta value of an independent variable (Training) is 0.233 with a t-value of 4.948 and a statistically significant level of .000. The beta value of independent variable (Organizational Culture) is 0.069 with a tvalue of 1.311 and an insignificant level of .191. The beta value of an independent variable (Motivation) is 0.112 with a t-value, 1.763 and an insignificant level of .079.

The beta value of an independent variable (Technology) is 0.281 with a t value of 6.127 and a significant level of .000. The beta value of an independent variable (Work Environment) is 0.338 with a t-value, 8.568 and a statistically significant level of .000. These beta values indicate the amount of change in the dependent variable due to changes in independent variables. All independent variables have a positive impact. But, leadership style, training,

technology, and work environment are the significant factors in determining service delivery quality.

Discussion

In case of this study, the beta value of technology is 0.281 with a t value of 6.127 and statistically significant level of .000. These results show that the implementation performance of technology revealed acceptable performance in predicting service delivery quality that opposed to Wanjau, K., Muiruri, B. & Ayodo, E. (2012) described Low employees' capacity and low technology adoption that affects service delivery quality of public service institutions. Boamah, R. (2014) realized that the work environment had a moderate relationship with performance in service delivery quality.

The correlation value of motivation was 0.563 which is considered as a moderate relationship. On the other hand, this study describes that work environment had a substantial association (0.626) and motivation had a moderate association (0.112) with service delivery quality. The findings reveal almost similar results.

The results of this study indicate that low effects of leadership style, organizational culture and motivation on service delivery quality concurred with Wanjau, K., Muiruri, B. & Ayodo, E. (2012) findings. Theuri, M., Macharia, S. & Kamau, A. (2020) conducted research on Assessment of the influence of determinant factors on service delivery. The result of ANOVA shows an F ratio of 14.59 at a p-value 0.000<0.05, which indicates a statistically significant model. The result of this study shows an F ratio of 74.545 at a p-value 0.000<0.05, which indicates a statistically significant model. The results of ANOVA reveal similar results.

Theuri, M., Macharia, S. & Kamau, A. (2020) also found that the working environment had positive and significant effects on service delivery (β1 = 0.476, p-value = 0.000) at the 5% level of significance. On the other hand, the result of this study implies an increase in the working environment by one unit would increase the service delivery quality by 0.338. The p-value of the working environment is 0.000, which indicates a statistically significant effect. The study reveals consistent performance in implementing the work environment factor with the findings of Theuri, M., Macharia, S. & Kamau, A. (2020).

Getamesay, B. (2016) found that training (Sig. = .041), motivation (Sig. = .039), leadership (Sig. = .007), and organizational Culture (Sig. = .038) have a statistically significant contribution (Sig<.05) for the prediction of the dependent variable while working environment (Sig. = .059) refers statistically less effect to make any significant prediction on job performance.

On the other hand, this study reveals work environment (Sig. =.000), technology (Sig. = .000) and training (Sig.=.000) have a statistically significant contribution (Sig<.05) for the prediction of the dependent variable. From these two findings, they do have similar performances of factors affecting service delivery quality. The results show that training, leadership style, motivation and organizational culture are the most determinant factors in Getamesay, B. (2016) findings. On the other hand work environment, technology and training are the most determinant factors of this study.

Conclusion

The overall practice of quantitative performance describes average level of service delivery quality. The regression analysis shows that the relationships between and among the variables are positive. The effects of the overall bundle of the determinant factors have a positive impact. Though all the independent variables have positive contributions in predicting the

dependent variable, their contributions are different and some are insignificant. Work environment, technology and training are the significant factors identified.

However, the interviews and focused group discussions show some limitations. The interviews and focused group discussions support the result of descriptive statistics basically which reflects the responses of the respondents.

Poor leadership style; inconsistent type of training with discipline (education background); low commitment in feedback provision; limitations in organizational culture; lack of conducive environment in experience sharing; lack of well incentive systems which hinder the motivation of employees; lack of applying modern technology; limit e-system services in the institutions; high level of discrimination in participation and decision-making processes; lack of service provision skill and knowledge of leaders; and low awareness in understanding the vision of the institutions; weak infrastructure and weak office layout which is difficult to the customers as well as the staff themselves are the limitations pinpointed.

Recommendation

The study identified some challenges which tackle achieving high standards of service delivery quality in public institutions. To address these challenges, the following recommendations are offered.

- Provide consistently and practice-based training for both leaders and staff

Training is increasing one's skills and abilities to measurable standards by practice. To provide consistent and practical training for both leaders and staff, the management should identify and provide competency-based or practice-based training that should fill the gap of the employees in service delivery quality.

- Promote organizational culture among staff

Culture as values and behaviors are believed to lead to success and are thus taught to new members. To promote the organizational culture of the institution management must help generate a culture supportive of creativity with an emphasis on enhanced communication in order to influence attitudes, opinions, and beliefs of employees.

