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Determinants and Challenges in Pharmaceutical Supply Chain Service Performance at Public Health Facilities in Central Gondar Zone, Amara Regional State, Ethiopia

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Abstract

Pharmaceutical supply chain service revolves around product selection, quantification, procurement inventory management distribution and use in public health facilities. This study is aimed at exploring the determinants and challenges of pharmaceutical supply chain service performance in Central Gondar zone, Amhara regional state, Ethiopia. To collect the required data, both qualitative and quantitative instruments were used. Both descriptive and econometric analyses have been employed. Over all, the descriptive results showed that aggregate pharmaceutical service performance in Central Gondar zone is 60% which is significantly lower than the Logistic system Assessment Tool score cut-off point for good performance (75%). Component-wise, product selection, inventory management, forecasting as well as warehousing and storage practices are relatively better with average scores surpassing overall aggregate performance. The worst scores were observed in product use, distribution, and procurement practices. The logistic regression results suggested that the information variable is the only determinant with statistically significant effect on pharmaceutical supply chain service performance. The most common pharmaceutical supply chain challenges include shortage of skilled man power, lack of competency among existing staff, budget constraints, supplier reliability problems, and poor infrastructure, and inflation, and transportation costs. Improving information use and systems would raise pharmaceutical service performance. In addition, it is vital to resolve infrastructure bottlenecks and human capital constraints to strengthen the drug supply service performance in the study area.

***Keywords**: Pharmaceutical supply chain, service, performance, determinants, challenges*

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1 Introduction

1.1 Background

Medicine access and irrational drug use are still a question for 2 billon people around the world(Chan Margaret, 2017). Human beings are often exposed to disability and mortality because of poor access to basic medicine(MSH, 2014). For this reason, World Health Organization (WHO) Sustainable Development Goals (SDG) target 3.8 future agendas emphasize on presenting safe, effective, quality and affordable essential pharmaceuticals for everyone(United Nations, 2019) Thus, given the huge size of the diligence, as medicines saves human life and due to high demand uncertainty, there exists a complex process from production of pharmaceutical commodities to their delivery to the final consumers.

In health care service provision the pharmaceutical supply chain management (PSCM) cycle function (selection, quantification, procurement, inventory control and use) involves long chain steps and many stakeholders (Kapoor, 2018). Supply Chain (SC) integrates information, goods and fund flows to occur in efficient and effective manner (Somashekhar et al., 2013). In a well performing PSCM system, pharmaceuticals are produced at the right quantities, transported to the right locations, and delivered at the right time, with right quality for the right person by minimizing system-wide costs while satisfying service level requirements (MSH, 2014). Consequently, many nations do not regularly assess the performance of their health care SC systems. This alone is a big sign of less-than-ideal performance. Good pharmaceutical supply chain service performance (PSCSP) is characterized by efficiency, flexibility; responsiveness and quality, reduction of inventory, accuracy and delivery times. That can be taken as indicators in measurement of PSCSP(Sohel Rana et al., 2015). Advanced countries are good SC performers on several indicators like order fill rate(Dowling, 2011). In contrast PSCSP in developing countries is poor which weakens the performance of health service delivery, reveals different limitations including unavailability of enough performance information and data. As a result, performance monitoring can be undertaken only by using survey data with limited indicators (Dowling, 2011).

Assessing PSCSP gives insight for supply chain optimization. Helps to focus on the exact way of supply chain efficiency and effectiveness could be achieved(Bhattacharyya et al., 2015). Measuring performance requires adoption of suitable performance measurement matrix. Among different measurement matrix Logistic System Assessment tool (LSAT) (Jhon Snow, 2009)and Logistic Indicator Assessment Tools (LIAT)(John Snow, 2005) are more suitable for health care managers, it uses quality, cost/ finance, response time and productivity commonly as standard indicators (Measuring Supply Chain Perfor mance Guide to Key P erformance Indicators for Public Health Managers, 2010).

1.2 Problem Statement

If there is no product on hand, programs would be unable to give proper healthcare services to customers. In this regard, pharmaceutical supply chains service provision can determine the success or failure of any public health program (PROJECT, 2011). World Health Organization (WHO) reports show that after employee compensation costs pharmaceutical expenditures takeover the second biggest health related budget in national health care systems(Chan Margaret, 2017). For this reason, the back bone of the health service should be build up with well-performing, efficient and effective supply chain (Yadav & Yadav, 2015). Several studies have been conducted to understand the determinants and challenges of

PSC service performance. It is interesting to note that in Europe, distributors and wholesalers supply to retail pharmacies and hospitals twice daily, while in the United States, they do it more frequently. Retail and hospital pharmacies order and receive their medications and healthcare supplies daily and 90% of supply chain is linked with limited suppliers(Yadav & Smith, 2014). However, Because of structural and chronic economic problems, low and middle income countries are characterized by sub-optimal supply chain management performance(Dowling, 2011). Among the main factors led underperformance supply chain in low income countries diffuse accountability, uncertainties in financing, lack of supply chain planning data, lack of incentives for supply chain staff, mismatch between skill and system design(Yadav & Yadav, 2015). For instance, a study conducted in Kenya shows human resource, organizational culture, standard operating procedures and procurement planning affect PSC service performance (Nyarwati, 2020). In addition, according a study in Tanzania, information, competence, technological infrastructure and inventory control have positive relationship with PSCSP(Fredrick, 2018).

In this regard, Ethiopian Pharmaceutical Supply Agency (EPSA) has been responsible for the forecasting, procurement, storage and distribution of pharmaceuticals to public health facilities across the country(PFSA, 2017). However, country wide PSCM performance is characterized by sub-standard practice and sub-optimal administration often compounded by limited infrastructure, inadequate proficiency, poor procurement plan, and lack of technology utilization(Mohammed et al., 2020). In addition, research works conducted in different parts of Ethiopia also confirmed that the PSC practices are challenged by, poor implementation of Logistic Information System (LMIS), and low performance(Sileshi et al., 2021) poor information and data quality, inventory control system capacity limitation, long lead times and non-procedural works ((Gebremariam, 2019), (Abriham, 2018)). Moreover, studies in Amhara regional state financial constraints, problematic relationships with suppliers negatively affects the SC. Procurement practice, supplier Relationship Management (SRM) and monitoring and evaluation practices were under-performed in public health facilities in west Gojam zone(Bhiru, 2018). in addition to this PSCM practices such as inventory control needs improvement in Gondar university Hospital(Woldeyohanins et al., 2020).

1.3 Rationale of the Study

In the country as well as in the region, there are very few studies that tried to examine practice of supply chain service performance in the pharmaceutical sector. This proposed study aims at assessing performance, identifying the key determinants, challenges of PSCSP in Central Gondar zone, Amhara Regional Sate, Ethiopia. At sub-regional level, public health facilities located in Central Gondar zone are responsible for pharmaceutical supply service for large size population located in the catchment area. This study fills the gaps of the previous studies and makes at least four key contributions to the existing literature in pharmaceutical supply chain service performance. First, while several studies have been done before, disproportionate attention is given to practices with limited focus on systematic determinants of pharmaceutical supply service performance in Ethiopia. Second, to the best of my knowledge, there has not been any study on the particular issue in the broader Gondar area or in Central Gondar zone. Since organizational, infrastructure, information technology, and human resource attributes differ across locations, Central Gondar zone deserves its own systematic investigation. Third, most studies ((Fredrick, 2018), (20), (Gebremariam, 2019)) apply either only descriptive or Ordinary Least Square (OLS) methods. However, OLS is used when the dependent variable is purely continuous. Since the pharmaceutical service performance measure is discrete, the study applies logistic regression model with binary outcome.

2 Literature Review

2.1 Theoretical Literature

Supply Chain Management Concepts

Supply chain is set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses, stores, and end users. As result, it requires management-level integration, coordination, and collaboration. Supply chain consists of two or more legally distinct organizations those being allied by material, information and financial flows (Stadtler, 2002). Hence, the planning and overseeing of all sourcing, conversion, and logistics-related tasks, including coordination and cooperation with channel partners, suppliers, intermediates, third-party service providers, and end users by under taking processes and activities that help to improve a company's supply chain efficiency through applying value adding and cost reducing measures in all stages of supply chain process can be referred as supply chain management (Yadav, 2015).

Pharmaceutical Supply Chain Functions

Basically pharmaceutical supply chain management cycle function includes pharmaceutical selection (prioritization), quantification (forecasting &supply plan), procurement, distribution, and use(PROJECT, 2011). The heart of the cycle function is an essential of management support systems, which include organization, financing and sustainability, information management, human resource and quality assurance management(Iqbal et al., 2017).

Product Selection

In any health care system, health programs must choose products under a health care product supply chain system(Iqbal et al., 2017). Thus, the list should be developed based on prevailing health care needs and should apply to the main package of medical services of the country (Eshetu & Jebena, 2020). Moreover, the choice of pharmaceuticals should be an inclusive and participatory process for developing an agreed list without using tried-and-true methods and technologies, selecting and prioritizing medications leads to repeated stock-outs and wasted medication owing to expiration(Gebremariam, 2019).

Forecasting and Quantification

After determining the products, the quantity required and the cost of each product must be determined or quantified(PROJECT, 2011). Quantification is the process of estimating the quantity and cost of products required for a specific health program, to ensure that the supply of the program is constant and the timing of the purchase and distribution of products is set (John Snow, 2017). The supply plan could be based on minimum/maximum quantities, where health facilities order medicine up to maximum levels(Eshetu & Jebena, 2020). Thus, quantification takes into account the future demand for commodities, unit costs, stock on hand, stock on order, damage, expiries, lead time, minimum and maximum stock levels, and costs of transportation(Iqbal et al., 2017).

Procurement

In supply chain management uninterrupted and continuous pharmaceutical provision and cost reduction can be secured through effective procurement(PROJECT, 2011). If once a supply plan has been established

as part of the quantification procedure, quantity needs to be purchased. Health products, services or programs may be purchased from international, regional or local source suppliers(USAID DELIVER PROJECT, 2010). Therefore, an efficient and effective procurement policy will ease the external players of public health care system in uninterrupted acquisition of standard quality pharmaceutical products since one third of health care expenditure allocated to product procurement(Boche et al., 2022a). According to procurement performance such as using incorrect methods and process causes delayed delivery or stock outs of medical supplies which highly affect both efficiency and effectiveness of healthcare systems(Eshetu & Jebena, 2020).

Stock Management

In supply chain management of pharmaceuticals among the basic cycle functions inventory management controls the availability of drugs and medical supplies according to the specific nature of the product and the protocols of the supply chain(Stadtler, 2002). Stock management is done manually and by using system software with stock recording cards according to the basis of the first-expired-first-out (FE-FO) and first in first out (FIFO) strategy (Schöpperle, 2017). This inventory management saves costs related damages and expiration of inventory which can lower the total cost of pharmaceutical expenditure and as well reduces entire health care facility expense (Woldeyohanins et al., 2020).

Distribution

The main objective of drug distribution management in supply chain is to maintain a stable supply of pharmaceuticals and consumable to institutions where they are needed, while ensuring the most efficient use of resources(PROJECT, 2011). Likewise designing the development of a system for the storage and distribution of pharmaceuticals, medical supplies and equipment is a complex and important task this is because of the need of special supply chain conditions for each product such as cold chains and short expiry dates, it takes the responsibility of the complexity in all distribution network(Schöpperle, 2017)..

Rational Drug Use

Rational drug se covers, in general, the appropriate prescribing, distribution, and patient use of medications for the identification, mitigation, prevention, and treatment of disease. The safe and cost-effective use of medications is another way to define rational drug administration (Sisay et al., 2017). The basic needs of every customer are catered for by hospital pharmacies, and it is crucial to promote consumer involvement in all procedures involving the delivery of medical treatment. These comprise the dispense of medicines in line with local laws, inventory-related tasks, drug monitoring, patient drug evaluation tasks, appropriate record keeping, medication information, training services, and productivity-enhancing tasks(Dowling, 2011).

Human Resource in Supply Chain: There should be a sufficient number of appropriately trained, educated and experienced personnel to perform the key activities. Skilled human resources in the health system has great value for technical tasks as well as for leadership, management and governance, also influences the optimal supply chain strategy(Yadav, 2015) starting from top to lower levels of supply chain managers need to be appropriately qualified, adequately educated, sufficiently skilled since medicines management is a highly procedural and professional activity(Iqbal et al., 2017).

Procurement Plan Role in Supply Chain: A procurement plan that aligns with the organization's programs objective and budget process can speed up achievement of objectives. It is one of the prerequisites for the

effectiveness and efficiency of the purchasing function, which leads to the ultimate success of the facility supply chain (Tadesse Worku, 2017). Emergency procurement refers to a time to perform procurement activities without following policy and SOPs based on the need which comes after the occurrence of pandemics and emergency calls might arises that need sudden response. Mainly emergency procurement occurs due to failure in procurement planning(Tadesse Worku, 2017)

Information Role in Supply Chain: Mainly four types of information system are recommended to be used in supply chain. These include management control information system, decision analysis system, strategic planning system, transaction level system. Information system on the one hand, integrate the suppliers, distributors and end users and on the other hand help to have balanced stock, reduce buffer stock and lead time and stock imbalances to meet demand and supply(Yousefi & Alibabaei, 2015). In addition by eliminating the "silo effect," information systems can avoid different issues by giving the appropriate decision maker the appropriate information at the appropriate time.

Standard Operating Procedures (SOPs): Organizations involved in supply chain must have a clear and detailed standard operating procedure (SOP)(Kapoor, 2018). SOPs are essential for directing the steps necessary to assure compliance, resulting in an efficient and successful medications supply chain cycle. most procurement officials in underdeveloped nations receive these manuals and rules, and it also says that they must be followed to accomplish their intend activities(Nyarwati, 2020). style and layout of the SOP must be followed for writing ensures consistency of plan, and layout (WHO/PSM, 2007).

Organizational Culture (OC): can be expressed as the set of distinguished elements including customs, norms, rules, symbols, ideologies, beliefs, formals, traditions and over all structure. Organizational culture can be said as the psychological management of the staff, the running track of the firm, the way of communication, the common practice that all the members of the organization adhered which can have impact on organizational productivity (Nyarwati, 2020). In addition documentation is a priory essential in quality assurance with the purpose to confirm that employees are instructed in the details of, and follow the procedures is to describe the system of control (WHO/PSM, 2007).

Technological Infrastructure: System software and handling equipment utilization significantly improve the practice of supply chain performance by supporting human resource roles (Fredrick, 2018). They include data mining, data warehousing, and data scanning, which have aided in our comprehension of client needs (Whiteing, 2003). Several software and databases are being used in the health system for better management of pharmaceutical supply service(Yousefi & Alibabaei, 2015). Application of precise IT system like sales forecasts and LMIS enhances efficiency and effectiveness (Yadav, 2015).

Supply Chain Management Service Performance: It indicates the status of the goals and strategies set by the company accomplishment, either proceeding as good or poor (Sohel Rana et al., 2015). Here based on its characteristics, PSCM performance can be classified as streamlining, agility/flexibility, clarity of roles and responsibilities, trust and collaboration, alignment of incentives/objectives visibility (Dowling, 2011).

2.2 Empirical Literature

There are numerous investigations that try to determine the empirical determinants of pharmaceutical supply chain service performance. For instance, a study was undertaken to assess the current supply chain system of pharmaceuticals and vaccines in Pakistan in terms of structure, process and outcome, by

using qualitative method of data collection. The results highlighted that the current supply chain system performance in Pakistan is not up to the mark, major factors include poor forecasting and inventory control, delayed order placement, limited of training, inadequate involvement of professionally qualified staff, budget constraint and poor procurement processes, and poor coordination and integration among all stakeholders. In contrast the standard operating procedures (SOPs), checklists, and government guidelines were available at different levels(Malik et al., 2022).

A cross sectional survey employing purposive sampling and using key informant interviews was conducted in Syria. The purpose of the study was to assess the pharmaceutical supply chain management of medical supplies in Syria County Referral Hospital. The key challenges revealed from the study include non-adherence to national guidelines of supply chain of pharmaceutical, lack of staff awareness and inadequate staffing, lack of a hospital formulary and quality assurance department and nonfunctional drugs and therapeutic committee(DTC) (Omoga, 2021).

Another study from East Africa tried to establish supply chain practice and performance in private hospitals in Nairobi Kenya. The study method was descriptive statistics using information from 53 private hospitals where the main respondents included procurement managers and pharmaceutical purchasing staffs. The main findings suggest that the performance of the supply chain was positively determined by utilization of information technology, information sharing, lean system, customer relationship management, strategic partnership, and out sourcing. According this study efficient and effective supply chain management leads to outstanding performance in private hospitals (Anyki, 2017).

According to the study from Kenya, failure to one of PSCS functions will lead to sub optimal product provision and service inefficiency. The study focused on the factors which could have influence on the supply chain management cycle activity performance by using descriptive study design and semi structured questionnaire, inferential statistics and regression analysis. The study results showed that human resource, organizational culture, standard operating procedures and procurement planning factors influence the efficiency of pharmaceutical supply chain management cycle in Kenya Red Cross society PSC(Nyarwati, 2020).

Another study from Sub Saharan Africa examined the role of factors on the performance of pharmaceutical supply chain management in Dare Salam, Tanzania. The study focused on medical store departments by applying cross sectional survey and regression analysis (simple linear regression) and correlation analysis (Pearson correlation). The empirical results confirmed that information (quality of information), employee competence, technological infrastructure and inventory control have string, close relationship with performance in Pharmaceutical Supply Chain (Fredrick, 2018).

Regarding our country Ethiopia, there are few studies on pharmaceutical supply chain service performance. A aimed examine the determinants of the performance of logistics management information system in the health service delivery points under Jimma Zone, employed both descriptive and explanatory research methods. Data were collected by interview and questionnaire from respondents and gathered from recorded documents, LMIS data sheet, RRF, bin card, stock card. The results from the regression analysis indicated that personnel related factors, managerial related factor; information related factors have significantly and positively determine the LMIS performance(Sileshi et al., 2021). Another study conducted on evaluation of cold chain management performance for temperature-sensitive pharmaceuticals at 47 public health facilities Supplied by the Jimma Pharmaceuticals Supply hub. An institutional cross sectional survey design with mixed data collection method by using checklists

adopted from the Logistic Indicators Assessment Tool, Vaccine Management Assessment Tool, and Logistic System Assessment Tools revealed with Supply chain performance at the study facilities was not adequate overall(Feyisa et al., 2021).

One such study assessed supply chain practice and associated factors from healthcare in public health facilities in West Gojjam zone by using descriptive cross-sectional study design and phenomenology study design for quantitative and qualitative analyses, respectively, relying on questionnaire-based respondents(Bhiru, 2018). The results confirmed that financial constraints, managerial inefficiency, and uncommitted human resource were among the main challenges for SC practices in public health facilities. In addition to this the results show that the performance of pharmaceutical supply chain practice in West Gojjam zone was affected by LMIS and skill shortage and poor management support.

A research focused on the challenges of PSCS in public health facilities of Oromia region West Shewa Zone, Ethiopia. Descriptive type of research and mixed method of data collection were applied to assess the challenges. The researcher used 3 hospitals and 37 health facilities involving questionnaire-based interview. In addition key informant interviews were taken from zonal officers. The descriptive statistics results indicate that staff competence, financial constraint and infrastructure issues and information technology were among the common challenges of supply chain to avail essential medicine at the point of use and also storages and material handling equipment performance revealed sub optimal standards (Eshetu & Jebena, 2020).

3 Methods and Materials

Description of the Study Area/period

The study was undertaken in Central Gondar zone of Amhara regional state, Ethiopia. The administration center, Gondar city, is located 730 Km away from Addis Ababa & 180Km from Bahir Dar, the regional capital. The Central Gondar zone was formed following the political crisis in the country some five years ago in an attempt to give greater autonomy and better provision of government services to citizens. The Central Gondar zone shares administration boundaries with the North Gondar Zone in the north; South Gondar Zone and Waghimra in the east and with North West Gondar Zone and West Gojjam to the south west. The total area of the zone is over 15kmsq with over 1 million of population. There are about 9 hospitals and 84 health centers and 414 health posts in the zone most of which are concentrated in small towns and rural areas (Central Gondar Zone Administration, 2022).

Research Design

The proposed study applies a cross sectional, explanatory research design and where both quantitative and qualitative data collection techniques are employed. In particular, an explanatory research approach has been applied by using key informant interview with facility strategic leaders while a comprehensive questionnaire was used to generate the required information for dependent and independent variables in the service performance analysis in public health facilities.

Population

Study Population

The target population includes health facilities involving one comprehensive specialized hospital, 8

district hospitals and 44 urban and 50 rural total 84 health centers. However due to financial limits, it was impossible to include all 93 health facilities. As a result, all hospitals and 50% of health centers were included. Principal Officers in each facility were candidates for quantitative study and higher officials were interviewed to gather qualitative information on challenges in PSC service practices. The required information about supply chain practice of each facility was collected from the principal supply chain officers (chiefs) as well as relevant operational staff members whenever necessary.

Data Source

This study relied on both primary and secondary data. Primary data was collected through key informant interview with the heads and managers of the targeted health facilities. Semi-structured survey questioner was used to collect institutional data from principal PSC officers by verifying with supply chain documents on institutional factors and other relevant data that help meet the objectives of the study. Secondary data about health facilities was also gathered from Central Gondar Zone health office.

Sampling

Sample Size Determination

Sample Size Determination for Quantitative Study.

Based on LIAT, in the case financial constrain, 15 percent of facilities can be included for the study (John Snow, 2005). To get a larger sample size, all hospitals in the Zone and 50 percent of health centers were included in this study. Rural and urban areas have roughly distributions and for this reason proportional allocation was made between urban and rural areas. Table 1 below displays the number of hospitals and health centers considered for data collection from Central Gondar Zone.

Table1: Data Source Units

Sr. No.	Health facility	Population
1	Hospitals	9
2	Rural health centers	22
3	Urban health centers	21
Total		52

Source: Central Gondar Zone Health Department (2022)

Sample Size Determination for Qualitative Study

The qualitative data were collected through in-depth face-to-face interview with key informants (pharmacy heads, facility heads and district health department PSCM officers) until the information collected became saturated. 20 key informants used for this study.

Sampling Techniques and Procedures

The primary sampling units of this study were health facilities and the secondary sampling units were professionals in charge of these facilities. All Hospitals included without any probability and 50% of health centers from total of 84 health centers more proportionality for urban health centers since much

amount of budget is allocated there when compared with the rural. The facilities in each district were chosen through lottery method.

Study Variables

Dependent Variable

Supply chain service performance: in this study the dependent variable is performance level of the supply chain service process. The good performance is represented by 1 and poor performance by 0. Questions about all supply chain cycle selection, forecasting procurement and use of products concerned on quality, efficiency, responsiveness and productivity were assessed under performance measure and the average score is computed for each supply chain function (Behera & Kannan, 2018). In the end performance is coded as 1 for good score and 0 for poor score. Previous studies that used similar measures of performance include (Fredrick, 2018),(Nyarwati, 2020),(Takele, 2018).

The dependent variable has been measured using objective tools adapted from LIAT (John Snow, 2005), and LSAT (Jhon Snow, 2009), and International Supply Chain Service Performance Measurement guidelines that are particularly used for public health facilities in developing countries (Measuring Supply Chain Perfor mance Guide to Key P erformance Indicators for Public Health Managers, 2010). This approach does not rely on the subjective agreement of respondent employees. Instead, the actual service performance for facilities has been captured by considering key performance indicators that quantify quality, efficiency (cost), and productivity (Measuring Supply Chain Perfor mance Guide to Key P erformance Indicators for Public Health Managers, 2010). The necessary data was verified using relevant documents and site observation of each health facility. Following the LSAT guideline, once the specific performance scores[1] are estimated, facilities with greater than 75 percent score will be coded as 1 (good performance) and otherwise 0 (poor performance).

Table 2: List of Variables and their description

Variable code	Independent Variable Definition and Measurement	Variable Type	Expected sign
Procurement plan	Fractional score*	Continuous	+
Human resource	Fractional score	Continuous	+
Standard Operation Procedures (SOPs)	Fractional score	Continuous	+
Information	Fractional score	Continuous	+
Technology infrastructure	Fractional score	Continuous	+
Organization culture	Fractional score	Continuous	+

*Note: Score for each variable = (SUM OF ONES/MAXIMUM TOTAL SCORE) × 100

Method of Data Analysis

1 LSAT guideline has three-level scores. The first level is 90 to 100, the second 76 to 89, and the third below 75. To apply logistic regression, in this study, the scores above 75% are coded as 1 and below 75% as 0. This is suggests that very good and good are merged into one group and the remaining (below 75%) into another group.

The principal investigator performed data entry and cleaning process. Once the data cleaning process completed, the data was analyzed with STATA/MP17.0. In addition the principal investigator manually transcribed digital files and once the files transcribed, it was read twice while listening the record in order to authenticate the accuracy of transcription.

Statistical analysis

In this study the logistic regression model has been employed to analyze the determinants of supply chain performance. Logistic regression is used when the dependent variable or the response variable is discrete, qualitative in nature. The current research aims at using the binary logistic regression model to pin down the determinants of the dependent variable, that is, whether performance is good (average binary score >= 75%) or poor (average binary score is less than 75%). Thus, the dependent variable assumes the value 1 with the probability of success (good performance and 0 with the probability of failure (poor performance). The binary logistic regression usually defined as the ratio of the probability of success to the probability of failure (or odd ratio) is expressed as in equation-1:

$$Logit(pi) = Log[pi/(1-pi)] = \beta 0 + \beta 1 xi1 + \beta 2\ xi2 ..... \beta 1 xiK + \varepsilon \ldots..equation\text{-}1$$

Where, β0, β1, β2-------βk are the model parameters while Xi1= procurement plan, Xi2= human resource factors, Xi3= standard operating procedures, Xi4= information, Xi5= organizational culture, Xi6= technology infrastructure, and ε =error term.

4 Results

4.1 Descriptive Results

Table 3 displays the summary statistics for the demographic characteristics of the key pharmaceutical supply chain head that responded to key questions and supplied the necessary documents for verification.

Table 3: Summary statistics for demographic variables

Variables	N	Min	Max	Mean	SD
Continuous					
Age	52	24	48	29.8	5.1
Experience	52	2	18	5.8	3.4
Categorical					
Sex	Freq.	%			
Male	31	59.6%			
Female	21	40.4%			
Education					
Diploma	40	76.9%			
Degree	11	21.2%			
Masters	1	1.9%			

The results indicate that the average age of the key contact leaders is 29.8 years with minimum and

maximum of 24 and 48 years, respectively. There is also less variability in age across facilities as the computed standard deviation is about 5 units. The average experience is about 6 years with minimum value of 2 and maximum value of 18 years of experience in pharmaceutical supply chain service practice.

Table 4: Summary statistics for model variables

Variables	N	Min	Max	Mean	SD
Performance	52	0.37	0.82	0.60	0.13
Quality	52	0.33	0.92	0.65	0.16
Efficiency	52	0.33	0.92	0.60	0.13
Responsiveness	52	0.22	1.00	0.71	0.12
Productivity	52	0.22	0.1	0.50	18
Procurement planning	52	0	0.60	0.18	0.14
Frequency	52	0	0.66	0.21	0.14
Emergency	52	0	0.75	0.12	0.18
Organizational culture	52	0.20	1.00	0.57	0.16
Management approach	52	0	1	0.88	0.22
Organizational structure	52	0	1	0.52	0.19
Documentation	52	0	1	0.22	0.33
Standard operating procedures	52	0	1.00	0.33	0.28
Availability	52	0	1	0.42	0.35
Awareness	52	0	1	0.39	0.43
Utilization	52	0	1	0.11	0.22
Information	52	0.10	1.00	0.59	0.27
Information system	52	0	0.8	0.37	0.36
Information sharing	52	0	1	0.50	0.37
Information quality	52	0	1	0.66	29
Human resource	52	0.10	0.90	0.51	0.22
Practice	52	0	1	0.50	0.30
Knowledge	52	0	0.75	0.46	0.22
Skill	52	0	1	0.43	0.26
Technological infrastructure	52	0	0.70	0.29	0.25
System software	52	0	1	0.39	0.35
Handling equipment	52	0	1	0.41	0.43
Security system	52	0	0.66	0.03	0.11

Table 4 shows the summary statistics of the model variables. These were computed based on the LSAT pharmaceutical performance assessment guideline. Each variable has several questions or components for which binary “yes’ or “no” responses are available. The response is coded as 1 if yes and as 0 if it

is no. Then the number of yes counts is divided by the total number of components under each question to get the average score for each facility.

Performance: Looking at total performance variable, the average score for 52 facilities is 0.60 which is generally considered as poor or low performance as the LSAT cut off point for best performance is 0.75 or above. The minimum and maximum overall performance scores are 0.37 and 0.82, respectively with limited variability as captured by standard deviation of 0.13 units. Similarly, the LSAT standard performance indicators have also low scores with average value of 0.65 for quality; 0.60 for efficiency; 0.71 for responsiveness and 0.50 for productivity. To give one more interpretation in table 4, the results for the information variable can be highlighted. The minimum, maximum and mean values of information-related practices are 0.1, 1, and 0.59, respectively. In similar fashion, there are facilities that practice only 10% of the information components and there are also facilities that practice 100% components. On average, the 52 health facilities practice 59% of the components. Specifically, the average values for the component practices show a score of 0.37 for information system; 0.50 for information sharing and 0.66 for information quality.

Pharmaceutical Supply Chain Service Performance Results

Figure 1: Average overall PSC service performance by location and type of facility

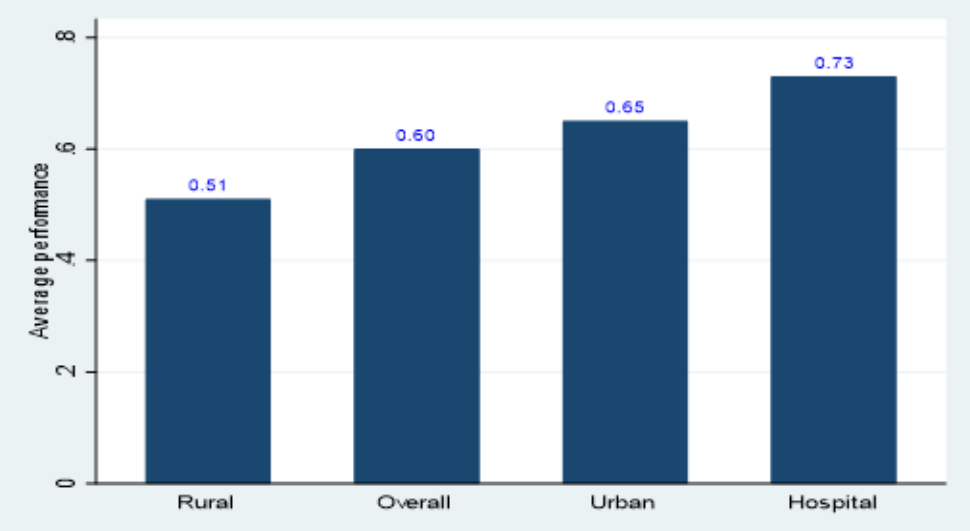
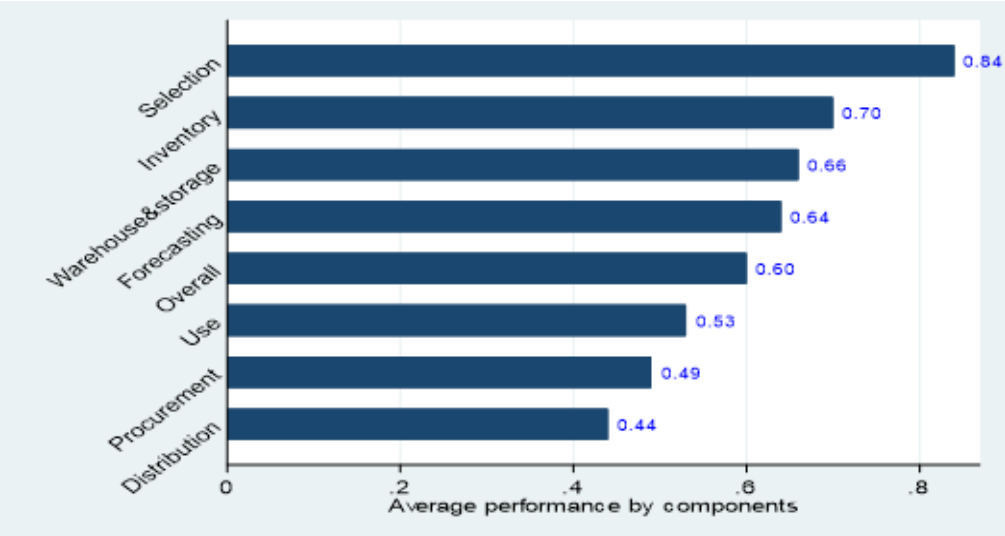


Figure 1 presents the average performance score of pharmaceutical supply chain service practices. The results are for overall sample as well as for performance across hospitals, rural health centers and urban health centers. As reported earlier, overall PSC service performance is 60% which is significantly lower than the LSAT score cut off point for good performance (75%). This suggests that PSC service performance in Central Gondar Zone health facilities is very low. Disaggregation of the data by hospital, rural, and urban health centers reveals even great differences. Apparently, hospitals (they too are located in district towns) have relatively better performance (0.73) among the sub samples while rural health centers are the poorest performing group with an average score of 0.51. Urban health centers perform slightly better than overall and somewhat noticeable greater than rural health centers.

Figure 1: Average PSC service performance by components



Next we explore the pharmaceutical service performance by components and compare them with overall (aggregate) performance as discussed previously. In Figure 2 we see that component-wise performance is also very low with the exception of product selection practice where the average score is very good at 84% which is significantly higher than the LSAT cut off point for good performance (75%). Inventory management, forecasting as well as warehousing and storage practices are relatively better with average scores surpassing overall aggregate performance. The worst performance is observed in product use, distribution, and procurement which imply the inadequacy of transport facilities as well as ineffective control of fraud and corruption in procurement processes. In addition, as reported in Table 5.2 above, the average score for technological infrastructure is very low (29%) which prevents efficient pharmaceutical service practices in general and product acquisition, distribution and use in particular. Where technologies are available, speedy, transparent and traceable pharmaceutical transaction practices can be achieved which improves overall pharmaceutical supply chain performance.

Logistic Regression Results

The descriptive results discussed so far are only indicative and it is critical to see which target independent variables have the strongest effect when all determinants are considered simultaneously. As described in the methodology section, the original performance score is bounded between 0 and 1. Since it is not continuous using ordinary least square (OLS) is inappropriate. As a result, a binary variable was created which equals 1 if the PSC service performance score is greater or equal to 0.75 and 0 otherwise. This coding is based on the LSAT pharmaceutical supply chain performance guideline where good performance is generally considered with at least 75% score for each indicator.

Table 3: Logistic estimation results for PSC service performance

Independent variables	Marginal effect	P-value
Procurement planning	0.41	0.23
Organizational culture	-0.02	0.96
Standard operating procedures	-0.06	0.82
Information system	0.70**	0.02
Human resource	0.14	0.71
Technological progress	-0.11	0.65
Number of observations	52	
Log likelihood	-13.74	
Pseudo R2	0.49	
Hosmer-Lemeshow (P-value)	0.43	
Over all F-test	0.00	

Note: ** indicates significance at 99 percent confidence level.

The logistic estimation results are (marginal effect estimates) are reported in Table 3 above. The possibility of multicolinearity was checked by considering pair-wise correlation (not reported) in which all were less than 0.8 suggesting absence of serious linear dependence among model predictors. The estimation outputs indicate a goodness of fit measure (Pseudo R2) of about 49% which suggest that the model variables explain about half of the variation in the dependent variable. The Hosmer-Lemeshow goodness of fit measure has a p-value of 0.43 which is substantially higher than the critical value of 0.05 implying we accept the null hypothesis of acceptable level of model goodness of fit. Table 5.4 presents the marginal effects from the logistic regression results. The findings indicate that the information system variable is the only determinant with statistically significant effect on PSC service performance. Specifically, a unit increase in this variable increases the probability of good performance by 70% and is significant at 95 percent confidence level. This result is consistent with previous empirical findings.

Challenges in PSC Service Practices

The main pharmaceutical challenges identified by this study are discussed below:

Lack of Competency among Existing Staff: many health facility officers responded that most employees working in pharmaceutical department are not motivated to practice their pharmaceutical supply chain activities according to the SOP. One key informant expressed that “Here we have only two pharmacy technicians; they cover all responsibilities of the facility pharmacy. They work as supply chain officer, pharmacy service manager, store keeper, and dispenser of pharmaceuticals to patients over thirty days including duty hours. This is over and above their family duties that involve, for instance, breast feeding and care giving to babies and children.”

Budget Constraints: Financial constraints often force pharmaceutical supply chain officers to focus on fixing short-term, without giving them the chance to think and work on long-term, sustainable solutions

which becomes the main reason for short term procurement plans and emergency procurements. In addition failure in forecasting and quantification techniques lead to inefficient budget utilization. One discussion participant reported, "Nowadays chronic and communicable disease infestation has been increasing over time which directly influences the product demand of facilities to give proper health care services. By contrast, facility budget increment over time is not significant to cover the ever rising demand. As a result, our patients suffer from high cost of medicines in private pharmacies."

Lack of Supplier Reliability, Capacity, and Predictability: According to the key informants report it's obvious that the main supplier for most facilities is EPSS. Presence of lengthy stock out of essential medicines at EPSS is also another challenge which forces the facilities to go to private suppliers. One key informant, for instance, said "According to our last year report we were under stock out of zinc sulfate tablet for about 90 days, which is vital medicine to treat diarrhea in children under the age of 5. EPSS doesn't easily give stock out permit to got to private supplier according to the procurement SOP in addition it takes lengthy steps to procure from private suppliers.' Private suppliers also fail to supply the list of products they filled in the pro forma. Referring to private suppliers, one key informant emphasized, "When we went to private suppliers last time, we suspected that suppliers had communicated each other and filled the pro forma with similarly high prices. That made the tender management process difficult and therefore even the awarded private suppliers could not keep their lead time. Do you know why they can't keep their lead time? Because they participate in the tender process and get awarded the contract without having the product on hand. So it is a serious challenge."

Poor Infrastructure: Most facilities have no proper pharmaceutical warehouses and storages and storage and inventory management activities performed with great difficulties. According to one key informant's expression, "We are forced to issue total amounts of cold sensitive products to dispensary unit to share its fridge which contradicts the internal facility requisition report time and IPLS practice because there is only one fridge for the pharmacy department."

Supply and Demand Imbalances due to high number of patients from community based health insurance (CBHI) subscribers whose increased demand cannot match with the highly slow financial reimbursement from the bureaucracy. As the reimbursement system of the CBHI is not well established, this prevents health facilities from providing timely supplies based on planned procurement procedures. One key informant illustrated using the following narratives, "Look, in our woreda, the CBHI has around 1.5 million birr in unsettled debt obligations to our health center and 800,000 birr to a private drug store that had been awarded supply bid for non-health-center products. As a result, now users are not getting the service. I still need to do what needs to be done for patients to get their medication but I can't."

Inflation: Inability to purchase according to plan due to high and volatile product prices. The general cost of living problems in our country in the last 4 or 5 years has also affected the pharmaceutical sector. Most health facilities indicated that allocated budget and planned pharmaceutical purchases often go out of line because of unpredictable drug price changes.

Discussion of Results

Pharmaceutical Supply Chain Service Performance (PSCSP)

According to this study the dependent variable supply chain performance average score for 52 facilities is 60 percent which is generally considered as poor or low performance according to LSAT (Jhon Snow, 2009) as score cut off point for best performance is 75% or above. Similarly, according to the Key Performance Indicators for Public Health Managers (Measuring Supply Chain Perfor mance Guide to Key P erformance Indicators for Public Health Managers, 2010), standard performance indicators have also low scores with mean value of 0.65 for quality; 0.60 for efficiency; 0.71 for responsiveness and 0.50 for productivity. The findings are similar with those in Tanzania (Fredrick, 2018) and performance of drug supply chain in India using LSAT score (Behera & Kannan, 2018).

Logistic Regressions

The logistic regression findings indicated that the information system variable is the only determinant with statistically significant effect on PSC service performance. Specifically, a unit increase in this variable increases the probability of good performance by 70% and is significant at 95 percent confidence level. OLS model estimation results showed information, technological infrastructure, employee competence deliver significant value (Fredrick, 2018), (Bhiru, 2018). A study relying on logistic model revealed significant effect at 5% confidence interval for SOP, human resource, procurement planning and information technology (Nyarwati, 2020). It is well known that in any organization, information is a primary driver and essential to integrate the three supply chain components (product, finance and information). Timely information sharing and administration plays important role in PSC integration, collaboration and coordination. In addition by eliminating the "silo effect," information systems can avoid different issues by giving the appropriate decision maker the appropriate information at the appropriate time. Likewise, information systems are crucial components of an agile supply chain, increasing its speed and adaptability since supply chain efficiency can be achieved through reducing costs of human resource and reduce inventory expenses (Moosivand et al., 2019). Similarly, a study from South Africa confirmed inventory information system utilization and accuracy highly matters for the product supply performance in public hospitals (Modisakeng et al., 2020) . It matters in PSC as bullwhip effect arising from distortion of information will cost the organization since quality of information highly relate with supply chain performance (Fredrick, 2018).

The foundation of correct decision is shared information and it benefits supply chain partners to undergo the exact steps in taking the right subsequent decisions (Legesse, 2019). The decision made according to the shared information helps to adjust activities among the customer and service provider. Supply chain entities must combine internal and external organizational activities in order to create value for customers and the supply chain network, which is the ultimate goal of supply chain management, information sharing takes the lion share as a driver in this concept by coordinating and collaborating the supply chain bodies (Moosivand et al., 2019).

5 Conclusions and Recommendations

5.1 Conclusions

Based on the preceding discussion of results, it is possible to make the following conclusions. First, PSC service performance at public health facilities in Central Gondar zone is generally low (overall score is less than the LSAT threshold for good performance of 75%). Second, rural areas have significantly lower

performance than hospitals and urban health centers a result significant at 99 percent of confidence level. Third, at correlation level, there exist strong positive co-movement between PSC service performance and the key determinates considered in this study. Fourth, when all performance drivers were considered simultaneously in a logistic regression framework, only the information variable has positive significant effect on PSC service performance. This suggests that for public health facilities in Central Gondar only information related qualities exert improvement on pharmaceutical service performance. Last, the qualitative results implied several challenges prevent the effective PSC service practice at public health facilities in central Gondar.

5.2 Policy recommendations

The following relevant policy recommendations can be made based on the results of this study:

The low level of PSC service performance at public health facilities in Central Gondar necessitates a comprehensive intervention by concerned authorities at local, regional, and national levels. The particularly worst performance at rural health centers requires special attention to narrow the gap with hospitals and urban health centers.

Specific intervention areas include expansion in infrastructure and technological facilities. All-season roads and electricity are critical. The face-to-face interviews have revealed so much damage to drugs due to improper packaging and transportation by donkeys and horses. The present situation not only leads to financial losses but also prevents timely delivery of essential drugs to patients.

In the logistic regression where all predictors are considered simultaneously, the information variable has been found to raise the probability of PSC service performance by significant magnitude. Concerned decision makers can encourage the further improvement of information sharing, information systems, and information quality for even greater improvement in PSC service practices.

The qualitative results have indicated lack of competent, motivated staffs as major challenges. Local, regional and national authorities can encourage the emergence of motivation and competency by improving living conditions and offering further education opportunities to existing staff. Particular attention should be paid to employees in rural areas where even self-sponsored further education is difficult due to distance from colleges and universities located in urban areas. The prospect of government sponsorship based on competency and performance can create an atmosphere of competition and hard work among pharmaceutical employees thereby improving service delivery efficiency and effectiveness.