- Motivation

Motivation is the process that initiates, guides, and maintains goal-oriented behaviors. To develop the motivation of employees of the institutions should develop different incentive mechanisms based on competent and merit bases systems.

- Adoption of new technology

The use of IT is perceived to improve operational efficacy, reduce operating costs and provide great opportunities for doing better. To adopt new technology the institutions should develop automation, database systems to store records, manage and retrieve records that will be safe from misplacement.

- Facilitate a conducive work environment

A safe and healthy working environment is key to enhancing efficient service delivery. To facilitate a comfortable work environment the institutions should provide necessary tools and equipment to feel safe and secure in workplace.

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User Perception on Disclosure: A Comparative Analysis of Public and Private Banks in Ethiopia, by Tafa Ijara*

This study investigates the views and perceptions of users on disclosure and the extent of disclosure by the Ethiopian banking sector. The data collected from 509 respondents in different groups of information users were analyzed using percentage, mean and kruskal-wallis H test. The result shows that most of the user groups regard annual reports as the most important source of information and income statements as an important section of annual reports. The majority of the user groups attached the highest ranking for the relevant attribute for the annual reports and delay in publishing annual reports as the most serious problems. The users of information perceive that a public bank discloses more information with better quality than private banks and the analysis of annual reports also disclose the same results. The Kruskal-wallis H test shows that there was a significant difference among user groups on the frequency of annual report usage, purposes of annual reports, sources of information, the significance of the problems, and sections of annual reports.
Keywords: Disclosure; Ethiopian banks; Information; Users' perceptions

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Introduction

The banking sector plays the most important financial intermediaries role and acts as the primary source of financing an economy. According to the theory of financial intermediaries, banks are able to reduce transaction costs and resolve information asymmetries between borrowers and lenders (Diamond, 1984; Saunders and Cornett, 2012). The Commercial bank as a type of financial institution plays the intermediary role that provides liquidity insurance, monitoring services, and producers of information (Santos, 2000).

An effective information provision system is very important in establishing a strong banking institution. Putu et el., (2012), stated that financial information is needed by all the stakeholders in order to make informed decisions. Information disclosure is an important element of financial reporting. According to Spiegel and Yamori (2004), effective and full disclosure is generally regarded as the essential condition for the discipline of markets in modern financial sectors. Huang (2006) stated that accounting disclosure in the banking sector is important over and above those in other sectors. Disclosure can be explained as the communication of economic information which includes financial or non-financial, quantitative or qualitative relating to the organizations' financial position and performance (Owusu-Ansah, 1998). Disclosure is defined in accounting literature as providing business information to the public by financial statements (Agca and Onder, 2007). Though there are different means of disclosing a firm's information, an annual report is the most important one. Annual reports by the firms are usually prepared according to two dominant standards: generally accepted accounting principles (GAAP) and

international financial reporting standards (IFRS). According to the investors' interest, these standards do not provide all the necessary information and as a result, there are some deficiencies (Shuster and O'Connel, 2006).

The price of the stock is varying over time because of different factors which are categorized as company internal factors and external factors. Regarding this fact, Hartono (2004) found that the basic perceptions of financial statements users are the important determinant of desired return. Cooper (2003) stated that perception is the mechanism with which a person evaluates things from the external environment, which, in turn, determines a person's behavioral response. According to Rouf (2011), disclosure and transparency induce corporations to better shelter investors, and thereby increase investors' confidence in capital markets. Timely, relevant, reliable, and comparable information about marketable securities is significant for both pricing efficiency and market confidence.

Regarding the level of information disclosure the empirical literature shows state or private ownership of companies influences their level of disclosure in different countries (see for instance; Ferguson et al., 2002; Yang et al., 2013 and OECD, 2017).

The modern banking system was commenced in Ethiopia in 1905 based on the agreement made between the Ethiopian government and British owned national bank of Egypt (NBE, 2020; Geda, 2006 and Mauri, 2011). From 1905-1991 different banks were established, but liquidated and merged under different regimes because of the Italian invasion, changes in government regulations, and policy changes (NBE, 2020 and Mauri, 2003). Following the declaration of the liberal economic system in 1991 in Ethiopia, private banks have been established over the years and recently reached 16 private banks and two public banks. The Ethiopian banking system primarily focuses on resource mobilization, disbursement of loans and outstanding credit (NBE, 2020).

Problem Statement

The importance of corporate transparency is not only for protecting the interests of the investors but also for preventing the failure of capital markets and maintaining economic stability. Disclosure is considered an important tool for evaluating the transparency of companies. Lack of adequate financial disclosure prevents investors and creditors from receiving important information that helps in their decision-making. According to Spiegel and Yamori (2004), effective and full disclosure is generally regarded as the essential condition for the discipline of markets in modern financial sectors. Huang (2006) stated that accounting disclosure in the banking sector is important over and above those in other sectors.