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Local Resident Perception towards Community Based Tourism Development Strategy in Amhara National Regional State major Tourist Destinations, Ethiopia

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Abstract

This study is aimed at assessing the effectiveness of community-based tourism development strategies in the three destination areas (i.e. Debark, Bahir Dar and Lalibel). A cross sectional study with descriptive research design and mixed research approaches were employed. 228 samples were selected from study populations. Purposive and stratified, simple random and sampling techniques were employed. Data were analyzed using SPSS version 20. Descriptive statistics such as frequency, percentage and mean were computed. Qualitative data were triangulated. The result confirmed that residents who lived in all tourist destinations have positive perception on community-based tourism development strategy since development strategy encourages a variety of cultural activities, create employment opportunities, generates income, create mutual understanding and respect one another's culture, and improve general quality of life of local people. However, local residents didn't have positive perception towards some variables such as, facility considerations for elderly travelers, people with disability, specific needs of busy tourists, and young individual travelers, and community-based tourism development strategies initiatives lacks create income-generating projects for local people and entrepreneurial training project. Moreover, the community-based tourism development strategies has facing many challenges such as lack of human resources to implement the strategy, lack of infrastructure to develop and implement the strategy, commercialization of cultural value, crime and prostitution in a destination already have high member of tourist arrival. In all destinations, in appropriate liquid waste management, overexploitations of tourism resources and impact on endemic endanger and rare fauna and flora species were observed major challenges that community-based tourism development strategies were not addressed.

Keywords: Community Based Tourism, Community Perception, Amhara Regional State

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1. INTRODUCTION

Residents' perception toward tourism development have gained much attention from tourism researchers since the late 1980s (Ven, 2015), because one of factors for the success and sustainability of tourism development, which was identified by scholars and practitioners, is the residents' perception (Gursoy, Chi, & Dyer, 2010). The residents who used the tourism resources for recreational facilities and other values might have either positive or negative perception about impacts of tourism on these destinations. To reduce these threats from the local residents; community-based Tourism (CBT) is gaining prestige all over the world as an alternative to mass tourism (López-Guzmán, Sánchez-Cañizares, & V., 2011). This new type of tourism believed to be favors local community. CBT is tourism that takes economical, environmental, social and cultural sustainability in account (Asker, Boronyak, Crrard, & Paddon, 2010; Teshome, Dereje, & Asfaw, 2022).

The economic values of CBT are sustainable and independent source of funds for community development creates employment in tourism and increases household income (Denman, 2001), environmental contribution such as promotes environmental responsibility, raises awareness of the need for conservation and promotes management of waste disposal (Eshetu, 2010; Wondirad, 2020) and contribution for environmental sustainability is its ability to provide a direct financial incentive for the conservation of relatively undisturbed natural habitats that would otherwise be exposed to more exploitative and profitable activities (Kiss, 2004; Teshome et al., 2022), social contribution such as raises the quality of life, promotes community pride, promotes gender and age equality, and builds capacity for community management organizations (Teshome & Demissie, 2018c; Treves, Holland, & Brandon, 2005), cultural i.e. encourages respect for different cultures, fosters cultural exchange and embeds development in local culture (Moswete, Saarinen, & Monare, 2015), and educational values such as promotes the acquisition of new job skills , creates new professions in the village (Comic & Beograd, 1989), imparts and encourages use of new knowledge in the village, cross-fertilization of ideas with other cultures and fosters and promotes respect for local knowledge and skill (López-Guzmán et al., 2011; Teshome & Demissie, 2018b)

Community based ecotourism (CBET), is a very specific form of ecotourism has emerged as a valuable tool for poverty alleviation (Manyara & Jones, 2007; WTTC, 2021), wildlife conservation the delivery of responsible and sustainable tourism offerings which implies that the community has substantial control and involvement in the ecotourism project and that the majority of the benefits remain in the community (Denman, 2001; Garraway, 2008; Kiss, 2004). It is managed and owned by the community, for the community, with the purpose of enabling visitors to increase their awareness and learn about community and local ways of life (Asker et al., 2010).

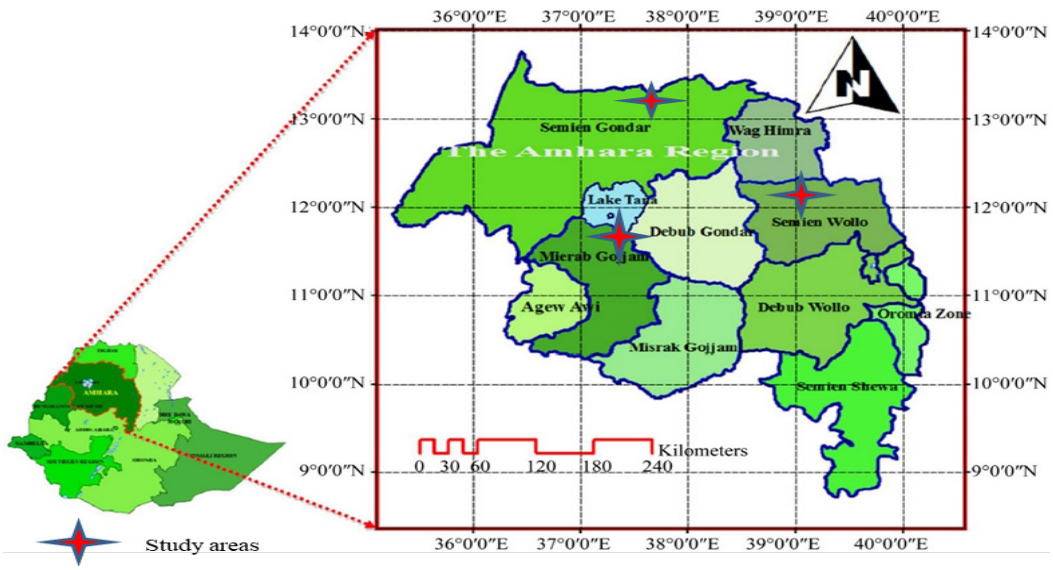
Studies were conducted by different scholars in Amhara Regional State. These scholars mainly focus on tourism resources potential and opportunity for CBT development, level of service quality, level of tourist satisfaction and challenge, economic contribution of community based ecotourism (Bekele, Teshome, & Asteray, 2017; Eshetu, 2010; Fentaw, 2016; Teshome, Asebe, & Amlaku, 2019; Teshome & Demissie, 2018c; Teshome et al., 2022; Teshome, Worku, & Astery, 2015). To lead properly such valuable tourism business, community based development strategy were developed in many countries including Ethiopia (Teshome et al., 2015). However, local resident's perception on the CBT development strategy has not been examined. Therefore, to fill this gap and provide empirical evidence, the objective of this study was to examine the community perception on community-based tourism development Government strategies in the three destination areas. The significance of this empirical study hinges upon the fact that it especially contributes knowledge about the community's perception on community-based tourism development Government strategies in the three destination areas. Such a study would be of great value for resource managers, and tourism policy advisors, tourism development experts who work in this area, and serve as baseline data for future researchers.

2. Research Methods

2.1 Description of Study Area

This study was conducted in the Amhara regional state major tourist destinations. Major tourist destinations Amhara regional State includes. Bahira Dar city administration, Debark Woreda town administration and Lalibela town administration (Robinson, 2016).

Figure 1: Map of Amhara National Regional State



Source: Dereje, A. (2017)

2.2 The study Design and Approach

A descriptive cross-sectional study with a mixed (quantitative and qualitative) research approach was used to address the objectives of the study (Creswell, 2014). Descriptive cross-sectional studies provide data for describing the status of phenomena or relationships among phenomena at a fixed point in time. When research is conducted in natural settings, supplementing the quantitative with qualitative method helps to investigate, interpret and measure real life events, and complex socio-cultural aspects of the livelihoods and impacts of development from the local communities' understanding (Knerr, 2008).

2.3 Target Population

The target population considered in this study was 113, 777 household heads who permanently live in Lalibela, Bahir Dar, and Debark cities, and participate on tourism business (CSA, 2007). The study population are:- religious fathers/leaders, guides, hotel owners, souvenirs owners, farmers, government employees (i.e. culture and tourism officers, and natural resources expert), students and pit traders from the three destination sites. Key informants were included from different stakeholders and service providers: the guide association, the tourism and culture office, hotel owners and travel agents.

2.4 Sampling Techniques

Both probability and non-probability sampling methods was employed. A systematic random sampling technique was used to include participants for the quantitative study and key informants were selected by purposive sampling.

2.5 Sample Size Determination

This study uses the following formula to calculate sample size (Yamane, 1967): For the large population the minimum sample size calculated by the following:

$$n \geq \frac{(Z)^2\,(P)(1-P)}{(e)^2}$$

Where:

n: required sample size;

P : study CBT perception in other study;

Q: explained by 1-P

e: margin of error 5% ;

1: designates the probability of the event occurring.

$$\text{Hence: } n \geq \frac{(1.645)^2 (0.30)(0.70)}{(0.05)^2} \geq 227.30$$
$$= 228$$

Therefore, the required sample size chosen to fill the questionnaire was 228 household heads residing in all City/town. Of these respondents, 66 respondents from Lalibela, 74 respondents from Debark, and 85 respondents from Bahirdar were proportionally selected.

2.6 Data Collection Techniques and Tools

Quantitative data were collected using self-administered structured questionnaires. For the qualitative parts of the study, data was collected using open-ended questions and interview guides to catch data which could not be addressed by the survey.

In this research, a pre-designed questionnaire was given to research participants after informing them of the purpose and procedure of the study and obtaining oral consent for participation. It used thirty-six items with a five point Likert rating scale to indicate participants' level of agreement, employing the following ratings: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree. For the qualitative aspects of the study, the informant was contacted for scheduling a convenient time for interview, and a semi-structured interview guide was used.

2.7 Data Analysis

Data were coded, cleaned, and then entered into statistical software (SPSS, version 20) for analysis. Descriptive analysis such as frequency, mean, and percentages were computed, and tables and texts were utilized to present the result. Content analysis was used to present qualitative data in triangulation with quantitative findings in accordance with research objectives.

2.8 Ethical Considerations

During data collection, all respondents and key informants were informed about the purpose and procedures of the study. Due consideration was given to the culture, social norms and values of the community. Oral consent was taken from the research participants and confidentiality of the information was assured.

3. Results and Discussion

3.1 Demographic Profile of the Respondents

From the total of 228 questionnaire distributed to the respondents, three were not returned and four were rejected due to being inappropriately filled or considered as incomplete. Therefore, 225 questionnaires were used to analyze the result of this study. Out of the total sample size the number of Lalibel's respondents was 66 (29.3%), and Debark's respondents 74 (32.9%), and 85 (37.8 %) respondents were from Bahir Dar city (Table 1). It is, however, important to remember that the representations of households in towns were determined by the number of household's size and implementing CBT development strategy in those particular towns/cities.

Out of the total 225 sample size the number of male respondents was 167 (74.2%) and female respondents 58 (25.8%). Most, that is 185 (82.2%) of respondents fell into the age group of 20-40, and at least 105(46.7%) of respondents had been married, and the majority of respondents were single. These shows the research participants were includes diversified group that may have diversified needs for tourism business in their vicinity.

Table 1: Demographic Characteristics of Questionnaire Participants

Variables	%	Variables	%	Variables	%
Gender		**Place of residents**		**Year of stay**	
Male	74.2	Lalibela	29.3	Since I born	48.0
Female	25.8	Debark	32.9	< 10	28.9
		Bahirdar	37.8	10- 21	15.1
				> 21	8.0
Age		**Educational level**		**Tourism Job**	
below 20	4.0	Unable to read & write	3.1	Yes	38.2
20-40	82.2	Primary Education	7.1	No	47.6
41- 60	13.4	Secondary Education	19.1	Partially	14.2
above 60	4.0	Higher Education	70.7		
Religion				**Marital status**	
Orthodox	88.0			Not married	47.1
Muslim	17.0			Married	46.7
Protestant	1.0			Divorced	3.1.
Catholic	1.0			Widow	4.0
Others	7,0			Separated	2.2
Occupations				**Monthly income (EtBirr)**	
Farmer	2.2			< 1000	20.4
Trader	19.6			1000-2000	25.3
Teacher	12.0			2001- 4000	27.1
Students	6.7			4001- 6000	18.7
Tourism related	59.6			> 6000	8.4

Source: Researchers own survey 2017

With regard to education level, the majority group 159 (70.7%) were attended higher education. This shows that most participants have had an educational background to understand community-based tourism development Government strategies of the study area (Table 1). According to the field observation, the study participants were involved directly or indirectly in the tourism sector, and they have provided valuable information about on community-based tourism development Government strategies of the study area.

With regard to types of job, the majority, 134 (59.6%) were doing tourism related small-scale business such as tourist guiding services, souvenir shop owners, and other tourist services delivers, 19.6% trader, while 12% employed full-time in the formal sector/ teachers and only 2.2% farmers and the rest, 6.7% were students. A result tells most respondents know about community-based tourism development Government strategies.

3.2 Community Perception on CBT Government Strategy

A great proportion, 173 (76.9%) of the respondents were positively perceived and agreed on statement "CBT development Government strategy are encourages a variety of cultural activities. These activities were secular and religion festival celebration, production of crafts and art for both souvenir market and display. The majority, 144 (64%) of the respondents were positively perceived and agreed on statement "CBT development Government strategy can create employment opportunities to generates income (Table 2). It was mentioned by the key informant that many members of the community were formally or informally employed in the tourism industry either directly or indirectly. However, benefits were not equitably distributed among the community members (Teshome & Demissie, 2018a).

Table 2: Local resident perception on CBT development Government strategy benefits

s/r	Does CBT development Government strategy:	Yes	%	No	%
1	Encourages a verities of cultural activities	173	76.9,	52	23.1
2	Provides employment opportunities	144	64	81	36
3	Create mutual understanding	153	68	72	32
4	Improve quality of life	143	63.6	82	36
5	Increase household income	128	57.3	97	42.7
6	Create income generation project	91	40.4	133	59.1
7	Tourist encourage consumption of local product	158	70.2	67	29.8
8	Supports to improve visitors' physical condition	149	66.2	76	33.8

9	Supports products to increase visitors' knowledge	153	68	72	32
10	Supports on-line information and reservation systems	151	67.1	74	32.9
11	Supports integrated communication with target visitors	149	66.2	76	33.8
12	Supports easy movement of visitors among major attractions in the region	153	68.0	72	32.0

Source: Researchers own survey 2017

Large proportion, 153 (68%) of the respondents were positively perceived and agreed on statement "CBT development Government strategy can create greater mutual understanding, and respects one another's culture. These results were also supported by Garraway, (2008) in the indigenous populations of the Greater Caribbean countries. Likewise, 143 (63.6%) of the respondents were positively perceived and agreed on statement "CBT development Government strategy can improve general quality of life through increasing residents household income (Table 2). CBT strategy can improve the livelihood of the community (Ashley & Roe, 2003; Ashley, Roe, & Goodwin, 2001)

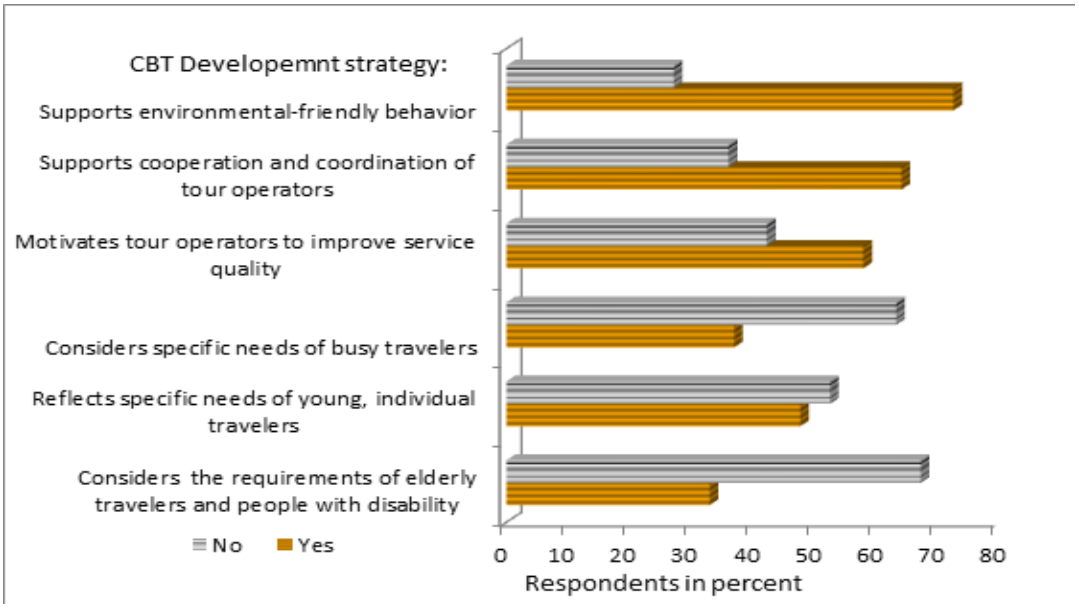
The majority, 158 (70.2%) of the respondents were positively perceived and agreed on statement "CBT development Government strategy are encourages tourists' consumption of local product" (Table 2). It is because the business are managed and owned by the community, for the community, with the purpose of enabling visitors to increase their awareness and learn about community life style and use local products (Russell, 2000). Higher proportion 153 (68%) of respondent had positive perception on the statement that CBT development strategy can supports products to increase visitor's knowledge. However, according to the key informants and information from open-ended questions, some tourists have been complaining that the guides are providing incorrect historical, environmental and social information. The result were in line with other researchers who conducted in the Borena Syint National Park (Amogne, 2014), and also Simien Mountains National Park (Teshome & Demissie, 2018c). It is of paramount importance to invest in regular training sessions in order to guarantee a service that maintains a high level in the long term.

Relatively high proportion 153 (68.0%) respondents was positively perceived on the statement "CBT development strategy can support easy movement of visitors among major attractions in the region" (Table 2). The strategy has consists destination networking initiatives. Similarly, 151 (67.1%) of respondents were also positively perceived about the existing CBT development strategy can supports on-line information and reservation systems", and others 148 (66.2%) respondents were perceived that

CBT development strategy have a package in supporting integrated communication with target groups of visitors (Table 2). Similarly these kinds of strategy i.e. community-based ecotourism activities or enterprises that involve local communities, and operates their lands based on their cultural and natural assets and attractions (Ånstrand, 2006; Nelson, 2004). These positive perceptions were supported by other researcher that such strategy been promoted as a means of development whereby the social, environmental and economic needs of local communities are met through the offering of a tourism product (Goodwin & Santilli, 2009).

Relatively highest number 163 (72.4%) of respondents were positively perceived/agreed with the statement 'CBT development Government strategy supports environmental-friendly behavior' (Figure 2). This is because CBT development in principle support community members actively to make decisions on strategies and acceptable levels of tourism based upon the community's culture, heritage and vision. This result suggests CBT development Government strategy support the protection of land from degradation and enhances conservation efforts to attract tourists especially with regard to ecotourism ventures that are characterized by high environmental consideration, increased control and involvement of the local residents, as well as significant benefits for the host community (Davolio, 2013; Teshome et al., 2022).

Figure 2: Community perception on CBT government Strategy contribution



Source: Researchers own survey 2017

High proportion, 144 (64%) of respondents were positively perceived about the statement "CBT

development Government strategy can supports cooperation and coordination of tour operators", and other 130 (57.8 %) of respondents were also have positive perception on the statement "CBT development Government strategy development motivates tour operators to improve service quality". On the other hand, relatively high proportion 151 (67.1%) of the respondents were haven't positive perception towards CBT development Government strategy that considers the requirements of elderly travelers and people with disability. Similarly 142 (63.1%) of the respondents also haven't positive perception towards development considers specific needs of busy travelers, and over half 118 (52.4%) respondents were also haven't show positive perception towards CBT development Government strategy contribution to reflects specific needs of young individual travelers in their living residency (Figure 2). These negative community perceptions on CBT development were remaining the major challenge in many developing countries (Denman, 2001).

Table 3: Community Perception on CBT development government strategy

s/r	Does the CBT development government strategy includes:	Yes	%	No	%
1	Entrepreneurial training project	88	39.1	136	60.4
2	Resources availability for its implementation of projects	117	52.0	108	48.0
3	Defines responsibility of particular entities for its implementation	129	57.3	96	42.7
4	Defines a timetable for its implementation	96	42.7	129	57.3
5	Proposes a control system of its implementation	117	52.0	108	48.0
6	Obstacle on project improvement plan	121	53.8	104	46.2
7	Project and fund is short term	136	60.4	89	39.6

Source: Researchers own survey 2017

Nearly average, 117 (52%) respondents have had positive perception on the statement "CBT government strategy create resources availability for the implementation of projects, through NOG support, revenues collected from fee and other donor supports (Table 3). Similar find by Kiss were reported in other country (Kiss, 2004). Above average, 128 (57.3%) respondents were believed CBT development strategy has defines responsibility of particular entities for its implementation. A large proportion, 136 (60.4%) of respondents were agreed that there is short term project fund to implement, and 117 (52%) respondents have positive perception on strategy that has a control system of its implementation and project improvement plan if any obstacle (Table 3). While, the key informants identified the project evaluation are not conducted properly based on the strategic document. Nevertheless, evaluation must

be takes place at regular intervals to determine whether the project has achieved its objectives efficiently and effectively, and whether the project is likely to bring about sustainable outcomes (Asker et al., 2010; Russell, 2000). These finding suggested that the CBT development in these three destination site may continue in the sustainable manners. Indeed CBT development in particular destination were relatively more sustainable business than other types of tourism in many countries such as Thailand and Zimbabwe, in Senegal and Cambodia, in Gabon and Kirghizistan, in Zambia and in all the South American countries (Cusack & Dixon, 2006).

On the other hand, many respondents didn't have positive perception on the some variables i.e. "does CBT development government strategy can create income-generating projects for local people in general 133 (59.1%), and entrepreneurial training project 136 (60.4%). These result suggested that training will requires in all destination sites. However, the training may includes guiding skills, language learning, food preparation, housekeeping and simple accounting systems (Ashley & Roe, 2003; Ashley et al., 2001). Just above the average, 129 (57.3%) respondents didn't have positively perceived on statement "CBT development government strategy has defines a timetable for its implementation" and believed it did not communicated to the community and other stakeholders. Therefore, information guideline should be developed. This mean CBT development government strategy gives special attention to bring the positive perception through the equitable distribution of economic benefits and maintaining consensus in the project area in Thailand and Zimbabwe, in Senegal and Cambodia, in Gabon (Hall, 2007)

4. Conclusion and Recommendation

4.1 Conclusion

Residents who lived in Debark, Bahirdar and Lalibel tourist destinations have positive perception to CBT development strategy. Those residents perceived that the strategy has supports tourist to develop environmental-friendly behavior, encourage tourist to consumption local products, and increase visitor's knowledge about the tourist destination. However, some residents didn't have positive perception towards the strategy contribution on considering the requirements of elderly travelers and people with disability, specific needs of busy travelers and young individual travelers. Moreover, residents has positively perceived that the strategy encourages a variety of cultural activities to be considered as tourism products, creating employment opportunities to generate income, create greater mutual understanding and respect to one another's culture. While, residents didn't have positive perception on the strategy initiatives that contributing to create income-generating projects for local people, entrepreneurial training project, and defines and communicating a timetable for its implementation.