Several studies have found different results on the perception of users on the information reporting or disclosure of firms. For instance, users have different views on the use of company reports to make an informative decision, primary sources of information, features of useful corporate information, important parts of corporate annual reports, and quality of information (see for example; Naser et al., 2003; Abdelkarim et al., 2009; Babu and Hossain, 2014 and Alfraih and Almutawa 2014).

Regarding information disclosures by Ethiopian banks only a few studies have been conducted. Only two studies conducted by Rao and Desta (2016) and Khan and Abera (2015) on disclosure practices and the determinants of the levels of disclosure of Ethiopian banks are available. But, there is no study conducted on the perception of

users on information disclosure by Ethiopian banks. Thus, examining the perception of the users on the Companies' information disclosures is very essential to fill the literature gaps and provide implications for different stakeholders.

Therefore, this study is needed and different from the previous studies conducted regarding the users' perception of banks' information disclosures in several aspects including: first, the previous studies found inconsistent results. Second, most of the previous studies were conducted in developed countries which means little is known about developing countries and moreover, there are no similar studies conducted in Ethiopia on the users' perception of information disclosure. Third, unlike previous studies, this study analyzed the views of several user groups. Fourth, unlike previous studies, this study compares the users' perception of information disclosure by Ethiopian public banks and private banks. Hence, the main aim of this paper is to examine the user's perception of corporate disclosure in Ethiopian public and private banks. The specific objectives of the study are the following:

1. To describe the sources of Ethiopian banking industry information used by various user groups.
2. To examine the views and perceptions of Ethiopian banks' annual report users on characteristics of useful corporate information.
3. To analyze the perceptions of various user groups regarding the importance of disclosure items by the Ethiopian banking industry.
4. To examine the extent of the disclosure provided by public and private banks in Ethiopia over the study period.

Literature Reviews

Investors require timely and accurate business information to make effective investment decisions. Information disclosure is one of the major important things to the banking industry because the highly liquid nature of banks' assets results in significant uncertainty in entity valuations (Noe, 1999). In the modern financial sector, effective and full disclosure is regarded as a necessary condition for the discipline of the market (Spiegel and Yamori, 2004).

The firm's information users both internal and external to the organization, require the information provided to be useful. To be useful, the disclosed information must have certain qualitative characteristics. FASB (2005) summarized the qualitative characteristics of accounting information into four main features; these include understandability, relevance, reliability, and comparability.

There are a number of possible information sources and many previous studies identified possible sources of information through which companies provide information to users. However, the annual report is identified by a significant number of studies as the most important source of corporate information frequently used by various user groups in many countries(see for example; Rouf, 2016; Naser et al., 2003; Arnold and Moizer, 1984; Bence et al., 1995 and Struely, 1984). Useful information can be obtained in many ways; one of the common sources is the firms' annual reports. An annual report plays an important role by providing relevant, useful and reliable financial information to shareholders, investors and other interested people about the financial condition and performance of the business and its future prospects to help users in decision making (Yeun et al., 2009).

Several studies found that users of information have a different perception of the source of information, type of information, attributes of information, adequacy of information and importance of information (see for instance; Naser et al.,

2003; Abdelkarim et al., 2009; Babu1 and Hossain, 2012; Alfraih and Almutawa, 2014).

Annual reports of the firms can be prepared either based on GAAP or IFRS. In Ethiopia, the financial disclosure requirements of the bank were based on the GAAP financial reporting standard. But from 2018 onwards the banking sector was required to prepare their reports using IFRS.

There are several groups of users of corporate financial information. These include the government, creditors, shareholders, labor unions, trade unions, employees, financial analysts, brokers, potential investors, bankers, taxing authority, teachers, suppliers, customers, competitors and press (FASB, 1978; Lunt, 2006; Albrecht et al., 2011; Kieso et al., 2013). However, this study emphasizes only the perception of five groups of information users presented in the following diagram.

Figure1: Information Disclosure and Perception *Model*

Source: Developed From the Literature (FASB 1978; Albrecht Et Al., 2011 And Kieso Et Al., 2013)

Based on the reviewed literature the following hypotheses are developed and tested:

H_o1: There is no significant difference among user groups on their frequency of annual reports usage.

Ho2: There is no significant difference among user groups in the perceived importance they attach to various sources of information.

Ho3: There is no significant difference among user groups in the perceived importance they attach to different sections of annual reports.

Ho4: There is no significant difference among user groups in the perceived importance they attach to the characteristics of information.

Ho5: There is no significant difference among user groups' views on the problems with using Ethiopian banks' annual reports.

The next section of this paper is structured as follows: section two discusses reviews of related literature; Section three presents the methodology of the study. The fourth section presents the result and discussion of the study. Section five present the conclusions and recommendations.

Materials and Methods

This study is intended to examine the user's perception of the information disclosure using cross-sectional data and using the annual reports of Ethiopian commercial banks during the period of 2010 to 2018 the extent of information disclosures were also examined. To provide empirical evidence on

the set objectives and formulated hypotheses, data about the perception of users on information disclosures were gathered using questionnaires and data for the evaluation of the extent of disclosure was obtained through reviews of annual reports of the banks.

A total of 736 (including 60 questionnaires for pilot study) questionnaires was distributed to different user groups of information disclosure including investors (shareholders), tax officers, national bank of Ethiopia (NBE) officers, academic staffs of accounting and finance and auditors. The validity of the instrument was ensured and the reliability of the instruments was tested using Cronbach's alpha coefficient which is 0.755, 0.724, 0.778, and 0.739 for objective one to objective four respectively, and which is considered good.

During the data collection, there were 17 commercial banks in Ethiopia including one public bank and 16 private banks. However, only 11 were included in the study due to the short duration of the establishment of the excluded banks and the inconvenience to collect data. These banks are the commercial bank of Ethiopia, Awash bank, bank of Abyssinia, Dashen bank, united bank, Oromia international bank, Cooperative Bank of Oromia, Bunna international bank, Wegagen bank, Nib international bank and Zemen bank. From the users' information side investors, academic staff (accounting and finance), NBE officers, tax officers, and auditors were the population of this study.

The total shareholders of the selected 10 private commercial banks are counted to 69,657. This means 69, 657 is the population of the shareholders. The sample size for this population is determined using Yemane(1967) formula which is used to calculate a sample size under the assumption of a 95% confidence level and P=0.05.

$n= N/1+N (e)^2$

Where:

n= is the sample size

N=is the population size

e= is the level of precision

Therefore by applying the above formula the sample size for the population of 69,657 shareholders, at 95% confidence level and p=0.05 is determined as follows:

$n= 69,657/1+69,657(0.05)^2$

= 398 shareholders.

A number of sample units were drawn from each bank in proportion to their population size, which is using proportional systematic sampling since the shareholders are already stratified by the bank in which they made the investment.

The second target population of the study is the academic staff. Recent data shows that in Ethiopia there are a total of more than 50 private and government Universities. From the total Universities, a sample of 5 government universities and 5 private universities/university colleges are selected using judgmental sampling. The Universities included in the samples are; Addis Ababa University, Ethiopian Civil service University, Haramaya University, Hawassa University, and Mekelle University from Government Universities. From private universities the samples are Unity University, Rift Valley University, Saint Mary's University, Alpha University college and Admas University.

The total population of permanent academic staff in selected Universities is counted to be 358. The sample size for this population is determined using Yemane (1967) formula which is used to calculate a sample size under the assumption of a 95% confidence level and P=0.05.

$n= N/1+N (e)^2$

Where:

n= is the sample size

N=is the population size

e= is the level of precision

Therefore by applying the above formula the sample size for the population of 358 academic staff, at 95% confidence level and p=0.05 is determined as follows:

$n= 358/1+358(0.05)^2$

$= \underline{189}$

A number of sample units were drawn from each university in proportion to their population size, which is using proportional systematic sampling since the academic staff are already stratified by the University they are working in. This means after allocating the total sample size to each university in proportion to their population size, systematic sampling was applied to draw a sample from each university. On the other hand, using judgmental sampling 32 officers from the national bank of Ethiopia, 23 officers from the ministry of Revenue and 34 auditors from audit firms and the accounting and auditing board of Ethiopia were selected.

The collected data were analyzed using percentage, mean, Chi-square and Kruskal-Wallis H test. Chi-square and Kruskal-Wallis H test was applied to measure the similarity among the user groups' views on the information disclosure of banks and level of disclosure during the period 2010 to 2018. Sieggel and Castellan (1988), Naser et al., (2003) and Mirshekary and Saudagaran (2005) suggested that for ordinal scale data a non-parametric method is an appropriate method to test the similarity or differences among the groups that is using Kruskal-Wallis H test. Hence Kruskal-Wallis H test was used to test the possible differences among the user groups.

Regarding the extent of disclosure, this study used the standardized transparency and disclosure items set by standard and poor to evaluate the disclosure practices of Ethiopian commercial banks. However, from the total 98 transparency and disclosure items set by standard and poor only 91 items are applicable in Ethiopia commercial banks. Thus, the score out of 91 items are presented in number and percentage. In order to assign a score for each item of information, this study applied an unweighted index. The unweighted evaluation method awards one when the item is disclosed and zero when the item is not disclosed. The unweighted index is preferred over the weighted index for many reasons (see for instance; Firth, 1979; Patel and Dallas, 2002; Utama and Utama, 2012; Sharif and Lai 2015). Accordingly, the unweighted disclosure scoring method measures the total disclosure (TD) score of a banking firm as summative (Cooke, 1992) as follows:

$$TD = \sum_{i=1}^{n} d_i$$

Where,

$d = 1$ if the item d_i is disclosed

$d = 0$ if the item d_i is not disclosed

n = number of items

Results

This section of the paper analyzed and discussed the data collected through questionnaires and review of annual reports. Out of the total 676 questionnaires surveyed, 509 questionnaires were properly filled and returned which makes the overall response rate 75 percent. However, the response rate varies from one group to the other which ranges from as low as 73 percent from the investor group to 87 percent from tax officers. The results of both types of data are discussed and presented as follows.