4.2 Recommendation

o Destination site managers, Government officials and other stakeholders shall be consider the requirements of elderly travelers and people with disability, specific needs of busy travelers and young individual travelers.

o The exciting CBT development strategy shall be revised

o Special attention shall be given to income-generating projects for local people, entrepreneurial training project.

o All stakeholders shall give special consideration to environmental impact on these well know tourist destination sites.

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Grade Inflation and Determinants of Undergraduate Student Academic Performance in Public Universities of Amhara Regional State, Ethiopia

By

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Abstract

This study is aimed at trying to understand the economic, social, and institutional factors that determine academic performance of undergraduate students in public universities of Amhara region, Ethiopia. Our contribution is to look at the major public universities in Amhara regional state and to compare the performance of students in the grade distribution. To achieve our objectives, descriptive stats and econometric techniques (Least square and Beta regression methods) are employed. Our descriptive econometric analyses revealed a number of interesting results: 1) Most students (about 60%) like their university environment while only less than half like the town where their university is located. 2) University roster CGPA and self-administered test scores are totally disjointed. In five out of six universities, the top scorer in CGPA is not the top scorer in the test. Moreover, the degree of correlation between roster CGPA and test score is very low (below 0.5) both for the entire sample as well as across universities confirming the pervasive presence of grade inflation problem. 4) The Beta regression results for academic performance determinants revealed that student high school grade, age, semester income receipts, father education, gender, university age (generation grouping), variation in average teachers' experience and town attractiveness are key derivers of CGPA. Similarly, in the model using self-administered test score as dependent variable, we found that high school grade, age, distance, variation in average teachers' experience and gender are the significant determinants of educational performance. Most important, teachers' average experience is more relevant than Higher Diploma Program (HDP) intensity or faculty size in affecting student achievement in a meaningful way.

Keywords: Student academic performance, grade inflation, OLS model, Beta regression.

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1. Introduction

Since change of government in 1991, Ethiopia has achieved substantial progress in economic growth and expansion of education at all levels from primary to tertiary echelons. While quantity and coverage were high on the agenda of government policy, in recent years attention has been directed towards quality improvement. For instance, the current growth and transformation plan which is under implementation (2015/16-2019/20) emphasized the need to focus on developing the capacity of university instructors, and on furnishing research, laboratory and workshop centers to cement quality of education in higher learning institutions. As a result of these concerted efforts, the ministry of education expects that the intake capacity of government higher learning institutions in undergraduate programs will increase to 600,000 students by 2019/20. Similarly, the magnitude of postgraduate enrollment will reach 63,000 by the end of the national plan implementation period. In terms of ensuring gender equity in undergraduate programs, the ministry targets that the proportion of female students will rise to 45% in 2019/20 from 32% in 2014/15. In addition, in the second and third degree programs, the percentage of females will increase from 19.5% and 11% in 2014/15 to 25% and 20% by the end of the plan implementation, respectively. Moreover, the same document reveals that in order to enhance quality in higher education, a number of activities will be done including curricula revision, capacity building of university leadership and management as well as upgrading of science and technology institutes to bring them on par with other countries.

Tables 1 and 2 on next page indicate recent developments in higher learning institutions in Ethiopia. According to latest available statistics from the Ministry of Education (MoE, 2017) there were about 32, 734 full-time teachers in both government and non-government colleges and universities in Ethiopia of which 94% were in public institutions. Similarly, in 2016/17 academic year, over 435 thousand undergraduate regular students were enrolled in both sectors with about 10% in non-government colleges and universities. In addition, the national pupil-teacher ratio in higher learning institutions was about 13 which implies that there were 13 students for every full-time instructor. Table 2.3 also indicates that the number of undergraduate graduates has been steadily increasing with about 141 students graduating in degree programs in academic year 2016/17. Moreover, in each academic year between 2014/15 and 2016/17, roughly one-third of the total graduates are female and about 60% to 70% are regular. The figures also show that demand for summer and distance education is declining, especially between academic years 2015/16 and 2016/17.

Table 1: Pupil-Teacher Ratio (PTR): Undergraduate Regular Degree Programs, 2009 E.C. (2016/17)

	Government	No-Government	Total

Undergraduate enrollment	392,788	43,192	435,980
Full time teachers	30,631	2,103	32,734
PTR	12.8	20.5	13.3

Source: ministry of education of Ethiopia (2017).

Table 2: Trends in the Number of Undergraduate Graduates Degree Programs, 2009 E.C. (2016/17)

Program	Sex	2007 E.C.(2014/5)	2008 E.C.(2015/6)	2009 E.C.(2016/7)
Regular	Male	51,798	54,024	65,462
	Female	19,357	25,336	31,233
	Total	71,155	79,360	96,695
Extension	Male	7,805	7,762	11,674
	Female	4,226	4,725	7,806
	Total	12,031	12,487	19,480
Summer	Male	12,671	12,582	10,362
	Female	3,771	4,789	3,708
	Total	16,442	17,371	14,070
Distance	Male	4,642	10,405	7,027
	Female	3,297	7,652	4,428
	Total	7,939	18,057	11,455
Total	Male	76,916	84,773	94,525
	Female	30,651	42,502	47,175
	Total	107,567	127,275	141,700

Source: ministry of education of Ethiopia (2017).

Now that we are close to the end of implementation period of the growth and transformation plan, it would be interesting to see whether those targets set by the government have been met and identify variations and impediments to achievement levels across universities. The specific efforts we undertake in this theme concern the determination of the degree of deviation from those targets. For instance, the ministry of education stated that quality assurance through results based efforts will increase the rate of first-degree graduation to 95% by the end of the second growth and transformation plan period. Have all universities hit this target after five years? If so, which universities performed better and which universities worse? We provide comparative statistics by considering the public universities in Amhara region. In addition, since rate of graduation may not reflect actual quality improvement (say due to lax rules and grade inflation practices across disciplines), we also try to administer our own tests and build score indices to compare the performance of undergraduate students across these universities. Our

approach to undergraduate student performance evaluation closely follows the Assessment of Higher Education Learning Outcome (AHELO)—a framework used by the Organization for Economic Co-operation and Development (see Tremdlay et al., 2012). AHELO has been applied in three areas: General cognitive skills, Engineering, and Economics. Due to technical reasons, we adapt OECD's framework for use on a sample of undergraduate students in economics departments.

Finally, given the academic profiles of staff at host institutions, and amid pervasive concerns about dramatic decline in the quality of education and graduate competency at various colleges and universities in Ethiopia, it would be timely to try to compare academic performance of undergraduate and postgraduate students across similar disciplines. There have been isolated attempts (e.g. Aemero and Kinde, 2011; Fassil et al., 2018) to assess undergraduate student performance at individual universities based on CGPA obtained from registrar offices. In our view using CGPA has two major shortcomings. First, it does not account for differences in the degree of difficulty of exams set for different departments. Second, the possible existence of "grade inflation"—awarding higher grades to students than they actually deserve—could potentially bias the analytical results. We aim to circumvent both problems by preparing and administering our own tests to a sample of students from economics departments.

2. Brief Literature Review

Consistent with international standards and practices (see Tremdlay et al., 2012), the educational performance assessment framework has been devised based on five learning outcomes which students should be able to master by the end of their bachelor's degrees. These outcomes should reflect: demonstrate subject knowledge and understanding; demonstrate subject knowledge and its application to real world problems; demonstrate the ability to make effective use of relevant data and quantitative methods; demonstrate the ability to communicate to specialists and non-specialists; and demonstrate the ability to acquire independent learning skills.

The assessment framework also expects that evaluation of these learning outcomes should induce students to use the four competencies below: abstraction, analysis, deduction and induction, quantification and design, and framing. The importance of education for social and economic transformation cannot be underestimated. The substantial pile of evidence from empirical analyses of economic outcomes points out that quality of education—recorded in terms of scores of cognitive skills—has strong economic and financial effects. Cognitive skills influence individual labour market outcomes and have significant systematic correlation with compensation profiles. The distribution of income in a given economy closely mimics the distribution of skills. Thus, perhaps most important of all, economic growth in both low- and high-income economies is markedly driven by the skills of available labour force (Hanushek and Wößmann, 2007).

Quality of education can be influenced by four major elements: students' qualification and their social, economic, and cultural background; the academic credentials and reputation of teaching staff; the academic factors and facilities within the university environment; and the coordination and supportive role of the administrative system (Akareem and Hossain, 2016).

Many studies emphasize the importance of measuring student learning outcomes as the confluence of efforts targeting quality of education in schools and universities. Students' attributes, their household environment and school context are key determinants of academic performances (Ibourk, 2013; Weiser and Riggio, 2010). Individual previous competency is also closely linked to learning outcomes. Danilowicz-Gosele et al. (2014) using German data have shown that high school grades are strong predictors of both probabilities of graduation as well as final cumulative grade point averages of students in higher learning institutions. Empirical studies also confirm that ethnic and cultural group membership is an important factor that determines student academic achievement (Carpenter et al, 1993; Alfan and Othman, 2005; Fletcher and Tienda, 2010).

Though limited in scope/coverage, there have been attempts to examine the patterns and drivers of academic performance in Ethiopia. Robi (2015) studied 733 diploma teacher education program students to see how their high school and university entrance exam results correlate with their freshman year performance at Kotebe University College in Addis Ababa, Ethiopia. The results indicated that there was noticeably positive association between freshman performance and high school and entrance exam results (0.46 and 0.42, respectively). The study also revealed the role of gender difference in educational achievement.

Another study that sought to examine freshman academic performance in Ethiopia was by Aemero and Kinde (2011) who focused on 604 students drawn from the faculties of business, education, medicine and technology at Jimma University. This study was specially aimed at understanding the degree of dismissal among first year undergrad students. The authors found that 28% of the sampled students failed to earn the minimum grade point average of 2.0 on a four point scale and were dismissed from the university. The results also indicated that the faculty of education dismissed the largest number of students (40.4%) and the faculty of medicine the smallest (4.3%). Finally, their logistic regression analysis compared the effects of internal and external loci of control on patterns of dismissal: students who got high scores on measure of external locus of control, test anxiety, self-concept, females and older students were less likely succeed while students who got better marks on internal locus of control and devoted more time for study were less likely to face dismissal.

Eshetu and Beshir (2017) focusing on different batches of students in Arba Minch University in Southern Ethiopia assessed the extent and drivers of students' susceptibility to academic dismissal. The study relied

on a sample of 547 students from colleges of business-economics and social sciences as well as from the schools of law and pedagogical-behavioral-science. The findings indicated that 207 (38%) of the sampled students were severely vulnerable to expulsion, 51 (9%) were somewhat vulnerable and the remaining 289 (53%) were largely secure. Further differentiation showed that among the highly vulnerable 207 students 132 (64%) were female and 119 (57%) were from rural background. In addition, first year students were relatively more vulnerable to dismissal than their second and third year counterparts. Moreover, binary logistic regression estimates revealed that gender, students' satisfaction, study hours, monthly income and faculty membership are significant predictors of probability of dismissal.

Still another study on Arba Minch university by Yigermal (2017) documented significant association between academic performance of undergrad students and a range of controls that included gender, university entrance exam, and studying hours. In addition, performance was strongly related to students' previous academic background, effort as proxied by study hours, and students' behavior of alcohol consumption.

3. Materials and Methods

3.1 Description 0f the Study Area

The Amhara National Regional State (the study area) encompasses north western and north central parts of Ethiopia. It is bordered by the nation of Sudan to the west and the Ethiopian region of Tigray to the north, Afar to the east, Benishangul-Gumuz to the west and south-west and Oromia to the south. Based on the 2007 census conducted by the Central Statistical Agency (CSA), Amhara region has an approximate area 170,752 square kilometers and an estimated population of 19 million (25% of the country) of which 49.82% of the population are females. The vast majority of the region's residents are rural (87.7%) while the remaining 12.27% are living in urban areas. Furthermore, 52% of the people in the region are of productive age and the population density is about 115.82 people per square kilometer. In the region there are about four million households, which translate to about 4.5 members per household (CSA, 2008). According to the new administrative set up, Amhara is divided into twelve zones of which nine are geographic and three are ethnic enclaves.

Regarding education and social infrastructure, Ethiopia in general and Amhara region in particular has shown substantial improvement in terms of accessibility even though equity and quality remain to be major challenges for both national and regional authorities. For instance, looking at the reports of the ministry of education (MoE, 2017) reveals that high school (grades 9-12) enrollment at national level was abut1.8 million in academic year 2011/2012 (2004 E.C.) which increased to 2.6 million in academic year 2016/2017 (2009 E.C.). During the same period the corresponding figures for Amhara region were about 423 thousand and 618 thousand, respectively, which indicates a 46% growth rate of secondary

school enrollment in the region. While these figures promise sizeable progress they, however, hide substantial gaps. The Gross enrolment ratio (defined as the ratio of enrolled students to total 15 - 18 year old high-school-age students) at secondary schools was about 33% for Amhara region which was far behind from Addis Ababa (80%) and Tigray (44%). Another metric that indicates Amhara region lagging behind other regions is the textbook student ratio. In 2009 E.C. academic year, the same report shows that the national average was about 10 which implies that there were about 10 text books per student. Still the ratio for Amhara region was 5.2 which was way below the figure for Oromia (14.9), Addis Ababa (14.5), Dire Dawa (13.5), and Tigray (11.9). Obviously, this imbalance in terms of limited access to teaching materials has grave implications for student preparedness as they strive to excel in national exams and aspire to join colleges and universities.

In terms of distribution of higher learning institutions, out of 41 federal public universities 10 are found in the Amhara region.

3.2 Research Design

We employ both descriptive and econometric methods in our study. Descriptive research design has been used to collect information on a wide range of variables that include the academic and demographic profiles of students in federal public universities of Amhara region, their incomes receipts, their birth places and efforts. The latter was executed by implementing multi-stage stratified simple random sampling in order to give every member of the population strata fair representation in the final sample. The purpose of descriptive survey is basically to observe, measure, describe and document aspects of situations as it naturally occurs. We employ OLS and beta regression methods as deemed appropriate to model the teacher mobility intensions and realizations as well as to track the potential patterns and determinants of future mobility destination preferences and academic performance.

3.3 Target Population

The target population is the collection of elements that possess the information sought by the researcher (Orodho, 2005). In this study our target population is composed of all undergraduate students in public higher learning institutions in the Amhara region of Ethiopia. The tentative plan is to build a representative sample of about 422 students from the seven well established federal public universities operating in the Amhara region. These universities are locateded in Gondar, Woldiya, Debre Markos, Debre Tabor, Debre Birhan, Debark, and Enjibara.

3.4 Sampling Procedures and Sample Size Determination

We use Cochran's (1963) sampling techniques to determine the sample size of 384 which we allocate

proportionally by stratifying our target list obtained from the relevant colleges and/or departments into different strata based on gender and academic rank and finally applying simple random sampling to arrive at the final list. Once the final list is obtained for each stratum, a random sample is preferential because it is free from bias and therefore each unit has equal chance to be included in the sample. All in all we plan to cover public universities in Amhara region.

Using Cochran's (1963) proposed method for relatively small target population, the sample size of 384 with finite sample correction is determined as follows:

$$n = \frac{Nz^2 p(1-p)}{e^2(N-1) + z^2 p(1-p)}$$

where n is the required sample size, Nis the size of the target population, z is 1.96 which corresponds to the z-score at 95 percent confidence level, p is the estimated sample relative to the target population, and e represents the desired precision level or marginal error. When the target population is sufficiently very large, the above expression can be approximated by:

$$n = \frac{z^2 p(1-p)}{e^2}$$

Assuming the total number of Business and Economics students at the public universities in Amhara region is about 14,000 (our target population, 2000 in each of 7 colleges), the value of p is around 0.5 which we obtain to get maximum desired sample size from the target population. Choosing a precision level equal to 5% and plugging for the values of p and z into the above formula, we get a sample size of 388. If we add a 10% contingency reserve for possible non-responses we could get a total sample size of 422[1]. Alternatively, since the target test administration will be done on Economics department students for technical proximity reasons, assuming a section of 50 students each, in seven colleges/universities we can have about 350 Economics students.

3.5 Data Collection Instruments

A questionnaire enables the researcher to get first-hand information about the work situation (Mugenda and Mugenda, 2003). So, we used questionnaires to collect primary data. Questionnaires were distributed based on the research objectives listed above. We use questionnaire because it is convenient in obtaining the answers from a large number of respondents and also provides an opportunity for anonymity to promote high response rate.

1 Equivalently, using Yamane's (1967) proposed method of $n = N/(1 + N * e^2)$, it is possible to get a comparable sample size of 392 for N=20,000 and e=5% as before. But this sample size is substantially larger.

3.6 Data Analysis Techniques

Before full scale data collection is underway, we checked for completeness of the questionnaire by executing assessment on the reliability of the instrument through pilot studies. The data has been arranged and grouped according to particular research questions. Quantitative data is analyzed by using STATA 17. Both ordinary least square (OLS) and Beta regressions are employed to analyze determinants of student academic performance. Table 3 below summarize the main model variables, description and measurement of those variables drawing from the existing empirical literature.

Table 3: Variable definitions and expected effects on mobility decisions

Dependent variable: Student Academic Performance			
Independent Variables	Descriptions	Measurement	Hypothesis
High school grade	Student high school grade out of 700	Continuous	+
Age	Age of student	Years	_
Effort	Student study hours per day on average	Continuous	+
Household size	Household size of student's parents	Number	_
Town/university environment attractiveness	Categorical: 1 = A lot; 2 = Neutral m = Not at all	Categorical	+
University age (generation grouping)	Categorical: 1st, 2nd and 3rd		
Ethnicity	Amhara = 1 else 0	Dummy	+/-
Income receipt	Income of student receives per semester on average	In Birr	+/_
Gender	Male = 1 else 0	Dummy	+/_
Distance of current university from parents' residence	In kilometers	Continuous	-
Father education	In years	Continuous	+
Mother education	In years	Continuous	+
Student family economic situation compared with peers	Categorical: 1= Rich; 2= Average; 3=Poor	Categorical	+

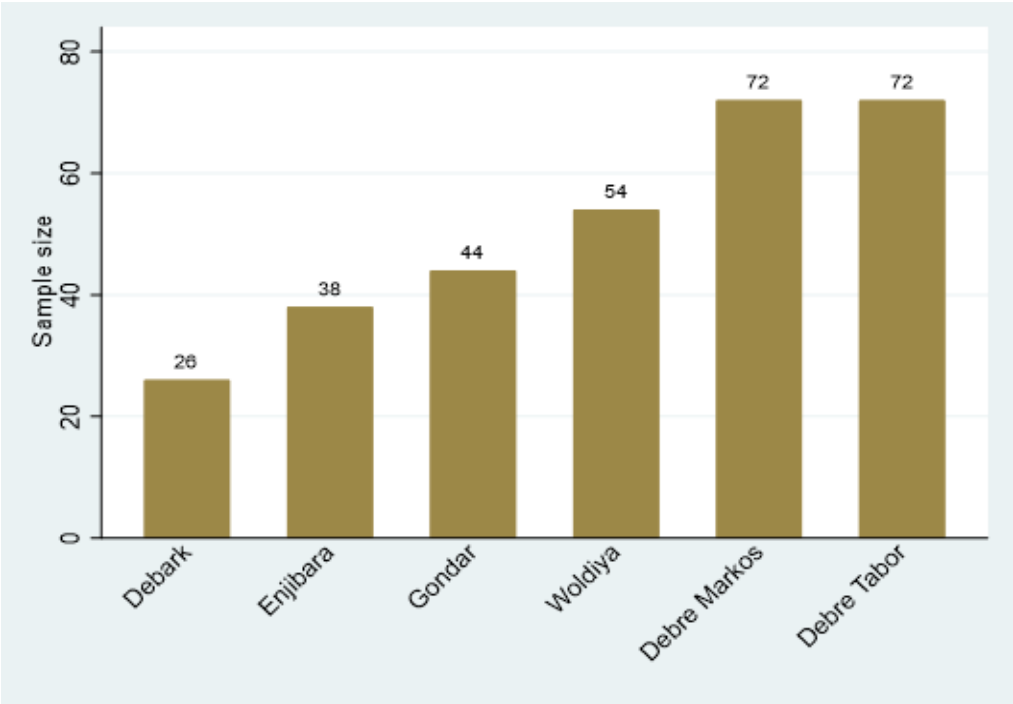
4. Results and Discussion

4.1 Descriptive Results on Student Academic Performance

Table 4 provides basic summary statistics for a sample of 306 graduating (COVID-19) batch of students from Economics departments. Initially we had the plan to include accounting departments as well but

the cost of incentivizing each department head to collaborate in getting students ready for examination was so high that we were forced to focus on Economics departments.

Figure 1: Distribution of sampled students across selected universities



We found two sections in Debre Markos and Debre Tabor; Gondar, Debark, Enjibara, and Woldia had only one section each. We achieved near about 95% response rate as only few students missed sitting for the academic performance test. Figure 1 depicts that Debark has the lowest number of graduating Economics students while Debre Markos and Debre Tabor have over 70 students each.

Table 4: Summary statistics for 4th year graduating Economics students

Variable		Mean	Std. dev.	Minimum	Maximum	Median	Mode
High school grade	306	419.51	55.55	280	548	422.5	412
CGPA	306	3.41	0.39	2.1	3.99	3.5	3.5
Test score	306	9.09	2.49	2	15	9	9
Age	306	22.89	1.28	20	32	23	23
Family size at home	306	5.95	1.87	2	13	6	6
Semester income receipt	306	2,679.08	2,322.58	300	12,000	2,000	2,000
Distance from parents	306	367.67	305.25	0	1,600	300	300
Effort (in hours)	306	4.76	2.21	.5	12	4	4

Mother education (years)	306	2.45	4.29	0	19	0	0
Father education (years)	306	3.75	5.14	0	20	0	0

The summary statistics in Table 4 reveal a number of striking facts about graduating student characteristics. For instance, the average high school leaving examination result is about 420/700 with a minimum of 280 and a maximum 548. The high school grade results also show noticeable variability as captured by standard deviation of 55.6 units. Similarly, at the time the survey was being executed, the students had completed 7 semesters (around end of March 2023). The average CGPA for the sample was 3.41 with minimum and maximum values of 2.1 and 3.99, respectively. The average level of effort as captured by the mean number of hours of study on a daily basis is about 4.7, with a minimum of half and a maximum of 12 hours, respectively.