Important Sources of Information and Frequency of Usage

A response from the information users shows high disparity among the user groups in terms of the frequency of their information usage. All respondent groups use information from the level of occasional to always. However, there is a disparity between the user groups on the frequency of the annual report usage. Moreover, the result of the chi-

Table 1. Frequency of Annual Report Usage in Percentage

Frequency	Academics	Investors	NBE officers	Tax officers	Auditors
Always	4.9	13	42.3	4.8	10.7
Usually	9.1	21.5	3.8	42.9	3.6
Sometimes	24.5	31.3	38.5	19	50
Occasionally	61.5	34.2	15.4	33.3	35.7
Never	0.0	0.0	0.0	0.0	0.0
Chi-square test(χ^2)			101.948(p=0.000)*		

Source: Survey by the researcher, 2019

square test shows statistically significant (101.948(p=0.000)* differences at the 1 percent significance level for all the five levels of the frequency tested. Both frequency analysis and statistical test result indicate the existence of statistically significant difference among the user groups on their frequency of commercial banks' information usage. Therefore, the hypothesis that there is no significant difference among the user groups on the frequency of usage of information is not supported.

As indicated in table 2, all user groups (except tax officers) regard annual reports as the most important sources of information they use for decision-making (judgmental) purposes. It is obvious to see from table 2 that most of the users rate annual reports as either very important or important. Tax officers regard specialists' advice or advisory services as the most important sources of information. Similarly, investors consider communication with the management of banks as the first most important source of information being equal with annual reports.

Table 2. Importance of Different Sources of Information as Mean Scores

Sources of information	Academics	Investors	NBE officers	Tax officers	Auditors
Advice of friends and relatives	3.4	3.5	3	3.3	3.3
Communication with management of banks	3.7	4.2	4.1	3.9	4.1
Annual reports	3.9	4.2	4.2	3.9	4.2
Specialist's advice or advisory services	3.7	3.5	3.3	4.1	3.8
Newspapers and magazines	3.4	3.8	3.4	3.9	3.5
Kruskal-wallis test(χ^2):					
Communication with the management of banks			30.337(p=0.000)**		
Annual reports			12.129(p=0.016)*		
Newspapers and magazines			22.724(p=0.000)**		

Note: ranges from, 1=not important at all; to 5=very important

Source: Survey by the researcher, 2019

Kruskal-Wallis test results indicate that there is a statistically significant difference among user groups on their perceived importance level of communication with the management of banks at 1 percent, annual reports at 5 percent and newspapers and magazines at 1 percent. But there is no significant difference among the user groups on the advice of friends and relatives and specialist advice or advisory services. Therefore, the hypothesis that there is no significant difference among the user groups on sources of information is supported only for the advice of friends and relatives, and specialists' advice or advisory services.

The analysis of the sources of information used by the respondents shows that most of the users perceive that annual report as the most important source of information. The result of this study is similar to the findings of Naser et al., (2003), De Zoysa and Rudkin (2010) and Mirshekary and Saudagaran(2005) that they found that the information user groups believe annual reports as the most important source of financial information.

Importance of Ethiopian Banks Information

The user groups have different views on the primary purpose of providing information to the user groups. Most of the user groups perceive that the primary purpose of the annual report is to provide information to the national bank of Ethiopia for monitoring and supervision purposes. Investors and auditors perceive that the primary purpose of annual reports is to provide information to investors to assist them with future decisions. But auditors perceive providing information to help investors in monitoring their existing investments and to provide information to Ethiopian tax authorities also as the primary purpose of annual reports.

The Kruskal-Wallis test results show that there is a statistically significant difference among the user groups on their perceived purposes of information in annual reports to provide information to investors to assist them with future decisions at 1 percent, to help investors in monitoring their existing investments at 5 percent and to provide information about corporate governance standards at 1 percent. But there is no statistically significant difference among the user groups on the other purposes of information provided in annual reports.

Table 3. Views on the Importance of the Information Provided in Ethiopian Bank's Annual Reports in Terms of Alternative Purposes

Purposes
Kruskal-wallis test(χ^2):
To provide information to investors to assist them with future decisions 15.351(p=0.004)**
To help investors in monitoring their existing investments 12.774(p=0.013)*
To provide information about corporate governance standards 14.945(p=0.005)**

Note: ranges from, 1=not important; to 5=very important
Source: Survey by the researcher, 2019

The results of this study show that the user groups have different views on the primary purpose of providing information to the user

groups. The Kruskal-Wallis test result also shows a statistically significant difference among user groups on their perceived purposes of information in annual reports.

Table 4. Assessment of the Attributes of the Financial Information in Annual Reports of Ethiopian Banks

Attributes	Academics	Investors	NBE officers	Tax officers	Auditors
Quantity of the information	**3.6**	**3.6**	**3.5**	**3.6**	**3.5**
Understandability of the information	**3.9**	**3.7**	**3.6**	**3.9**	**3.7**
Relevance of the information	**3.9**	**4.0**	**3.8**	**4.2**	**3.9**
Reliability of the information	**3.8**	**3.9**	**3.8**	**4.1**	**4.0**
Comparability of the information	**3.8**	**3.8**	**3.8**	**3.9**	**3.8**
Materiality of the information	**3.8**	**3.9**	**4.0**	**4.0**	**3.8**
Kruskal-Wallis test(χ^2): All results are not significant					

Note: ranges from, 1=very poor; to 5=excellent
Source: Survey by the researcher, 2019

Nonetheless, most of the user groups perceive that the primary purpose of the annual report is to provide information to the national bank for monitoring and supervision purposes. This makes the result of this study only be partly consistent with the study result by Dawd, et al., (2018) which found that information users' in Kuwait view that the most important purpose to provide information in annual reports is to help investors in making their investment decision.

Attributes of The Information Disclosures in Annual Reports

The quantitative and qualitative attributes of Ethiopian banks' accounting information drawn from ASB (1991) and FASB (2005) were assessed using user groups' perceptions. Accordingly, three (academics, investors and tax officers) of the five user groups attached the highest ranking for the relevant attribute for the information disclosed in Ethiopian banks' annual reports. Academics user groups attached the highest ranking equal with the relevance of understandability of the information, NBE officers and auditors attached the highest ranking for the materiality and reliability of the information respectively for the information disclosure in annual reports.

The Kruskal-Wallis test result indicates that there is no statistically significant difference among the user groups in their perception of all attributes of financial information disclosure. Thus, the hypothesis that there is no significant difference among the user groups on the attributes of information disclosure on annual reports is supported.

The above result shows that the majority of the user groups attached the highest ranking for the relevance and the other user groups attached high value for understandability, materiality, and reliability of the information disclosure in annual reports. Though the user

groups give high ranks for different attributes, the Kruskal-Wallis test shows that the difference among the user group is not statistically significant. Stainbank and Peebles (2006) have found that in South Africa users attached high importance for the comparability, faithful representation, and relevance; Whereas, Naser et al., (2003) have found that in Kuwait users viewed credibility and timeliness of information as the most important features of useful information; in contrary Dawd (2010) has found that in Kuwait users perceived reliability and understandability of information as the most important feature of corporate information. User groups perceived that quantity of information is the attribute least maintained by banks in information disclosure in annual reports. However, in terms of importance (based on their interest), most of the user groups view the reliability of information as the most important attribute of information and all user groups view relevance as the second most important attribute of information.

Public Bank Versus Private Banks in Terms of Attributes of Information

As shown in table 5 most of the user groups rate the public bank information disclosures as either good or very well relative to private banks information disclosures that is in terms of quantity, relevance, reliability, understandability, comparability and materiality of information disclosed in annual reports. Users attached the highest rank for the relevance and reliability attributes for information disclosed by the public bank than other attributes when compared with the attributes of information disclosed by the private banks. The Kruskal-Wallis test result indicates that there is a significant difference among the user groups on their perception of the understandability of the information disclosed by public banks relative to private banks which is statistically significant at 5 percent. But the user groups have no significant differences in their perception of the attributes of the information disclosed by a public bank relative to private banks. Therefore, the hypothesis that there is no significant difference among the user groups' views on information disclosed by public and private banks is not supported for the attribute of understandability, while the hypothesis is supported for the other attributes.

Table 5. Assessment of the Attributes of Public Bank Annual Reports Relative to Private Banks

Attributes	Academics	Investors	NBE officers	Tax officers	Auditors
Quantity of the information	3.7	3.6	3.6	3.7	3.6
Understandability of the information	3.8	3.7	3.5	4.0	4.0
Relevance of the information	3.8	3.8	3.9	4.0	3.9
Reliability of the information	3.8	3.7	3.8	4.1	3.9
Comparability of the information	3.8	3.6	3.8	4.0	3.7
Materiality of the information	3.8	3.7	3.7	4.1	4.0
Kruskal-wallis test(χ^2): Understandability of the information 8.683(p=0.048)					

Note: ranges from, 1=very poor; to 5=excellent
Source: Survey by the researcher, 2019

Significance of Problems in Using Annual Reports ‘

According to three user groups (Academics, NBE officers, and Auditors), delays in publishing annual reports are the most serious problem. Investors viewed lack of reliability of information and lack of access to annual reports as the most serious problems and delay in publishing annual reports as the second most important problems in using companies' information. Tax officers viewed lack of compliance with accounting standards as the most serious problem. Kruskal-Wallis test indicates that there is a statistically significant difference among the user groups on the delay in publishing annual reports and lack of access to annual reports both at a 5 percent significance level. The hypothesis that there is no significant difference among the user groups' views on the significance of the problems when using the annual reports of information is not supported by the delay in publishing annual reports and lack of access to annual reports. But the hypothesis is supported for the other problems.