But the student performance test results are not encouraging. The mean, median, and mode values are the same (about 9/24) which compares starkly with their own CGPA results based on registrar[1] reports. The mean, median and mode values for department roster CGPA are 3.41, 3.5, and 3.5, respectively. This suggests that while students displayed an average performance of about 85% (or 3.41 on a four point scale grading) their average performance in the specific test is about 38% (9/24). The maximum score is 15/24 (or about 63% performance) and the minimum test score 2. Overall, these deploring performances rates appear to be universal as the standard deviation is low at about 2.6 units (see Figures 2 and 3 for details).

Figure 2: Average test score across Economics departments of Amhara universities

1 While the students were free to fill in their CGPA scores in the prepared survey questionnaire, efforts were made to crosscheck the validity of their reports by examining grade roster archives in the respective departments.

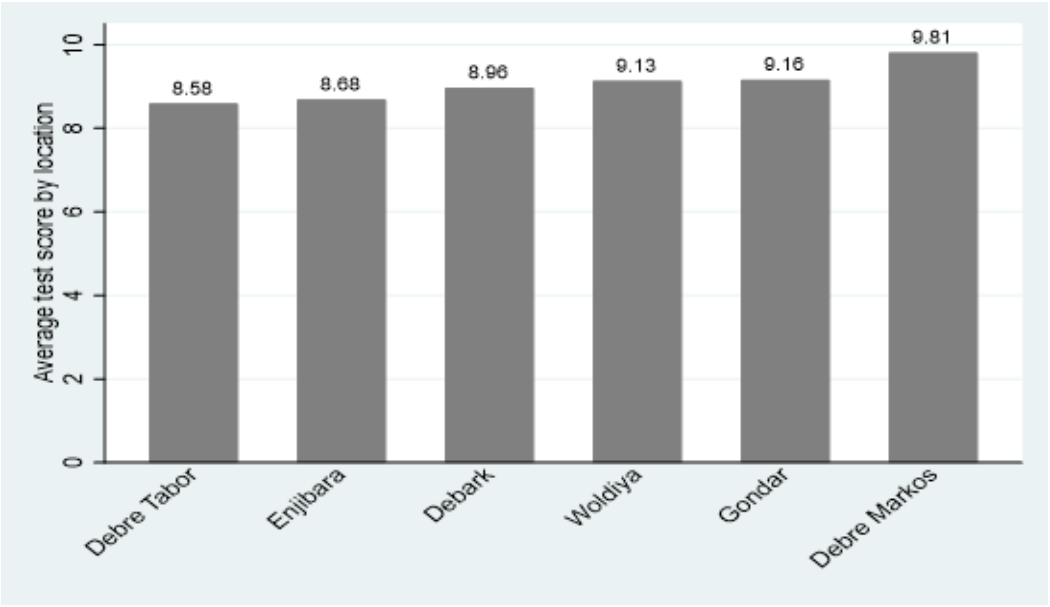
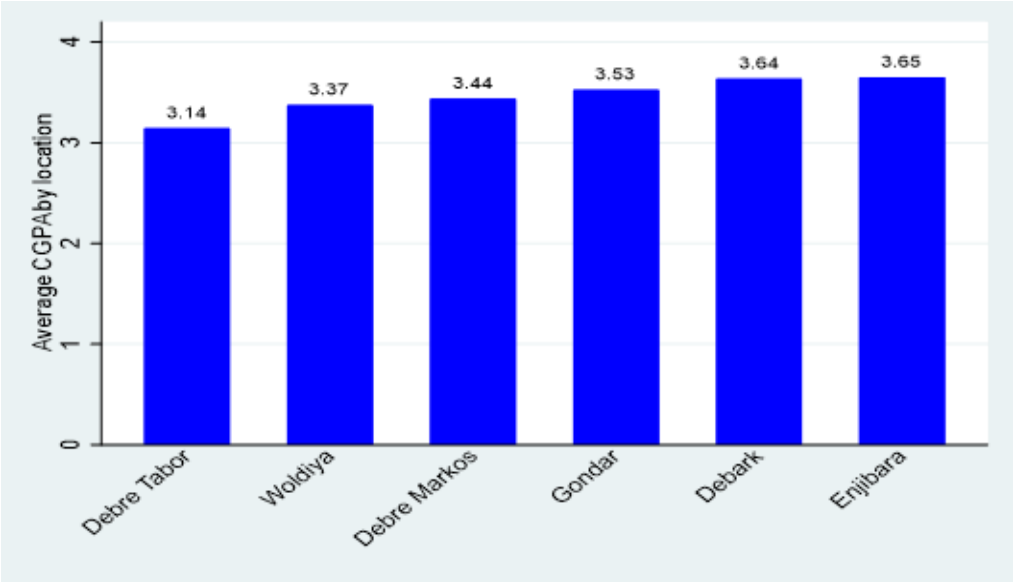


Figure 3: Average CGPA across Economics departments of Amhara universities



These results confirm that there are no significant geographic differences in average performance scores for both administered test and registrar CGPA as shown in Figures 2 and 3. What is more, the correlation between the two metrics is disconnected (see Table 6 and 7.)

In Table 5 we present frequency distribution and average academic performance results by different grouping criteria. We see that the dominant student groups are ethnic Amhara, Orthodox Christians and of masculine gender. A very good fraction of students have also a positive opinion of their university

settings (60%). However, about the same percentage (60%) of students either do not like or are unmoved by their respective current town environment. The differential academic performance scores across these groups are not also particularly striking.

Table 5: Student distribution by different categories and their mean group scores

Category	Frequency	Percent	Average CGPA	Average test
Religion				
Catholic	3	0.98	3.35	7.0
Muslim	12	3.92	3.41	8.3
Orthodox	270	88.24	3.42	9.18
Protestant	21	6.86	3.26	8.38
Ethnicity				
Amhara	257	83.99	3.43	9.23
Other	49	16.01	3.30	8.39
Gender				
Male	220	71.90	3.51	9.36
Female	86	28.10	3.16	8.42
How do you rate the university setting?				
Good	185	60.46	3.39	8.69
Neutral	98	32.03	3.44	9.16
Bad	23	7.52	3.48	8.69
How do you assess the town environment?				
A lot	124	39.54	3.45	9.28
Neutral	135	44.12	3.35	8.99
Not at all	50	16.34	3.47	8.94
How do you see your family economic situation compared with your high school friends'?				
Rich	16	5.23	3.33	8.38
Average	216	70.59	3.42	9.05
Poor	74	24.18	3.41	9.38

4.2 Econometric Estimation of Determinants of Academic Performance

As a final exercise we report academic performance determinants using both college roster CGPA and our own self-administered test scores. As the academic scores are strictly positive numbers, OLS technique could be inappropriate to the extent that predicted values of the dependent variables become negative or above unity[1]. As a result beta regression was considered as complement to the baseline OLS model. This second technique is important when the dependent variable is a strictly positive number

1 Both grades were transformed to fraction by dividing CGPA by 4 and our test score by 24. We do not consider Heckman or Tobit varieties due to absence of concentration of zeros or ones.

(e.g. fraction) and uses link functions to retain the natural values in the original interval variable. VIF results in the appendix confirm the absence of serious linear dependence among model predictors. Test of normality for the test score equation has been satisfied as shown in Figure 4 and Table 6. However, normality of residuals could not be satisfied for the CGPA equation and bootstrapped standard errors were reported for comparison (See appendix A2). But the results are not very different from the baseline output reported in Table 7. Robust standard errors are reported for all coefficients.

Figure 4: Histogram plot of residuals from the test score OLS model

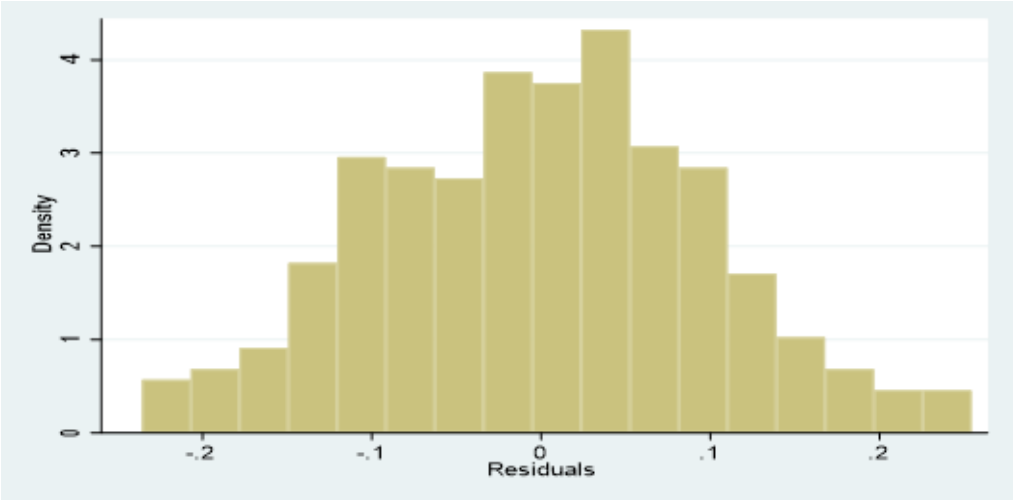


Table 6: Skewness and Kurtosis normality test for residuals from test score

				Joint test	
Variable	Observations	Pr (skewness)	Pr (kurtosis)	Adj chi2(2)	Prob>chi2
Test residual	305	0.9431	0.2558	1.31	0.5207

Table 7: OLS and Beta regression results for performance based on CGPA

Dependent variable: roster CGPA				
	OLS		Beta regression	
Predictor	Coefficient	P-value	Coefficient	P-value
Log of high school grade	.2296***	0.000	1.9058***	0.000
Age	-.0071**	0.034	-.0711***	0.011
Family size	.0027	0.244	.0212	0.258
Log of semester income	.0114**	0.036	.0736**	0.055
Log of distance	.0038	0.447	.0144	0.688
Effort	-.0007	0.755	.0075	0.622
Mother education	-.0028	0.093	-.0210	0.112

Father education	.0018	0.136	.0168*	0.101
Gender - male	.0752***	0.000	.5197***	0.000
Ethnic group - other	.0139	0.457	.0747	0.559
University liking - good	.0096	0.516	.0882	0.526
University liking - neutral	.0042	0.783	.0551	0.700
Religion - Muslim	.0353	0.178	.5066	0.169
Religion - Orthodox	.0194	0.422	.4133	0.227
Religion - Protestant	-.0171	0.509	.1378	0.692
Town liking - neutral	-.0202*	0.057	-.1916**	0.017
Town liking – not at all	-.0056	0.665	-.1100	0.316
Household economy - poor	-.0105	0.334	-.0525	0.527
Household economy - rich	-.0262	0.328	-.2088	0.171
University generation- 2nd	-.0359**	0.005	-.2272**	0.045
University generation- 3rd	.0485***	0.000	.5340***	0.000
Constant	-.5427**	0.026	-9.5524***	0.000
Observations	305		305	
R2	0.43		-	
Prob > F	0.000		0.000	

Note *, **, and *** indicate significance at 0.1, 0.05, and 0.01 levels, respectively.

Table 7 shows the OLS and Beta regression results and corresponding probability values. While the signs are similar, the magnitudes for each coefficient are significantly different from each other which justify the application of Beta regression under the present context. Below we offer interpretation of results for the CGPA equation based on the Beta regression estimates.

The coefficient estimate for log of high school grade is about 1.9 and is statistically significant at 99% confidence level. This suggests that a percentage increase in high school grade translates to a 1.9 unit increase in CGPA of graduating Economics students. By far high school grade is the strongest determinant of CGPA performance both economically and statistically. Student age has a coefficient estimate of about -0.071 which is significant at 99% confidence level. The estimate signifies that as student age increases by one year their CGPA falls by about 0.071 unit--which is consistent with earlier results that getting old induces loss of learning capacity over time. Log of semester income receipt has a coefficient estimate of about 0.074 which is statistically significant at 95% confidence level. As money sent from family/parents increases by one percentage point, CGPA performance increases by about 0.074 unit. This finding about the positive association between average semester money receipts and improved academic performance is intuitive to the extent that the recipient spends the money on materials and services that boost their educational stature. Monetary rewards can be deployed to cover

photocopy and print expenses as well as to purchase important supplementary books that can be used to broaden the intellectual horizon of the students. Similar results were confirmed by Eshetu and Beshir (2017) and Yigermal (2017).

Table 8: Maximum grades by university and student matching

University	Roster CGPA	Student ID	Self-administered test score	Student ID
Debark	3.99	23th	13	23th
Debre Markos	3.97	53th	15	76th, 156th
Debre Tabor	3.95	142th	15	156th
Enjibara	3.98	180th	14	178th,198th
Gondar	3.93	219th	15	229th
Woldia	3.89	269th	15	295th

Compared with first tier university (Gondar), being in third tier (such as Debark and Enjibara) is associated with a 0.53 unit increase in average CGPA—a result significant at 99% confidence level. The descriptive results had also shown that while department roster CGPA scores are inflated everywhere, the highest mean values were observed for Debark and Enjibara. Several reasons are mentioned why grade inflation is a persistent phenomenon in recent decades. Poor administration and fear of teacher evaluation by students are the common explanations.

Table 8: Pairwise correlation between roster CGPA and test score

University	Observations	Correlation between CGPA and Test score
Debark	26	0.278
Enjibara	38	0.569
Debre Markos	72	0.186
Debre Tabor	72	0.271
Gondar	44	0.445
Woldia	54	0.331
Overall	306	0.295

Whatever the sources of grade inflation, the problem is clearly present as summarized in Table 8 above and Table 8. We see that the maximum CGPA in each university and the maximum test score from our self-administered assessment are totally disjointed. The only exception is Debark where the same student was the top performer in both roster CGPA and our own performance test. The fact that in 5 out of six universities/departments the academic performance results are out of kilter suggest that arbitrary grade award is plausibly pervasive.

Otherwise how can we explain the fact that none of the top scorers in CGPA from five universities are the top performers in our self-administered test? Another evidence for the presence of grade inflation is outlined in Table 8. There we report pairwise Pearson correlation between CGPA and our test score for the six sampled universities. All estimated correlations are below 0.5 in absolute value confirming once again the disconnection between department CGPA and test score performance. Such findings are congruent with existing empirical results that grade inflation does not exist if and when strong positive relationships are found between standardized test scores and grade point averages (Taylor, 2007). In our case we found week correlations implying the existence of grade inflation.

Table 9: OLS and Beta regression results for performance based on test

Dependent variable: Self-administered test score				
	OLS		Beta regression	
Predictor	Coefficient	P-value	Coefficient	P-value
Log of high school grade	0.1362***	0.011	0.5739***	0.004
Age	-0.0099**	0.027	-0.0398**	0.058
Family size	6.9e-06	0.998	-0.0022	0.872
Log of semester income	7.9e-06	0.999	0.0084	0.767
Log of distance	-0.0136**	0.028	-0.0584**	0.028
Effort	0.0002	0.926	0.0017	0.880
Mother education	0.0012	0.625	0.0065	0.503
Father education	-0.000	0.947	-0.0027	0.728
Gender – male	0.0340**	0.036	0.1634***	0.008
Ethnic group - other	-0.0003	0.985	0.0141	0.881
University liking - good	0.0199	0.453	0.0974	0.332
University liking - neutral	0.0214	0.428	0.1055	0.307
Religion - Muslim	0.0467	0.490	0.2097	0.489
Religion - Orthodox	0.0475	0.451	0.2086	0.466
Religion - Protestant	0.0456	0.481	0.1804	0.531
Town liking - neutral	-0.0039	0.788	-0.0312	0.595
Town liking – not at all	-0.0045	0.821	-0.0309	0.692
Household economy - poor	0.0135	0.391	0.0554	0.364
Household economy - rich	-0.0262	0.303	-0.1177	0.311
University generation- 2nd	0.0121	0.568	0.0765	0.333
University generation- 3rd	-0.0019	0.939	-0.0065	0.944
Constant	-0.1535	0.654	-3.2401**	0.016
Observations	305		305	
R2	0.11		-	
Prob > F	0.006		0.008	

Note *, **, and *** indicate significance at 0.1, 0.05, and 0.01 levels, respectively.

Last but not least, we present in Table 9 the same OLS and Beta regression results for academic performance determinants using self-administered test score as dependent variable. Once again—looking at Beta regression results-- high school grade resurfaces as the strongest predictor of academic performance both in terms of economic and statistical significance at 99% confidence level. Specifically, a percentage point increase in high school grade leads to 0.57 unit increase in college CGPA confirming the importance of persistence in educational performance over time. Thus it would suggest that cultivating student intellectual capacity in adolescence would pay off later on during college years.

4.3 Sensitivity Check for Student Academic Performance

Table 10: Economics staff size, experience, and performance

University	Active Staff Size	Mean Experience	Mean CGPA	Mean Test score
Debark	8	3.3	3.64	8.96
Debre Markos	19	7.8	3.44	9.81
Debre Tabor	12	6	3.14	8.58
Enjibara	9	5.1	3.65	8.68
Gondar	15	10.4	3.52	9.16
Woldia	18	7.5	3.37	9.29
Total	88	7.2	3.41	9.12

Note: PhD holders are not included as they do not often teach undergrads.

Student academic performance depends not just on individual specific, university physical environment and family economic conditions. Instructor teaching skills, experience, and effort could also play of paramount importance. To capture the effects of these forces, we consider three important metrics. First, variation in faculty size (see Table 10) can reveal the balance (or imbalance) in the distribution of burden on teaching staff. Size could also pave the way for diversity of talent and specialization that can be exploited for the benefit of college teachers as there are opportunities to profit from each other. The larger the department size, therefore, the bigger its effect on educational quality and performance.

Second, teacher capacity could correlate directly with student educational success. Consequently, governments, education authorities, and donors often help design short- to medium-term capacity building training programs for school teachers and college instructors. One such initiative that has been well under way in Ethiopian higher learning institutions is the Higher Diploma Program (HDP) often delivered within 8 to 10 months during typical academic calendar year. The HDP program is compulsory and every staff member must arrange with education quality offices to attend a two-day-per-week session

training for one year. Usually, a session lasts for two hours interspersed with interactive conversation and brainstorming intervals. Generally speaking, the focus of the program is on cultivating student-centered, interactive, and active teaching culture among university teachers. Thus, HDP participation has been hailed as an integral part to education quality improvement by enhancing instructor teaching skills and responsiveness.

Table 11: Average teachers' experience, active staff size in Economics, and performance

Beta regression model	Dependent variable			
	Test score		CGPA	
Predictors	Coefficient	P-value	Coefficient	P-value
Log of high school grade	.6084***	0.002	2.0400***	0.000
Age	-.0382*	0.069	-.0670**	0.015
Family size	-.0032	0.814	.0158	0.387
Log of income receipts	.0056	0.844	.0625*	0.100
Log of distance from parents	-.0529**	0.050	.0313	0.388
Effort	.0049	0.671	.0165	0.278
Mother education	.0071	0.465	-.0195	0.142
Father education	-.0031	0.680	.0162*	0.109
Staff size in Economics	.0017	0.892	.0035	0.833
Average teachers' exp. in Economics	.0593	0.172	.1940***	0.001
Gender – male	.1505**	0.014	.4881***	0.000
Ethnic group – other	.0107	0.910	.0374	0.768
University liking – good	.1128	0.266	.1182	0.396
University liking – neutral	.1366	0.190	.1369	0.336
Religion –Muslim	.1881	0.536	.3818	0.294
Religion –Orthodox	.2032	0.478	.3622	0.291
Religion – Protestant	.1824	0.526	.1147	0.737
Town liking – neutral	-.0089	0.881	-.1228	0.125
Town liking – not at all	-.0104	0.894	-.0608	0.568
Household economy – poor	.0525	0.389	-.0606	0.452
Household economy – rich	-.1152	0.322	-.2324	0.115
University generation- 2nd	.2725	0.115	.4158*	0.067
University generation- 2rd	.3676*	0.104	1.7733***	0.000
Constant	-4.1742***	0.004	-12.523***	0.000
Scale				
Constant	3.1281***	0.000	3.1552***	0.000

Table 12: Average teachers' experience, HDP size in Economics, and performance

Beta regression model	Dependent variable			
	Test score		CGPA	
Predictors	Coefficient	P-value	Coefficient	P-value
Log of high school grade	.6187***	0.002	2.0621***	0.000
Age	-.0389*	0.063	-.0677**	0.014
Family size	-.0036	0.788	.0148	0.418
Log of income receipts	.0035	0.900	.0599	0.115
Log of distance from parents	-.0552**	0.041	.0275	0.450
Effort	.0048	0.673	.0165	0.278
Mother education	.0066	0.495	-.0206	0.121
Father education	-.0030	0.690	.0166*	0.099
HDP Graduate Size	-.0025	0.775	-.0024	0.828
Average teachers' exp. in Economics	.0656*	0.070	.2039***	0.000
Gender – male	.1501**	0.014	.4867***	0.000
Ethnic group –other	.0165	0.861	.0478	0.707
University liking – good	.1054	0.299	.1090	0.433
University liking – neutral	.1351	0.195	.1340	0.346
Religion- Muslim	.1809	0.551	.3704	0.308
Religion – Orthodox	.2027	0.479	.3570	0.298
Religion – Protestant	.1822	0.527	.1088	0.750
Town liking – neutral	-.0071	0.904	-.1212	0.130
Town liking – not at all	-.0101	0.898	-.0589	0.580
Household economy – poor	.0536	0.379	-.0592	0.462
Household economy – rich	-.1221	0.295	-.2391	0.105
University generation – 2nd	.2999**	0.043	.4542**	0.021
University generation – 2nd	.3452	0.143	1.7485***	0.000
Constant	-4.1665***	0.004	-12.5635***	0.000
Scale				
Constant	3.1283***	0.000	3.1557***	0.000

Note: HDP size and Active Staff Size could not be included in the same equation due to extremely high VIF scores (>10)

Since a great deal of time has passed since HDP has been given across public universities, it would be reasonable to test whether such program participation has any meaningful correlation with student academic achievement level. Third, experience in and of itself can be an important channel through which instructors accumulate knowledge, skill, and efficiency in teaching and researching. As a result, more teacher experience could translate to better student performance.