Table 6. Views on the Significance of the Problems When Using Ethiopian Banks' Annual Reports

Problems	Kruskal-wallis test(χ^2)
Delay in publishing annual reports	11.466(p=0.022)
Lack of access to annual reports	10.095(p=0.039)

Note: ranges from, 1=not significant at all; to 5=very significant
Source: Survey by the researcher, 2019

This study found that the majority of the user groups viewed delays in publishing annual reports as the most serious problem and followed by lack of reliability, lack of access to annual reports and lack of compliance

Table 7. Users View on the Importance of the Sections of Annual Reports in Their Financial Decision Making for Judgment Regarding Ethiopian Banks

Sections of annual reports	Academics	Investors	NBE officers	Tax officers	Auditors
Balance sheet	4.3	4.4	4.4	4.2	4.3
Income statement	4.2	4.5	4.5	4.3	4.6
Statement of cash flows	4.0	4.3	3.9	4.2	4.6
Notes to the financial statements	3.9	4.2	3.8	4.1	4.5
Statement of retained earnings	3.9	4.3	3.5	4.1	4.6
Accounting policies	3.9	4.3	3.9	4.3	4.6
Directors' report	3.9	3.8	3.7	4.1	4.3
Auditor's report	4.3	4.3	4.2	4.3	4.3
Kruskal wallis test:					
Balance sheet				10.681(p=0.030)	
Income statement				16.301(p=0.003)	
Statement of cash flows				10.241(p=0.037)	
Notes to the financial statements				18.176(p=0.003)	
Statement of retained earnings				25.796(p=0.000)	
Accounting policies				17.945(p=0.006)	
Directors' report				13.811(p=0.007)	

Note: ranges from, 1=not important at all; to 5=very important
Source: Survey by the researcher, 2019

with accounting standards. However, there is a statistically significant difference among the user groups on the problems in using annual reports. Studies conducted by Mirshekary and Saudagaran (2005) in Iran, De Zoysa and Rudkin (2010) in Sri Lanka, and Dawd et al., (2018) in Kuwait found that the user groups viewed delay in publishing the annual report as the main factor restricting the use of annual reports.

Importance of the Section of Annual Reports

As indicated in table 7 the users perceive the income statement as the most important section of annual reports and the users' rate directors' report as the least important section of annual reports. The Kruskal-Wallis test reveals that there is a significant difference among the user groups on the importance of balance sheet, income statement, statement of cash flows, notes to the financial statements, statement of retained earnings, accounting policies, and directors' reports at 1 percent significant level. Only on the importance of the auditor's report, there is no significant difference among the user groups. Therefore, the hypothesis that there is no significant difference among the user groups' views on the importance of the sections of the annual reports is not supported.

Table 8. Public Versus Private Banks Extent of Disclosure

Year	Public		private	
	Score in number	Percentage	Score in number	Percentage
2010	46	48.4	44	48.4
2011	47	51.6	44	48.8
2012	47	51.6	46	50.8
2013	48	52.7	46	50.9
2014	53	58.2	46	51.1
2015	53	58.2	47	51.6
2016	53	58.2	48	52.5
2017	53	58.2	49	53.5
2018	53	58.2	49	53.5

Note: disclosure score based on transparency and disclosure items of standards and poor
Source: Annual reports of banks 2010-2018

The users perceive the income statement as the most important section of annual reports and the directors' report as the least important section of annual reports. This study result is consistent with the result of a study conducted by Mirshekary and

Saudagaran(2005) in Iran and Naser et al., (2003) in Kuwaiti that their study found that information users perceived income statements as the most important section of annual reports. Different from the current study result, a study conducted by Stainbank and Peebles (2006) found that the component of the annual report that the information users in South Africa read thoroughly most is the cash flow statement and followed by the income statement. From these evidences, we can understand that most users prefer the use of income statements among other components of annual reports.

Public Versus Private Banks in Terms of Extent of Disclosure

As shown in table 8 both public and private banks' level of disclosure has shown increases during the period. But their overall disclosure level is almost half of the transparency and disclosure items set by standards and poor. In recent years the disclosure level of public banks was constant, while the private banks' disclosure level showed constant for some consecutive years and then increases and alike. Generally speaking during the analysis period the level of disclosure by a public bank was higher than disclosure by private banks except in 2010 the disclosure level of both categories of banks was equal. This may indicate that private banks are not disclosing the details and additional information voluntarily.