In Tables 11 and 12 we report our favored Beta regression results to see the effects of variation in average Economics department staff teaching experience across universities on undergraduate student academic achievement. We excluded Ph.D. holders when computing average teaching experience across Economics departments in public universities of Amhara region. The main reason for this exclusion is the fact that in most universities Ph.D. holders do not teach undergraduate courses; they mostly cater to the needs of postgraduate recruits. We alternate HDP graduate size with active staff size as both could not be included within the same regression due to very high collinear relationships (see Table A3 in the appendix).

The new findings reveal that most of the baseline results survive. As before, high school grade remains the strongest force shaping student academic performance in both roster CGPA and self-administered tests. But as usual the magnitude of the marginal effect is much larger for college roster CGPA due to the grade inflation problem we discussed previously. Both Table 4.9 and 4.10 confirm that once we account for average teaching experience across universities, neither HDP intensity nor active staff size enters our model significantly. This should be worrisome especially for all those entities that have been pushing for aggressive expansion of faculty size and HDP training programs far and wide. The implication is that blanket HDP program or huge faculty size may not be an easy substitute for accumulating instructor experience over time. Of course, these results are based on Economics departments and may not be representative of all departments and colleges across the country.

5. Conclusions and Recommendations

5.1 Conclusions

This study is aimed at trying to understand the economic, social, and institutional factors that determine academic performance of undergraduate students in public universities of Amhara region, Ethiopia. Our contribution is be to look at the major public universities in Amhara regional state and to compare the performance of students in the grade distribution. What is more innovative in our approach is that in addition to using department CGPA, we also develop our own test scores based on self-administered questions to see who is really "best and brightest" across the given colleges and universities.

Our descriptive econometric analyses revealed a number of interesting results: 1) Most students (about 60%) like their university environment while only less than half like the town where their university is located. 2) University roster CGPA and self-administered test scores are totally disjointed. In five out of six universities, the top scorer in CGPA is not the top scorer in the test. Moreover, the degree of correlation between roster CGPA and test score is very low (below 0.5) both for the entire sample as well as across universities confirming the pervasive presence of grade inflation problem. 3) The Beta regression results for academic performance determinants revealed that student high school grade, age, semester income

receipts, father education, gender, university age (generation grouping), and town attractiveness are key derivers of CGPA. Similarly, in the model using self-administered test score as dependent variable, we found that high school grade, age, distance, and gender are the significant determinants of educational performance. When controlling for teacher specific attributes, once we account for average teachers' experience across universities, neither HDP intensity nor active staff size enters our model significantly.

5.2 Policy Recommendations

Based on the empirical findings outlined above the following policy feedbacks can be recommended:

• In both the CGPA and self-administered test score models, high school grade was found by far the most significant predictor of academic performance in terms of magnitude and statistical significance. This suggests that raising the intellectual capacity of young graduates requires concreted efforts and support at earlier years when they are in adolescence stage. While supporting students in college is important, given the hectic nature of college life, much of this support is unlikely to bear fruits, especially if students have no strong bases from high school.

• Gender differential in academic performance is still well and alive. The results indicated that in both roster CGPA and administered test scores being male has substantial performance premium over female counterparts. Compressive special assistance packages need to be designed and employed to help women narrow the performance gaps over time. Since income receipts have been found to impact performance positively, selective cash transfer programs could help elevate the academic posture of women.

• We found that roster CGPA and administered test scores are totally disjointed. The correlation coefficients between these two performance measures are low (below 0.5) for all towns confirming the practice of awarding inflated grades. One possible explanation for the pervasiveness of grade inflation is teacher evaluation by students. To the extent these evaluations are meaningful in ways that affect the future academic path of the instructors (e.g. as inputs in academic promotion), teachers may try to harvest good evaluation scores by offering inflated grades to please the students. Replacing student evaluation by peer evaluation standards can minimize the grade inflation problem.

• Active faculty size and HDP graduation intensity have no strong correlation with student academic achievement. While average staff teaching experience across universities has significant positive effect on educational performance. This signifies that maybe blanket approach to HDP training is wrong-headed in the sense that it imposes coercive subscription to program participation without assessing teacher specific needs and weaknesses. Selective, fact-based, and voluntary involvement can be both effective and efficient in terms of achieving the goals of the program.

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Handcrafts for Pro-Poor Tourism Development and Its Impediments in Amhara National Regional State, Ethiopia

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Abstract

The handicraft sector plays a pivotal role in income and employment generation and has also been recognized worldwide as a tool for poverty reduction. The objective of the research was to assess the role of handicrafts for pro- poor tourism development and impediments which hinder involvement of community in handicrafts business in selected districts and major tourist destinations of Amhara National Regional State. The study was descriptive in its design and employed both qualitative and quantitative research approaches. The target populations of this study were potters, weavers, tanners, jewelry makers, basketry workers, calligrapher and bookbinders, painters, handicraft sellers, and selected Zones Culture and Tourism Departments and culture and tourism offices experts. Both primary and secondary data were collected using purposively selected interviewees, observation, document analysis, focus group discussants and 313 participants were selected by using simple random sampling techniques for questionnaire survey. Qualitative data were narrated and presented thematically. While, quantitative data were analyzed with the help of Statistical Package for Social Science (SPSS) Version 25 with descriptive statistics measures (frequencies, percentages, mean and standard deviation). The finding confirmed that handicraft business enhance craft makers entrepreneurial skill, encourage indigenous peoples' self-determination, help local communities to accompany different cultural activities and maintaining traditional values. However, handicraft industry suffered due to its being unorganized, with the additional constraints of lack of adequate handicraft skills, absence of institutional structure that encourage handicraft activity, inadequate capital for investment, inaccessible location of handicraft business, low product quality to meet customers' expectations, weak return of the handicraft business and competition with latest machine made products of large industries. To solve those challenges, all stakeholders shall take responsibility and work collaboratively.

Keywords: handicrafts, pro-poor tourism, contribution, challenges

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1. INTRODUCTION

Handicrafts, which represent local traditions and indigenous populations with valuable souvenir, are vital part of tourist experience (Mustafa, 2011). Handicrafts industries comprise a kind of simple industries with no complex techniques that can be considered as a source of income and complementary jobs that supplement the agricultural and livestock activities of rural community (Divandari et al., 2017). Handicraft production, based on traditional skills and with low investment requirements, is one of the little likelihood which poor people have to help them increase their income (International Trade Center (ITC), 2010, UNESCO /ITC/, 1997). In many cases handcraft possessed by socially disadvantaged poor, can be the prime tourism assets in many cultural tourism destinations in less developed countries. This implies that linking craft products and tourism has great potential for pro-poor growth. Tourism related handicrafts business was chosen among the three major sectors (agricultural, craft and textile and tourism) to improve livelihoods of the poor and eradicate poverty as well as empowering large number of women (UNESCO /ITC/, 1997). Thus many countries are benefited from handicrafts since they provide communities with a source of income and jobs opportunities (Mustafa, 2011). The production of handicraft is a labor-intensive industry and, as such, can support a number of part-time and full-time employees, both skilled and unskilled (UNEP, 2013). In countries attracting a large number of international visitors, the tourism sector offers many opportunities for poor people to sell handicrafts, as tourists spend significant amounts of money on souvenirs and other craft products (WTTC, 2009). These souvenirs then serve as tourism marketing tools by telling a story of the destination and adding to the travel experience (Baskaran, 2016). Even though Handicrafts are of cultural importance and economic value to many poor rural household, they remain neglected by most governmental policy makers (Wood, 2011; Haggblade,etal, 2005). They do not receive enough support from the government and other institutions. Due to this the potential contribution of handicraft to livelihoods and poverty alleviation is not fully exploited (Pereira, etal, 2006).

Handicraft is one tangible expression of Ethiopia's age-old culture, a commodity that has become an important component of the tourism industry (Ellene, etal., 2003).Tourism-related handicraft sales in Ethiopia are estimated to be as high as US$ 12.7 million per year (Mitchell, et al 2009). 55% of these expenditures, US$ 6.9 million, are considered to be pro-poor income, i.e. income that goes to poor craftsmen, traders or raw material suppliers (ITC, 2010). Besides the income earned from providing accommodation and selling food and beverages, handicrafts are among the most important tourism sub-sectors with regard to generating pro-poor income. In 2007, Ethiopia attracted 250,000 foreign tourists, meaning that the average tourist spent about US$ 50 on handicrafts during his stay in Ethiopia, of which US$ 25 were pro-poor income (ITC, 2010, Mitchell, et al 2009). The study area, Amhara National Regional State, is also the center of Ethiopian art and culture (ACTPDB, 2011). However, the production

and marketing of handicraft sector is unorganized sectors of the Ethiopian economy (Mulu, 2007). The recent development of local industries and importation of consumer goods, handicraft products have started to replace industrial products because industrial products are practical, fashionable, lighter and often less expensive (Ellene, etal., 2003). Despite increasing threats from much cheaper, more convenient and readily available substitutes, Ethiopia's age-old handicrafts are not yet banished to books, museums, and as allures of gift shops for tourists (Dubois, 2008). The great problems related to Ethiopians art and crafts are the absence of long established system of production of arts and crafts for market in contrast to other African countries. Currently, the demand for handicrafts is said to be decreasing because changes in life-style do not require the handicrafts for daily life any longer.

To identify challenges and forward tackling recommendations different researchers have conducted researches regarding pottery and weaving in different parts of Ethiopia. For instance, Morie Kaneko (2013), has assessed transmigration among Aari woman Potters in Southwestern Ethiopia and the accumulation of experience in pottery-making techniques; Yesuneh (2018), has studied weaving; challenges, opportunities and economic benefits for prisoners at Wolaita Sodo prison institute, SNNPR, Ethiopia; Eskedar Girum (Nd), has conducted on indigenous Knowledge among Shiro Meda Dorze community: the Case of Weaving ; and Mulu Yeneabat (2007), pottery production an asset for women livelihood case study on Kechene women potters in Addis Ababa. But, no researches were conducted in Amhara Regional state regarding the role of handicrafts for pro-poor tourism development and impediments which affect its expected development. Therefore, to fill such gap, doing this research is prompt and rational.

2 Objectives

The aim of this study is to investigate how handicrafts enhance pro-poor tourism development and to identify impediments that hinder its expected development.

Specific Objectives

1. To examine the role of handicrafts for pro-poor tourism development in the study areas.

2. To identify impediments which hinder involvement of community in handicrafts business in the study areas

3. Literature Review

Handicrafts for Pro-poor Tourism Development

3.1. Economic Roles

Pro-poor tourism (PPT) is tourism that generates net benefits for the poor(Ashley et al., 2001). The pro-poor tourism (PPT) approach has emerged as the medium for tourism development to influence poverty reduction. The approach stresses on tourism development in ways to accrue net benefits to the poor through diverse strategies including those that generate employment opportunities, infrastructural development, and skills enhancement of locals in entrepreneurial activities (Akrong, 2019), Gaylard, 2004). The handicraft sector is closely aligned with the tourism sector and tied to rural employment generation and often with poverty alleviation(World Bank, 2006). So due to its employment generation, foreign exchange earnings and vast untapped export potential, handicraft sector is important for overall economic growth and specifically upsurge of the rural economy(Mohi-ud-din et al., 2014). Furthermore it is an important productive sector and export commodity for many developing countries and a significant part of the export economy (Dash, 2015 and (USAID, 2006).

Linking craft industry and tourism have big potential for pro-poor tourism growth for the following reasons: craft products are one of the most principal souvenirs in many less developed countries (Shackley, 1999); craft production skills are, in many cases, owned by socially disadvantaged poor (Ashley et al.,2001,(Hiroyuki, n.d.). On the other hand handicraft economy mainly launches upon traditional transferable skills which are cheap and easy to acquire, with flexible natural home based nature that can be integrated into economic activities and household duties; it can be used as an essential "entry point" into the economy, specifically for people with a poor educational background (Bhat & Yadav, 2017) and (Oyekunle, n.d.)). Furthermore, handicraft production is a labour intensive industry(Sahoo, 2016, Gaylard, 2004, (Mohi-ud-din et al., 2014), (Parida, 2018) and (Shah, 2016) which can actually support skilled and unskilled people who are involved in this profession(Sahoo, 2016). It is eco-friendly (Shah, 2016) ,cottage based industry which is bearable for anyone(DIN, 2017) and its production is cultural and traditional industry, engaged in by rural youth of both gender but largely by women folk, to supplement household incomes (IVAN EMEKA OKONKWO, 2017). The sector is also requiring low capital investment((DIN, 2017) and Singh, AK. 2015), has high value addition, and negotiable import content and high potential for export earnings (Singh, AK. 2015). Cost incurred for production is less as resources are available in local area. Because of this the industry is classified as small scale industry or household industry and even called as women-focused craft. The women can add-on to the family income by working from home(Akilandeeswari & Pitchai, 2016). Therefore, because of the aforementioned factors, handicrafts provide employment to a vast segment of artisans that are preserving cultural heritage and generates substantial foreign exchange (Baskaran, 2016 and (Shah & Patel, 2017). Because handicrafts are components of Creative industries which derive their origins from individual creativity, skill and talent that have a potential for job and wealth creation through the generation and exploitation of the individual's intellectual property(Okonkwo, 2017). Overall, craft products development has enhanced economic opportunities for relatively poor craftsmen, material suppliers and material producers

(Gaylard, 2004, (Hiroyuki, n.d.). It also provides a vital source of employment for the most vulnerable segments of society, specifically the rural women(Mohi-ud-din et al., 2014 and Oyekunle, n.d.) and to the weaker section of the society in rural and urban area(Akilandeeswari & Pitchai, 2016). Because huge population in rural areas experience with unemployment and poor infrastructure facilities which may be solved with the development of the rural handicraft entrepreneurship (DIN, 2017). Besides, providing employment to literate as well as illiterate persons in both rural and urban areas, it acts as a subsidiary source for the farmers who remain un-employed during the off season (Shah, 2016). Handicrafts are the source of income; it has led to substantial and multifaceted alterations in handicraft proprietors lifestyle/ livelihood pattern (Upadhyay, 2020).

3.2. Socio-Cultural Roles

Handicraft entrepreneurship becomes an important tool to empower the rural women. Rural handicraft has empowered women folk and encouraged them to go through the handicraft entrepreneurship. It facilitates the economic and social benefits of rural female artisans (DIN, 2017). The sector of handicraft is not only provides employment for the development of economy but it also acts as a sensible artistic approach of self-expression for the artisans. Handicrafts are matchless expressions as they represent culture, tradition, and heritage of a country (Reddy, 2018). The products of handicraft have multiple uses they can be utilitarian, decoration, artistic, imaginative, culturally attached, ornamental, functional, traditional, religiously, and socially symbolic, due to such a diverse and influential values of handicraft it has becomes important aspect of every bodies life. The rich culture, heritage of great art and craftsmanship has enhanced its value in the world market (Gaylard, 2004). Crafts and patterns were mostly representation of everyday living, socio political conditions of the people (Mohi & Din, 2014). The pro-poor tourism (PPT) approach has also stresses on tourism development in ways to accrue net benefits to the poor through diverse strategies including those that generate employment opportunities, infrastructural development, and skills enhancement of locals in entrepreneurial activities (Akrong, 2019, Gaylard, 2004).

Impediments that Hinder Involvement of Community in Handicraft Business

With increased globalization products are becoming more and more commoditized and artisans find their products competing with goods from all over the world (USAID, 2006). Scott and Acción (2001), identified lack of human capital of the poor, lack of social capital, organizational strength, gender norms and constraints, location, lack of ownership, lack of product tenure, inadequate access to tourist market, and low capacity to meet tourist expectations as barriers to participation of the poor in handicraft tourism business. On the other hand M.G house, (2012) revealed that licensing problems, low/no demand, high cost of raw materials, lack of access to raw materials, obsolete tools and equipment, lack of access

to export credit, high cost of credit, scarcity of skilled labor, labor regulations, high excise, poor infrastructure, policy uncertainty, local transportation problems, shipping problems, air freight problems, duty drawback reimbursement, low subsidy, income tax, internet connectivity, market awareness are impediments for the participation of the poor in handicraft business. On the other hand, even when artisans can earn a living by producing contemporary versions, most do not wish their children to be artisans (A. Shah & Patel, 2017). In general, as of different researchers' findings, some of the factors that affect the development handicraft business are as follows:

Market Network and Technical Cooperation: most Craft producers are not aware of large potential export markets, there is not little insight into which of their products would be the most worthy items for export, and they haven't a clear concept of the product design. Furthermore, their capacity to realize their potential capacity of production to meet foreign market needs is limited. They simplify the production process and use cheap mechanically and chemically processed materials. The markets accordingly begin to devalue these crafts and put them into a category of cheap miscellaneous crafts for daily use (Gaylard, 2004). There are also lack of promotional and preservation policies, supporting institutions, low craft quality, inability of craft producers to access the opportunities to up-grade their managerial skills and to access business information, lack of capable craft development coordinators and designers, Poor marketing and insufficient market linkage (Hassan, 2016).

Shortage of Raw Materials, Capital and Technology: Shortage of raw material for handicraft production for example the price of the thread is highly expensive (Rakhin, 2015; Muhammad, et.al, 2016). Overwhelming majority of handicraft producers may terminate their business if the price of raw materials continues to inflate (Markwick, 2001). Handicraft producers are also suffering from inadequate contemporary technology and scarcity of working capital, which are mandatory to maintain the smooth flow of production.

Communication: Another challenge for handicraft business is lack of promotional and advertisement activities and no direct communication is there with the customers or end users to sale their products in Ethiopia (Ayele, et.al, 2009), and in different parts of the world (Markwick, 2001, Singh and Joshi, 2017; Rakhin, 2015). One of the major issues faced by handicraft sector is poor information dissemination. This has led to a situation where customers have no information related to the craft products(Dey, 2018).

Lack of Finance: Craft producers suffer greatly from lack of working capital and access to credit and loan facilities. In many developing countries banks cite poor recovery rates, wrong utilization of funds, lack of marketing facilities for finished products and lack of education on part of the borrowers as reason for the low proportion of loans made to artisans (Markwick, 2001). Lack of financial support from both private and public agencies to those involved in the industry is regarded to be another main challenge

hindering the growth of handicraft business (Russouw, 2002).

Outdated Techniques of Manufacturing: Most of the craft producers are those who have inherited traditional skills, lack creativity to adopt new and innovative ideas. This makes it difficult to develop innovative handicrafts with their own initiatives (Richard, 2007). Also, it is difficult to apply new methodologies and approaches to improve their current production. For instance, due to their conservative nature, they might not easily adopt modern development strategies (Peach, 2007, Richard, 2007).

Competition: At present, the growth of the furniture and furnishings segment in the global handicrafts market is increasing at a rapid pace (Khan & Amir, 2013). The market has also been observed to shift from ethnic designs to more contemporary styles. Also, the combination of ethnic and contemporary designs in handicraft products is trending these days. The degree of competitiveness of the market structure refers to the degree to which individual firms have power over that market- power to influence the price or other terms on which their product is sold (Pitchai,2016). Price is high as comparison to power loom products. It is a very cumbersome process and involved labor which increase the cost of preparing it. Cost is the major factor behind the increase in the competition from power loom products. The increasing travel and tourism is also supporting the growth of the global handicrafts market (Khan & Amir, 2013). The tourists on recreational tour are always on a hunt to collect souvenirs and specialty handicrafts from the places they visit. This has also led to the development of a large unorganized handicrafts market especially in the developing countries. Competition is a rivalry among enterprises to gain the higher productivity as well as the superiority than the competitors (Pitchai,2016). Competition is also the struggle among rivals for customers (market) and the resources.

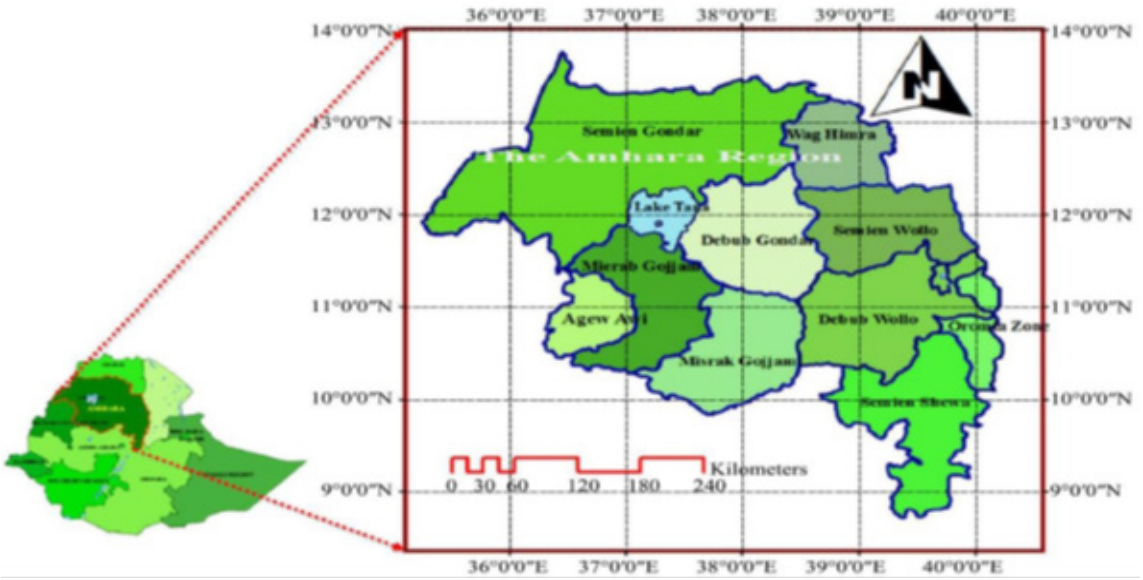
Low Quality: Artisan crafts' producers in developing countries sell their products in the export markets (Aliwal, 2014). The quality, however, is often not at an acceptable level to be exported on a large quantity basis, although they may be attractive for tourists. Furthermore, the 23 production process developed in the country of origin is adapted to domestic climate conditions. Products exported to foreign countries often do not meet the respective conditions. For instance, wood and bamboo-based crafts using lacquer often experience quality problems, e.g., cracking defects stemming from the change of humidity in the foreign markets. The installation of a proper dryer in the production process may easily solve this type of problem (Rakhin, 2015). However, a very few governments try to identify technical problems and the appropriate remedies in an organized manner. Furthermore, most craft producers lack a focus on design improvements, quality inspection systems and checking suitability of production facilities (Khan & Amir, 2013). They tend to be conservative towards the adoption of new technology, which could enable them to produce the same products with more efficiency and higher quality. The general lack of awareness of the importance of quality is a great weakness of the craft producers

4. Methods and Materials

Study Area

This study was delimited to Amhara National Regional State major tourist destinations and selected districts where more handcraft makers and sellers are found. Particularly, Gondar city, Debark, Addis Zemen, Bahir Dar, Injibara, Awuramba, Debre Tabor, Lalibela and Lake Tana monasteries were the study areas.

Fig. 1: Map of Amhara National Regional State



Source: Dereje, Kindie, Girma, Birru, & Wondimu, (2012)

Study Design and Approach

This study used mixed approach along with descriptive and cross-sectional design. Descriptive design is concerned with narration of facts and characteristics concerning individual, group or situation (Kothari, 2004) and is not only restricted to the fact finding but also led to the formulation of knowledge and establishing solutions to problems facing handcraft and tourism. The design gives information as the state of affairs existed on the ground and it can enhance the use of a questionnaire and carrying out interview to gather information. Cross sectional research perspective is unrivaled to find prevalence of phenomenon, situation, problem, attitude or issue of selected sites, heads and experts. Thus, the researchers used quantitative approach for questionnaire data and qualitative for observation, interview, focus group discussion and document analysis in order to examine the role of handicraft business for pro-poor tourism development and to identify impediments that hinder the involvement of local community

in handicraft business in ANRS.

Population and Sampling

The subjects for this study were purposively selected craftsperson (potters, weavers, tanners, jewelry maker, wood carvers, calligraphers and book binders, painters, horn workers, and basketry), handcraft traders, heads and experts of culture and tourism from Gondar city, Debark, Addis Zemen, Bahir Dar, Tana monasteries, Injibara, Awuramba, Debre Tabor and Lalibela. A total of seven focus group discussions (FGD) each with seven members were purposively selected. For questionnaires, the sample size was determined using Yamane's (1967) sample determination formula as n=N/1+N(e2), where n is sample size, N is total target population, e is level of precision at 5% and 95% confidence level. Thus, n=1434/1+1434(0.05)2=313 that distributed for each site through proportional allocation procedure as shown in the following table:

Table 4: Sample size

No	Sites	Populations (N)	Percent (%)	Respondents (n)
1.	Gondar city	175	12	38
2.	Debark	105	7	22
3.	Addis Zemen	200	14	44
4.	Bahir Dar	180	13	41
5.	Tana monasteries	100	7	22
6.	Injibara	295	21	65
7.	Awuramba	120	8	25
8.	Debre Tabor	147	10	31
9.	Lalibela	112	8	25

Data Collection Instrument

This study used various data collection instruments like observation, interviews, FGD, questionnaire and document analysis. The most useful ways of gathering qualitative data are participant observation, interviews, FGD, collection of relevant documents, and collection of narrative (Allyn & Bacon, 2001). Field observation using checklist was employed to observe practices of potters, basket makers, weavers, tanners and jewelry makers, and associated impediments. Semi-structured face-to-face interviews were conducted with heads and experts of culture and tourism, potters, weavers, handicrafts traders, tanners and jewelry makers. Seven FGDs were carried with potters, weavers, tanners and jewelry makers.

Both Amharic and English language questionnaires were prepared and pre-tested. Closed-ended questionnaires were used to enable the researcher to examine people's response on specific pre-coded

aspects whilst open questions particularly were useful for identifying the reasons why a particular respondent held such a point of view on a particular aspect. To cross check different information obtained from interviews and increase its validity, questionnaire survey was conducted to craftsperson and craft traders. Five points Likert scale (strongly agree=5, agree=4, undecided=3, disagree=2 and strongly disagree=1) was used.

Analysis Plan

Qualitative data were analyzed thematically whereas quantitative data were analyzed using descriptive statistics with the help of SPSS version 25. Data gathered through in-depth interview and focus group discussion were analyzed using thematic and document analysis. Data gathered through these methods were transcribed into categories, themes and analyzed together with existing literature, and documents.

5 Result and Discussion

In this study a total of 313 questionnaires were distributed to craftsman, craft product seller and experts who involved on handcraft industry. Of these, 265 questionnaires were completed and returned, giving a response rate of 84.6%.

Role of Handcraft Production for Prop-poor Tourism Development

5.1 Economic Roles

Table 2: Economic Roles (factors)

Items	1=SD	2=D	3=U	4=A	5=SA	Mean
Handicrafts expand business opportunities for the poor	8(3%)	9(3.4%)	25(9.4%)	141(53.2%)	82(30.9%)	4.05
Handicrafts create employment opportunities for the poor	4(1.5%)	5(1.9%)	37(14%)	139(52.5%)	80(30.2%)	4.08
Handicraft business help to diversify income of the poor	21(7.9%)	52(19.6%)	42(15.8%)	115(43.4%)	35(13.2%)	3.34
Improve Foreign exchange	38(14.3%)	82(30.9%)	32(12.1%)	54(20.4%)	59(22.3%)	3.05
Improved standard of living due to multiplier effect	45(17%)	104(39.2%)	40(15.1%)	51(19.2%)	25(9.4%)	2.65

As shown in table 2 above, of the total 265 respondents, about two thirds, 223 (84.1%), of respondents agreed or strongly agreed, and only 17(6.4%) respondents were disagreed or strongly disagreed about the statements hat: "handicrafts expand business opportunities for the poor" with a mean value of 4.05. The majority of respondents were agreed or strongly agreed with the statement of handicrafts expand business opportunities for the poor. This is because craft products are one of the most principal souvenirs at many tourism destinations in Ethiopia particularly in Amhara regional state (Fatima, 2015). It implies that craft products development and the subsequent product diversification have large potential for financial upgrades for the poor.

Of the total 265 respondents the majority, 219 (82.7%), agreed and strongly agreed, only 9 (3.4%), disagreed or strongly disagreed and 37 (14%) and undecided with a mean value of 4.08 about the statement "handicrafts create employment opportunities for the poor". The result shows crafts development can represent a constructive, positive contribution to the development of alternatives to resource-destructive agricultural practices, and handicraft production is a labour intensive industry that can support a number of part-time and full-time employees, both skilled and unskilled, therefore, craft product industry; provide big employment opportunities, especially for the poor. This is because craft products are one of the most principal souvenirs in many less developed countries (Shackley, 1999). Since handicrafts are local-specific, they create great job opportunities in the rural areas, where there is no significant industry. They also create job opportunities for women in particular. The handicraft industry is basically a cottage industry, the scale of which is much smaller than that of the other three. Despite its scale, however, it plays an important role in income generation in the rural areas (Embassy of Japan in Ethiopia, 2008).

Of the total 265 respondents, 150 (56.6%) respondents agreed or strongly agreed, and only 73(27.5%) respondents were disagreed or strongly disagreed, and 42(15.8%) undecided about the statements hat: "handicraft business help to diversify income of the poor" with a mean value of 3.34. More than half of the total respondents agreed that handicraft business help to diversify income of the poor. This is clear that small enterprises such as informal sector often provide the greatest opportunities for the poor. Supported by the previous research finding that craft production skills are, in many cases, owned by the poor (Ashley et al., 2001).

Of the total 265 respondents 113 (42.7%) agreed and strongly agreed, 120 (45.2%), disagreed or strongly disagreed and 32 (12.1%) and undecided with a mean value of 3.05 about the statement "improve foreign exchange" (Table 2). Less than half respondents disagreed with the statement that handcraft production improves foreign exchange.

Of the total 265 respondents 76 (28.6%) agreed and strongly agreed, 49 (56.2%), disagreed or strongly disagreed and 40 (15.1%) and undecided with a mean value of 2.65 about the statement "improved

standard of living due to multiplier effect" (Table 2). This result is may be because the handicraft sector has, low income level and suffered due to its being unorganized, with the additional constraints of lack of education, low capital, and poor exposure to new technologies, absence of market opportunities, and a poor institutional framework (Richard, 2007).

5.2 Socio-Cultural Roles

Table 3: Socio-Cultural Roles (factors)

Items	SD	D	U	A	SA	Mean
Handicraft enhance entrepreneurial skill	2(0.8%)	8(3%)	33(12.5%)	147(55.5%)	75(28.3%)	4.07
Handicraft business can improve infrastructural development	12(4.5%)	39(14.7%)	5(1.9%)	159(60%)	50(18.9%)	3.74
Encourage cross-cultural exchange	5(1.9%)	12(4.5%)	56(21.1%)	104(39.2%)	88(33.2%)	3.97
Reinforces a sense of pride	60(22.6%)	44(18.5%)	4(1.5%)	84(31.7%)	68(25.7%)	3.19
Handicrafts encourage indigenous peoples' self-determination	40(15.1%)	68(25.7%)	13(4.9%)	83(31.3%)	61(23%)	3.21
Handicrafts help local communities to accompany different cultural activities	1(0.4%)	7(2.6%)	12(4.5%)	94(35.5%)	151(57%)	4.46
Maintaining traditional values	19(7.2%)	41(15.5%)	10(3.8%)	132(49.8%)	63(23.8%)	3.68

222 (83.8%) of respondents agreed or strongly agreed, only 10(3.8%) disagreed or strongly disagreed that: "handicraft business enhance craft makers entrepreneurial skill" with a mean value of 4.07 (Table 3). The result shows that majority of the respondents were agreed with the statement that handicraft business enhance craft makers entrepreneurial skill. This is because the skills of craft production are, in many cases, possessed by the poor as well as other socially disadvantaged groups (Richard, 2007). It implies that the craft industry can provide more job opportunities for them if they conduct craft products development (Upadhyay, 2020). Therefore successful craft products development is a big opportunity

to attract tourists` purchases and the subsequent pro-poor growth at cultural tourism destinations in less developed countries.

About two third, 209 (78.9%), of respondents agreed or strongly agreed, and 51(19.2%) disagree and strongly disagree that: "handicraft business can improve infrastructural development" with the mean value of 3.74 (Table 3). The result pointed out that handicraft business can improve infrastructural development. These improvements may be in form of support traditional culture in terms of preservation, maintenance, and also promotion of traditional handicraft, and to promote local cultures and industries and to find new development directions in this context (Dan Lin, Shiang Li, 2010).

About two third, 192 (72.4%), of respondents agreed or strongly agreed, and only 17(6.4%) disagree and strongly disagree that: "encourage cross-cultural exchange" with the mean value of 3.97, and another 56 (21.1%) of respondents were undecided about it (Table 3). The result shows that handcraft production encourage cross-cultural exchange. Handicrafts are unique expressions of a particular culture or community through local craftsmanship and materials. For example among the handicraft souvenir items purchased by foreign tourists in the study area were local craft, postcards, fine art, pottery, woodcarvings and figurines, baskets, blankets, clothing, fabrics (Richard, 2007). With increased globalization, however, products are becoming more and more commoditized and artisans find their products competing with goods from all over the world (Rogerson, 2000). It is no longer possible to look at traditional artisan communities and their products in isolation from global market trends and competition.

About more than half 152 (57.4%), of respondents agreed or strongly agreed, and 104(41.1%) disagree and strongly disagree that: "reinforces a sense of pride" with the mean value of 3.19 (Table 3). The assumption in this subsection is that low pride and dissatisfaction of respondents to craft product development devalue pro-poor tourism growth.

About more than half 144 (54.3%), of respondents agreed or strongly agreed, and 108(40.8%) disagree and strongly disagree that: "handicrafts encourage indigenous peoples' self-determination" with the mean value of 3.21 (Table 3). This result shows over half of the respondents agreed about handicrafts encourage indigenous people self-determination. These handicrafts are those produced by artisans, completely by hand or with the help of hand-tools and even mechanical means, as long as the direct manual contribution of the artisan remains the most substantial component of the finished product (Rogerson, 2000). These utilitarian, aesthetic, artistic, creative, culturally attached, decorative, functional, traditional, and religiously and socially symbolic and significant craft products can encourage people self-determination.

The majority 245 (92.5%), of respondents agreed or strongly agreed, and only 8(3%) disagree and strongly disagree that: "handicrafts help local communities to accompany different cultural activities" with the mean value of 4.46 (Table 3). For example artisans no longer see their work as only a means to feed themselves and family but as an artistic expression. Some of the members are now being hired as trainers by local NGOs involved with rural project development. Handicraft products tourism is a persuasive catalyst to develop tourism even at the difficult time and perform as a champion for the development of a vibrant tourism sector which contributes to sustainable economic growth, job creation, poverty alleviation, and protection of the natural and cultural heritage (Upadhyay, 2020).

The majority 195 (73.6%), of respondents agreed or strongly agreed, and 60(22.7%) disagree and strongly disagree that: "maintaining traditional values" with the mean value of 3.68 (Table 3). The result shows handicraft maintaining traditional value, similar result was reported in Nepal that cultural importance of handicraft s leads to the preservation of the heritage, traditional skills and the art, and indigenous handicraft s can be used in tourism for demonstration of cultural prosperity, indigenous technology, cultural renovation and identity based indigenous culture and history (Rogerson, 2000, Upadhyay, 2020).

Impediments Affecting the Involvement of Local Community in Handicraft

Table 4: factors affecting involvement of local community in handicraft business (n=265)

Items	SD	D	U	A	SA	Mean
Lack of handicraft skills	11(4.2%)	33(12.5%)	35(13.2%)	117(44.2%)	69(26 %)	3.75
Negative perception of local communities	22(8.3%)	45(17%)	29(10.9%)	98(37%)	71(26.8%)	3.57
Absence of institutional structure	11(4.5%)	28(10.6%)	22(8.3%)	123(46%)	81(30.6%)	3.89
Inadequate capital	6(2.3%)	21(7.9%)	20(7.5%)	120(45.3%)	98(37%)	4.07
Inaccessible location	6(2.3%)	13(4.9%)	10(3.8%)	125(47.2%)	111(41.9%)	4.22
Insufficient productivity	14(5.3%)	30(11.3%)	35(13.2%)	130(49.1%)	56(21.1%)	3.70
Low product quality	18(6.8%)	34(12.8%)	30(11.3%)	122(46%)	61(23%)	3.65
Shortage of raw material	8(3%)	38(14.3%)	15(5.7%)	130(49.1%)	74(27.9%)	3.84
Lack of credit facilities	4(1.5%)	12(4.5%)	16(6%)	140(52.8%)	93(35.1%)	4.15
Weak return	11(4.2%)	41(15.5%)	17(6.4%)	101(37.8%)	95(35.8%)	3.86
costly Raw materials	8(3%)	38(14.3%)	33(12.5%)	102(38.5%)	84(31.7%)	3.81
Lack of infrastructure	10(3.8%)	27(10.2%)	38(14.3%)	105(39.6%)	85(32.1%)	3.86
Competition	13(4.9%)	34(12.8%)	31(11.7%)	104(39.2%)	83(31.3%)	3.80

About two third, 186 (70.2%), of respondents agreed or strongly agreed, and only 44(16.7%) disagree and

strongly disagree that: "lack of adequate handicraft skills" with the mean value of 3.75, and another 35 (13.2%) of respondents were undecided about it (Table 4). The result shows lack of adequate handicrafts skills were also major challenges. Many crafts require the entire household to participate in production in some capacity. This kind of challenging constraint in preserving craft tradition as low level of education makes it difficult for artisan to access various government schemes, obtain market information, bargain with middlemen/traders and manage business properly, thus making them uncompetitive (Hosseinnia & Shoja, 2017).

About more than half 169 (63.8%), of respondents agreed or strongly agreed, and 67(25.3%) disagree and strongly disagree that: "negative perception of local communities for a person who engaged in handicraft activities" with the mean value of 3.57 (Table 4). The result shows there are a negative perception of local communities for a person who engaged in handicraft activities. Though, excessive craft products development and the following dissatisfaction with products may reduce their pride and confidence, in many different developing countries craft products development is an important trigger for the poor to gain pride and confidence (Peach, 2007, Hiroyuki, undated).

About more than half 204 (76.6%), of respondents agreed or strongly agreed, and 39(15.1%) disagree and strongly disagree that: "absence of institutional structure that encourage handicraft activity" with the mean value of 3.89 (Table 4). The result shows absence of institutional structure that encourages handicraft activity were a major challenge in the study areas. If the institutional structure available crafts person may have access to credit service, working place, and sale sites those are mentioned as a major challenge for artisans (Hosseinnia & Shoja, 2017).

The majority 218 (82.3%), of respondents agreed or strongly agreed, and only 27(10.2%) disagree and strongly disagree that: "inadequate capital for investment in production process handicraft" with the mean value of 4.07 (Table 4). Many craftsmen belong to poor families and due to lack of financial resources, they face problems continuously. Although several artisans could succeed to manage their shops, in order to meet the market demands, they cannot expand business and their hands are tied due to financial constraints (Benson, 2014). Moreover, it is difficult for artisans to get loans from local banks as they cannot guarantee repayment. Even, if the artisans managed to get loans, their profit margin is very low to cover the interest rates. Benson (2014) added that lack of financial resources to be among the constraints hindering the benefits derived from handicraft production and sales to be reflected in community livelihoods.

The majority 236 (89.1%), of respondents agreed or strongly agreed, and 19(7.2%) disagree and strongly disagree that: "inaccessible location of handicraft business" with the mean value of 4.22 (Table 4). This result shows that inaccessible location of handicraft business was the critical challenges for artisans in

the study areas. The inaccessible location of handicraft business may affect both productivities and sales (Yesuneh, 2018).

About two third, 186 (70.2%), of respondents agreed or strongly agreed, and 44(16.6%) disagree and strongly disagree that: "insufficient productivity of handicraft" with the mean value of 3.70, and another 35 (13.2%) of respondents were undecided about it (Table 4). The result shows insufficient productivities of handicrafts. Therefore craft producers traders are striving to meet customers' demand and they strive to preserve cultural heritage of a given society but continuing selling for local and international market (Benson, 2014). Limited and/or only traditional product range due to lack of innovation and new designs; producers are dispersed and not well-organized leading to less continuous, slow and unsure supply (Hosseinnia & Shoja, 2017).

About more than half 183 (69%), of respondents agreed or strongly agreed, and 52 (19.6%) disagree and strongly disagree that: "low product quality to meet customers' expectations" with the mean value of 3.65 (Table 4). The result shows low product quality to meet customers' expectation. This is because; producers are not able to invest in machinery/equipment to raise the quality of their products (Markwick, 2001). Low product quality due to low skills or missing knowledge about tourist expectations (Benson, 2014).

About more than half, 204 (77%), of respondents agreed or strongly agreed, and 46 (37.3%) disagree and strongly disagree that: "shortage of raw material for handicraft production" with the mean value of 3.84 (Table 4). The result pointed out that shortage of raw materials for handicraft production was another challenge in the study area. Raw material and other inputs are not available or only available at certain times (Kassahun, 2018).

The majority 233 (87.9%), of respondents agreed or strongly agreed, and only 16(6%) disagree and strongly disagree that: "lack of aid/credit facilities" with the mean value of 4.15 (Table 4). The result shows lack of aid/credit facility were the major challenged. In craft industry, shortage of resources is a result of inadequate of international support organization, highly dependency on international aid, and poor support from government (Alemayehu, 2002). Moreover, craft producers suffer greatly from lack of working capital and access to credit and loan facilities (Benson, 2014). In many developing countries banks cite poor recovery rates, wrong utilization of funds, lack of marketing facilities for finished products and lack of education on part of the borrowers as reason for the low proportion of loans made to artisans. Lack of financial support from both private and public agencies to those involved in the industry is regarded to be another main challenge hindering the growth of curios industry not only in Ethiopia but also in the world at large (Russouw 2002).

The majority 196 (73.9%), of respondents agreed or strongly agreed, and 52(19.7%) disagree and

strongly disagree that: "weak return of the handicraft business" with the mean value of 3.86 (Table 5). Because of this weak return of the handicraft business the young generation finds it difficult to undergo complex and time-consuming process of handicraft production, hence they generally do not intend to choose this profession, instead, they prefer to work in factories with less demanding work with higher salary (Yang, et al., 2018).

About more than half 186 (70.2%), of respondents agreed or strongly agreed, and 46(47.3%) disagree and strongly disagree that: "raw materials are too costly" with the mean value of 3.81 (Table 4). The result shows that the costs of raw materials were too costly. The industry is characterized with high level of competition due to increase or change of the global tariffs and trade conditions (Benson, 2014). Artisans often lack access to raw materials. Due to the low volumes required, they have low bargaining power and are forced by sub-standard materials at a higher price (Kassahun, 2018). Therefore, local producers find it difficult to compete with imported products in terms of price.

The majority 190 (92.5%), of respondents agreed or strongly agreed, and only 37(14%) disagree and strongly disagree that: "lack of infrastructural facilities" with the mean value of 3.86 (Table 4). The one of main obstacle for handicraft entrepreneurs in rural areas is the lack of availability of basic infrastructure. Most of the artisan belongs to rural areas with least availability of infrastructure. The rural artisans find difficulties in accessing various types of raw materials as most of the raw materials for handicrafts come from larger cities. Due to worst condition of roads not only artisan face difficulties to obtain raw materials, but it also increases the cost of production (Yang, et al, 2018).

The majority 187 (70.5%), of respondents agreed or strongly agreed, and 47 (17.7%) disagree and strongly disagree that: "competition with latest machine made products of large industries" with the mean value of 3.80 (Table 4). This was the major challenge to the local handcrafts persons. Artisans may also lack the financial capability to upgrade technology in production or undergo necessary training on a regular basis, as would be available to them in a formal work setting. This compromises that quality of their products and raises the cost of the production (Peach, 2007). The recent development of local industries and importation of consumer goods, handicraft products have started to replace industrial products because industrial products are practical, fashionable, lighter and often less expensive (Ellene, et al., 2003). Currently handicrafts are replaced by mass-produced items. Consequently, the handmade products are diminishing very fast and the traditional crafts face stiff competition in the markets, as mass-produced items are cheaper and the sellers have higher production capacity with strong logistical support (Ellene, et al., 2003).

6. Conclusion and Recommendation

6.1. Conclusion

The finding confirmed that handicraft business enhance craft makers entrepreneurial skill, improve infrastructural development, encourage cross-cultural exchange, encourage indigenous peoples' self-determination, help local communities to accompany different cultural activities and maintaining traditional values. The handicraft sector has, however, suffered due to constraints such as lack of adequate handicraft skills, negative perception of local communities for a person who engaged in handicraft activities, absence of institutional structure that encourage handicraft activity, inadequate capital for investment in production process of handicraft, inaccessible location of handicraft business, low product quality to meet customers' expectations, weak return of the handicraft business, lack of infrastructural facilities and competition with latest machine made products of large industries.