The comparative analysis between public and private commercial banks on the level of disclosures indicates that public banks disclosure more information than private banks. This may imply that the competition between commercial banks in disclosure of more information is weak in Ethiopia and it may be due to the fact that disclosure of more information has no significant contribution to the profitability of the banks. This study result is consistent with the result of a study conducted by Hossain and Reaz(2007), which found that public sector banks disclose more voluntary information than private sector banks. In contrast to this result, a study by Madhani(2014) found that there is no significant difference in disclosure practices of Indian firms across the public and private sectors.

Conclusions & Recommendations

From the above results this paper concludes that there is variance among the information user groups on the frequency of information usage, public banks disclose more information with better quality than private banks, the user groups perceive that the primary purpose of the annual report is to provide information to the national bank for monitoring and supervision and to investors to assist them with future decisions. Most of the user groups regard annual reports as the most important source of information and the majority of the user groups attached the highest ranking for the relevant attribute for the information disclosed in annual reports by Ethiopian banks. Regarding the importance of the attributes of information, most of the user groups view reliability as the most important attribute of information. Moreover, users view the income statement as the most important section of annual reports.

Delay in publishing annual reports, lack of reliability of the information, lack of access to annual reports, and compliance with accounting standards are perceived by users as the most serious problems in the use of bank information. Further, the views of the user groups have significant differences on the frequency of annual report usage, purposes of annual reports, sources of information, the significance of the problems, and the importance of sections of annual reports. However, there is no significant difference among the user groups on their views on the attributes of annual reports.

Therefore, the study suggests that the management of Ethiopian public and private banks are suggested to work towards solving problems related to information disclosure such as delay in publishing, reliability of the information, access to annual reports, and compliance with accounting standards. The Ethiopian governing bodies of corporate reporting are also suggested to formulate and enforce the policy to make the companies

solve information disclosure-related problems; improve the quantity and quality of information disclosure. The management of the banks is suggested to increase the quantity of information they disclose.

This study suggests for future research to focus on areas not covered in this study that includes the perceptions of the preparers of information disclosure and user groups of the non-banking sector.

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Manuscripts need to be problem-solving research outputs. They can be original articles, systematic reviews, or short communications. Thematically, the Journal has broader aim and scope on issues of development broadly defined and the name "Africa" in its nomenclature displaying its commitment to engaging scholars from Africa as well as addressing regional matters of development. The Journal will accept manuscripts from disciplinary, multidisciplinary, and interdisciplinary policy and development sciences, social and behavioral sciences, humanities, education and language, health, agriculture, socio-economic development, and political economy.

However, manuscripts of pure disciplinary focus that do not have explicit development relevance are outside of the scope. Manuscripts should be submitted in English except in the case when the theme of the study requires it in Amharic. The title should be precise and clearly describing the content of the manuscript. A short running title of fewer than 160 characters is advisable. Never use abbreviations or formula in the running title. All submitted manuscripts must follow the following structure:

Manuscript Structure

Title: The title must be informative and specific. It should be easily understandable by readers and reflects the content and motive of the research paper. **Author name affiliation and email address**: author/s' first name and last name only. Please don't include salutations like Dr/ Mr./Prof, et cetera. If possible, provide only your professional/ institutional email address.

Abstract: one paragraph containing at most 150 words. The abstract should be informative and explainable without reference to the text. It should state succinctly the problem, objective method, result, and conclusion and recommendation of the paper. The use of abbreviations and citations is not advisable here.

Keywords: 5-6 most important terms that describe your research domain and the specific problem area investigated.

Introduction: A brief section usually not more than a page. It should be informing the reader of the relevance of the research. It should further serve as a gateway and a pre-taste of your research endeavor; introduction should further outline the core sections of your manuscript.

Problem Statement: This section should provide a concise yet comprehensive review of relevant classic and contemporary theoretical and empirical literature pertinent to your problem area, followed by a concrete definition of your problem, depiction of gaps in prior research, why your current study is worth studying and how it intends to fill the gaps. Your closing paragraph here should pose the core research questions and/or objectives (with an optional list of specific objectives).

Materials and Methods: This section should describe how your study area (geographic, socio-demographic, etc.); salient methodological and design approaches adopted with justifications (quantitative, qualitative, or mixed); the procedures used; methods of data collection; analytical procedures (including what software package employed) and how you dealt with ethical issues.

Results: this section describes outputs generated in the methodology section. The results section should present your key findings, without discussing or sources citations.

Discussion: Here, you should provide discussions and further analysis of your results, with the comparative treatment of your findings with other similar studies. Conceptual or theoretical models and perspectives introduced in your literature review sections should be linked with your key findings, thereby putting your findings in broader academic and policy contexts.

Conclusion: This section provides the key messages and implications of your study findings. concisely elaborate on your final output here.

Recommendation: This is optional. But if you wish, you can forward not more than 3-4 salient recommendations, which should be firmly grounded in your conclusion.

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