6.2. Recommendation

To overcome the challenges such as lack of adequate handicraft skills, absence of institutional structure that encourage handicraft activity, inadequate capital for investment in production process handicraft, inaccessible location of handicraft business, low product quality to meet customers' expectations, lack of infrastructural facilities and competition with latest machine made products of large industries the national government sectors such as investment bureau, city of municipalities office, cooperation office and ministry of culture and tourism shall work collaboratively.

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Determinants of Urban Land Lease Price Escalation: The Case of Gondar City, Ethiopia

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Abstract

This research was framed in identifying the most pressing variables responsible for the escalation in the land lease price in Gondar city. The research was conducted with the application of mixed research approaches. Both primary and secondary data types were employed. These data types were collected using structured questionnaires supplemented with key informant interviews. The secondary data were collected referring to office reports and documents. The data collected employing different instruments were analyzed using both descriptive statistics and econometrics method of analysis to elaborate the trend of escalation in the lease price and identify the most powerful variables liable for the escalation in the lease process. The research result revealed that there is high price variation in the land lease price over time because of the high demand for houses for living and commercial purposes. There is high level of urbanization resulting in high demand for housing. This results in escalation of the land lease price through increasing the applicants in the lease process. The most important variables that results in the increment of the land lease prices identified from the logistic regression model are the educational level, the land grade and use, the access to roads, site/location, brokers, the prevailing land policy in the country, land scape and safety. All these variables were found significant to influence the land lease price in the study area.

Keywords: Escalation, Housing, Land Lease Price, Lease, Logistic Regression

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1. INTRODUCTION

Land is an essential part of our life support system. It is the key building block of our societies and economies. Land provides all species with the means to survive and thrive and has been a resilient provider of vital goods and services (Roser et al 2018).

Land stands at the center of human culture and institutions and is required in the production of all goods and services. People desire to own land for a variety of reasons - economic or emotional. Land's uniqueness bases on its fixed supply and immobility, which requires allocating for a different purpose. The decision to allocate land among different uses is made through the market place by demanding and supplying land.

The changes in the supply of developed land affect housing prices and housing output. The shortage of urban land will raise metropolitan housing price (Peng R., and Wheaton C. W., 1994). The land sales prevent developers from getting the land they need to complete desired housing production. As construction slows, the stock of housing fails to keep pace with demand, raising prices.

Under the market economy, land prices are usually pushed up by natural and socioeconomic environment, public service, and market demand, while weak land market and poor regional development often lead to lower land prices (Bryan & Sarte; 2012; Hu et al., 2013). At the global level, studies suggested that the international environment, national policies, and social and economic development cause land price variations (Byun, 2005; Atack & Margo, 1998); whereas, transportation (Cervero & Kang, 2011, Yang et al 2019), community environment like urban wetland (Du & Huang, 2018), and land speculation have been as core factors at the local level; (Glaesener & Caruso, 2015; Kim et al., 2019; Zhang et al 2013).

Some other scholars identified different factors for the variation of urban land price. The surrounding plots and the natural and built environment (Glumac et al., 2019); differences in landscape, urban economic, special landmarks and natural environment (Parrinello & Vaughan, 2002 stated Hu, S. eta al., 2012); trends of changing land use (Lv et al., 2007 stated Hu, S. eta al., 2012); floor area ratio, distance to CBD and distance to lake for residential land price (Hu et al., 2016); accessibility for existing and new users of the urban transport network (Mulley, 2014); locational attributes that are in high demand, yet locally scarce (Nilsson, 2014); environmental amenities (parks and waterscapes) with improvements in the quality of transportation and commercial services in areas (Qu S., 2020); older part of the city or city center (McMillen, 2003); as a complex array of factors influencing land prices.

In Ethiopia, Land is a common property of the nations, nationalities, and peoples of Ethiopia and shall not be subject to sale or other means of exchange" (FDRE, 1995, article 40). The government has introduced a lease holding land tenure system by Urban Land Lease Proclamation No.80/1993, 271/2002, and finally 721/2011. Accordingly, land will be allocated through lease system with use right for a defined period but ultimate ownership and rights of re-possession retained by the State (Takele Necha, 2014). According to Proclamation 721/2011, urban land will transfer to the land holder through a lease contract of either tendering (reflect the prevailing transaction value of land (art. 4(3)) or allotment (art. 7(2)). For tendering, the lease benchmark price set based on the infrastructural development and compensation costs for demolished property and other factors.

All parties who receive urban land by tender or allotment are expected to pay at least ten percent of the initial lease price set by a particular city administration (Achamyeleh Gashu, 2020). Land lease price

varies in land uses; for instance, in Addis Ababa, it is high for businesses and apartments; less costly for real estate and residential; and moderate in the industry (Bacry Y. et al, 2009). The basic pressures towards higher urban land values are derived from the increasing demands of a rapidly growing urban population, which are accentuated with lengthy and costly processes of transfer of land and the establishment of titles that bear particularly heavily on the supply of small plots for low-income groups.

This research aimed on the assessment and identification of urban land lease price escalation in Gondar town conducted in 2020. It was conducted with the application of econometrics models targeting on the identification of the most pressing explanatory variables boosting the land lease price. In line with this model, descriptive statistics was employed to portray the prevailing demand for land and the trend of price changes.

2. Research Methodology

Study Area Description

Gonder city is located in the northern part of Ethiopia in Amhara National Regional State at a distance of 747 km from Addis Ababa and 170km from the Regional capital Bahirdar. Its absolute location is 12º45'North latitude and 37º45' East longitude.

The establishment of the city of Gondar in 1636 as the permanent capital in the history of the country after Axum was believed to be an event that marked an important break with tradition (John Markakis, 1974).

Gondar is one of the reformed cities in the region and has a city administration, city service office, 12 sub-cities, 12 urban kebeles, and 10 rural kebeles. The city has a structural plan which was prepared in 2004. According to the CSA projection, currently the town is the home of 500,788, of whom 300,000 were men and 200,788 women.

The area of Gonder city is 5,560 ha and it is a linear shape developed along the roads. Its altitude is 2200m above sea level; mean annual temperature of 20ºC; mean annual rainfall of 1172 mm. The principal natural constraints for the physical expansion of the town are the sloppy land and the manmade constraint is that most of the land in the town is occupied by historical area or heritage that hinders its expansion.

Research Design

The paradigm or the research methods that research essentially followed a mixed approach i.e. both qualitative and quantitative research approaches. The use of these methods facilitates the validation of data through triangulation, which enables us to look at things from more than one perspective. The main principle objective of using this method is that the researcher can get a better understanding of the thing that is being investigated. It also avoids bias and error of data and sampling.

Sample Design

Urban land price is highly affecting the landless/homeless/. To achieve these objectives, the researcher approaches permanent resident as the universe. Urban dwellers in the study area were considered as target populations. Whereas, individuals who intended and participated in the urban land lease holding systems and officials were taken as the sample frames.

Sample Size and Sampling Technique

The researchers gone to the concerned offices purposely since data will be available in the offices. At the same time, the researchers approached the key informants with purposely selected potential officials and experts. Beyond that individuals expected to have an engagement with the land market and lease-related issues were considered for getting reliable data then to reach incredible results. From a total of population of 2374 who engaged in the lease process in the bid year of 2019/20, about 269 sample respondents were considered.

Type and Source of Data

The research is framed in a way addresses the intended objective of the study via getting appropriate data from the concerned organizations and respondents. Participants in urban land-lease, concerned offices, and organizations/parties were identified with their proximity and nearness of them to the subject matter. Accordingly, municipal offices and urban land development and land supply offices of Gondar city were approached to get the data on the research objective.

In the process of the research, for the sake of getting accurate results for the predetermined objectives, both primary and secondary types of data were collected from different sources.

Primary data was collected through the development of structural questionnaires and distributed to the sample respondents in the study area. Besides, these questionnaires, for the sake of triangulation, key informant interviews were held with different individuals and organizations representatives, and experts expected to have detailed information on the issue under investigation.

Secondary data about the objectives and concerns of the issue has been collected from different sources like document analysis (archive analysis), office reports, books, and journal articles. This was possible with the help of the internet and different organizational communications. Previously recorded data at the office level in connection with lease price (bid prices) was reviewed.

Method of Data Analysis

After collecting the data via different techniques, researchers were employed different techniques to analyze the data obtained and reaching on conclusion. The researchers analyzed the data gathered using qualitatively and quantitatively depending on the objective and nature of the data. Descriptive statistics methods of analysis like tabular presentations, percentage comparisons, graphical justifications, and different chart presentations and others were applied to portray the prevailing lease price changes and the demand for housing. This descriptive method of analysis was supported by econometric models targeting the identification of the most significant variables responsible for the increments in land lease prices.

The Econometric Model

The response variable, the land lease price change is discrete in in its nature. Since the researchers failed to find time series data from office reports over time, researchers preferred to level whether there land lease price is changing or not since the commencement of the lease process. Hence, binary logistic regression model was employed to determine the variables proposed to influence the response variable.

The Dependent Variable: Lease Price Changes (LPC)

The dependent variable is simply the land lease price changes where land right is transferred from the government to the individuals to build residential houses and businesses. The respondents were asked the question of the lease price (Not changing= 0 and Changing =1) trends comparing with the previous lease periods.

Explanatory (independent) Variables

The researchers, referring to different articles and from theories, identified the following explanatory variables assumed as causing increment in lease price of land.

Sex (Se.): dummy variable for being male/female.

Level of education (Le.): a string variable for the level of education of the participants.

Income (In.): continuous variable representing the annual income that the respondent involving in the lease.

Frequency (Fr.): a continuous variable representing the number of years that the individual has been engaged with similar bids.

Age (Ag.): Continuous variable that represents the age of the person under consideration in the data collection.

Site (St.): this variable is a dummy variable representing the site where the land for the lease is located. Some sites can be leveled as good and bad among the community.

Policy (Po.): the role and the kind of policy about this bid matters. It is a dummy variable that could be conducive/not good.

Access to roads (Ra.): a dummy variable whether the site of the land posted for bid is accessible to different road infrastructures or not.

Land-use type (Lu.): the choice of the land for residential, business or other.

Land grade (Lg.): is a string variable that will be looked through its nature like the slope of the land and required amount for leveling the land surface.

Topography (To.): The nature of the land. The landscape of the town categorized as flattened and sloppy.

Brokers (Br.): The agents' involvement in the process. It is a dummy representing the degree of involvement in the land lease bid process.

Safety (St.): This is particularly concerned whether the area where located is relatively safe/secured or not.

Having the dependent variable to be regressed against the explanatory variables, the following logistic regression model was developed.

$Pi = ezi/(1+ezi)$…….……...….1.

Where $\beta 0$ is the intercept and βi is the slope parameters to be estimated in the model. The slope tells how the equation tells us their impact on the dependent variable as the independent variables change.

Mathematically re-arranging the above equation, we can have the following model:

$$LPC = \beta 0 + \beta 1Se + \beta 2Ag + \beta 3Ed + \beta 4In + \beta 5Fr + \beta 6Lu + \beta 7Lg + \beta 8Br + \beta 9To + \beta 10Ra + \beta 11Sf + \beta 12St + \beta 13 + \varepsilon i \ldots\ldots\ldots 2$$

Where Lp is the dependent variable to be regressed against the Xi number of explanatory variable.

3. Result and Discussion

This part of the research present the data obtained from both primary and secondary sources pertaining to the trend of land lease price escalation across lease bid periods and the potential factors responsible for the escalation.

Trends of Land Lease Price Escalation

Land is one of the factors of production where the lives of human beings are highly associated. In urban areas, people invest on land to build residential houses, commercial and business oriented objectives and for both residential and commercial centers. This land, owned by the government in Ethiopia, is transferred to land owners through allotment and lease offers.

The city administration where the study is conducted has a call for land lease bids to transfer lands to individuals for residential, commercial and mixed business purposes through bids every year since 2014. Though the lease proclamation was appraised in 2014, the bid process of transferring land through lease was started in 2014 in the country; reliable data was obtained since 2016. Taking these data in to account, researchers tried to show the trend of price move for land as follows.

Table 1: The trend of land lease price changes over time since 2016

Bid year		2016	2017	2018	2019	2020
		Land lease price in Birr				
Grade1	Residential	9915	10006			9455.75
	Commercial	2358.75	8600.5	5742.13	8148.5	1260.5
Grade2	Residential	5755.88	9225	10342	9657.5	17050
Grade3	Residential	3556.39	4075	5858.5	9762.5	14756

Source: Gondar city Municipality Office, 2020

The city administration places lands to be transferred through lease for residential, commercial and mixed (residential and commercial) purposes. As can be seen from the above table [table 1], the city administration has lands having three standards available for the stated purposes. But the participants engaged in the lease process prefer the land for residential and commercial purposes. They have less preference to own lands for mixed purposes. This implies the demand for land by the residents inclined to investing on residential and commercial purposes. This is because of the increasing urbanization coupled with high urban residents in need of housing and making money through trading and renting the commercial houses. The following graph explains the trend of price change across bid periods for different land grades.

Figure 1: Trend of Lease Price Change

Source: Computed from Gondar city municipality report, 2020

The above figure [figure 1] best explains how the land lease price is changing. As can be observed from the figure, the price for land per hectare for grade one land type is greater than grade two and grade three depicted by the graph positioning above the two land grades. With the same fashion, in terms of grades, grade two costs more than that of grade three. The possible justification for this is that households are rational and pays high price for the land with high/better standards. The grading is given refereeing the quality, accessibility to facilities and proximity of the land to the center of the town.

When we see the change in the lease price of the land for each land rankings, it is escalating over time. The reason behind this escalation is most likely the huge gap between the alarming urbanization triggering people to migrate to urban areas. These people who are migrating to urban areas are highly in need of houses for living and commercial centers for making business. As per the source from the housing agency (2020) in city administration, currently, there are about 74,333 houses available both for residential and commercial purposes.

Table 2: The current status of house availability in the city administration

Types of houses available in different categories	Houses in number
Private houses	32290
Illegally constructed houses	13000
Condominium	3346
Cooperatives	4756
Houses owned by city administration	10409
Houses built by government and the people	431
Houses constructed for low income households	1142
Houses administered by housing development agency	900
Houses built by real estate developers	230
Mixed purpose houses (residential and commercial together)	7829
Total	74,333

Source: Gondar city housing development agency, 2020.

Given the above number of houses, the total population living in the city administration demanding houses for varieties of purposes based on the 2019 national census conducted by the Central Statistical Agency of Ethiopia (CSA), Gondar had a total population of 500,788, of whom 300,000 were men and 200,788 women. The total household demanding houses for living is 100,157 but the available houses in the city for living legally constructed are about 53,504. This implies there are nearly 46,653 households out of residential houses. There is also a huge gap between the houses used for commercial purposes and the demand for commercial houses.

In conclusion, there is a huge gap between the supply of houses for residential and commercial businesses and the number of households demanding housing. This insists the households to own lands for building houses for the stated purposes through paying high prices for leases.

Analysis of Determinants of Lease Price Escalation

It is confirmed from the secondary data above [table, 1] that the land lease price for all land grades to be used for residential and commercial purposes is escalating. Similarly, the respondents assured that the lease price is mounting overtime. From this one can conclude that the lease land price is escalating in the study area revealed from the secondary data and the respondent's judgment. The following regression result table presents the potential factors responsible for the escalation in the land lease price.

Table 2: Determinants of land lease price escalation

Lease Price Change (LPC)	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Sex (Se.)	1.122871	.4706322	0.28	0.782	.4938141	2.553268
Age (Ag.)	1.326803	.2400239	1.56	0.118	.930724	1.891439
Education (Ed.)	1.527281	.2926596	2.21	0.027	1.049085	2.22345
Income (In.)	.7954006	.1664336	-1.09	0.274	.5278083	1.198659
Frequency (Fr.)	.7886251	.1612666	-1.16	0.246	.5282113	1.177426
Land use (Lu.)	1.710018	.4856688	1.89	0.059	.9800484	2.98369
Land grade (Lg.)	.4672962	.0988162	-3.60	0.000	.3087408	.7072786
Brokers (Br.)	1.925454	.643662	1.96	0.050	.9999636	3.707509
Topography (To.)	2.814828	.8956477	3.25	0.001	1.50872	5.25164
Access to roads (Ra.)	3.754975	1.305528	3.81	0.000	1.899598	7.422538
Safety (Sf.)	3.118102	1.04482	3.39	0.001	1.616843	6.013297
Site (St.)	.3958099	.1310662	-2.80	0.005	.2068353	.7574407
Policy (Po.)	.2555884	.1992186	-1.75	0.080	.0554717	1.177635
_cons	.0242108	.0451464	-2.00	0.046	.0006263	.9359774

Source: Computed from data surveyed, 2020

The above regression result table [table 2] presents the variables supposed to influence the land lease price. Given the land lease price change as a dependent variable explained by thirteen explanatory

variables, the regression result revealed that nine variables are highly significant to affect the land lease price in the study area.

From the expected explanatory variables having significant effect on the response variable [land lease price change] significant at 10% levels of significance are:

Education: through education, people can have the access to information, knowhow and make analysis on the cost-benefit analysis for some specified objectives. It can enable individuals to make a kind of predictions on the basis of past and present scenarios for tomorrow. Hence, households with better educational background can make decisions while participating in the land market. Since the trend of land price and the value attached is getting higher, these households with educational background decide to pay high lease price for having stable life through building residential/commercial houses. The other rational behind these payments is because people with better awareness can understand the value and benefits of owning land. This is because of the fact that with no change in the policy and other aspects, the land price is increasing at present which insists these participants to pay high lease price relative to the illiterates.

Land Use: The lands available to handover to the residents through lease are for residential and commercial purposes. Taking residential land as a base category, relative to the commercial purpose, the land for residential purpose receives higher price/ value. This is because of the fact that the plot size available for commercial purpose is higher making it unaffordable by the majority of the participants in the one hand and people from their rational nature prefers to have residential houses than commercial purposes. In other words the demand for the land available for residential purpose is greater than that of the commercial one encouraging the payment of high price for it. The other possible justification is most of the participants in the lease process are employees of organizations who have the interest of having residential houses than commercial centers to lead stable way of life. All these reasons insist participants to pay high price of residential purposes.

Land Grade: the municipality responsible for bid announcement gives grades for the land available for lease completion taking the accessibility and topography/location of the land in to account. Accordingly, in the city administration, the land has been grouped in to three grades [grade one, grade two and grade three]. At the time of the announcement, these grades are attached with it. Households know the status of the land under tender. Hence, these participants offer high price for the land with better grades assuming that after owning the land, there will be reduction of costs related to constructing the house and having the access to different infrastructures.

Brokers/agents: the land market in the country in general and the town in particular is experienced and known by the high engagement and involvement of dealers acting as mediators among the participants of the land lease process. Both the beaurocracy at office level and the land lease applicants are highly influenced by these dealers making the whole system biased and corrupted. The land market is vastly influenced and run by the agents. These agents fuel the already escalating lease price through disseminating biased information in the one hand and asking the applicants to pay high price including the income to be paid for illegal purposes. These applicants pay high price because of the poor land market system in the one hand and the misleading of the information on the other hand.

Topography: naturally, the town Gondar where the study was conducted is full of ups and downs topographically. The land available for lease bid located in hails/sloppy and mountainous areas requires

high cost for land development for constructions and accessing it to different infrastructures relative to the land located in leveled/flattened areas. Hence, people pay high price for the land located in flattened sites in the expectation of reduced cost of land development and preparation at time of constructions and having the access to infrastructures like water and road easily. It is difficult and costly for the deformed land features to make them accessible to different social overheads for lives. Henceforth, the price proposed is less relative to the less sloppy land sites.

Access to Roads: the other parameter found significant in influencing the land lease price as per the judgment of the participants is the accessibility of the site to roads. The participants are going to evaluate the land site whether it is accessible to roads or not. This is because of the fact that road is the basic infrastructure required for transporting construction materials to the site and the means to connect to other infrastructures like health and education centers required for survival. Hence, participants offer high bid price for those sites relatively better in terms of road accesses. The trend of constructing road in particular and others in general is experienced by lack of finance and commitment to make newly established sites on time. So that people prefer to win land sites with road access with the payment of high lease prices. This is because of the assumption to be benefited from all the fruits of roads and reduce costs related to road. These finally initiate the applicants to fill higher bid values for the site with road access.

Safety: this is a variable correlated with security matters. People give greater attention for security issues and as much as possible try to live in places relatively safe. Since they are going to make huge investment and lead their remaining life, the participants in the lease process attempted to win the land located in areas supposed as free from a kind of crime/robbery. There are areas known by the community that are highly prone to robbery. Hence, most of the time, these areas are not preferred for living. These sites receive less lease price as compared to those locations assumed as safe and secured.

Site: the location where the land under bid competition situated matters for having higher/lower bid values. Applicants prefer to win a land located around infrastructures and nearer to the center of the town through paying higher level of lease prices.

Policy: according to the constitution, in the country in general and the study area in particulars, land is totally the property owned by the government and no selling is permitted. Transferring of land through selling is totally unacceptable and illegal. The only means of owning land is either through allotment by the government or involving and winning the lease bid completion. These days, because of the high demand for land and the shortage of the land coupled with the interest of the government to get revenue, handover of land through allotment is getting tough. This implies, the lease scheme is getting the attention of the mass attracting huge amount of participants in the process. Lease seems the only option to own land in the eyes of the participants. The bid process is available once a years and having the income, other than waiting for a year, people triggered to win the land with the payment of high prices. The trend and ongoing happenings in the land market coupled with policy also the other rational behind the payment of high prices for land.

4. Conclusion

Since the beginning of the lease proclamation and implementation, there is escalation in the land lease price because of the alarming rate of urbanization. Urbanization fuels the land lease price through

increasing the number of participants in the land market. The high demand for housing and limited supply of land then houses worsens the problem.

The land lease bid process invites all groups of households irrespective of their difference in income, age and sex. These variables were insignificant because of the fact that the demand for land then for housing emanates from all groups of the community and these groups of the community engage in the process with no difference.

Educational level of the applicant, land use and grades, engagement of agents, the prevailing land policy of the country, topography and sites, access to roads and security matters were found to be powerful explanatory variables for the land lease price escalation.

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