



**School of commerce Department of Logistics and Supply Chain
Management**

The Effect of use of Rental Vehicles on Logistics Performance: Case of
GOAL Ethiopia

**A Thesis submitted to the Addis Ababa university school of
graduate studies in partial fulfilment of the requirement for Masters
of degree in Logistics and Supply Chain Management**

By: Emebet Zerihun
Advisor: TeklegiorgisAssefa (Asst.prof.)

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ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN
MANAGEMENT

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LOGISTICS PERFORMANCE:
The case of GOAL Ethiopia**

By: Emebet Zerihun

Approved by examining board

Advisor _____
Name

Signature

Internal examiner _____
Name

Signature

External examiner _____
Name

Signature

Declaration

I Emebet Zerihun declare that the thesis entitled “The Effects of Use of Rental Vehicle on Logistics Performance: the case of GOAL Ethiopia “is my original work. I have carried out the present study independently with the guidance and support of the research advisor TeklegiorgisAssefa (Assistant professor). Any other contributors or sources used for the study have been duly acknowledged. Moreover, this study has not been submitted for the award of any degree or diploma in this or any other Institution.

Emebet Zerihun

Signature

Date

Statement of Certification

This is to certify that Emebet Zerihun has carried out her research work entitled “The Effect of Use of Rental Vehicle on Logistics Performance “ for the partial fulfillment of Masters of Arts in logistics and supply management at Addis Ababa University School of Commerce. To the best of my knowledge, this study is original and is not submitted for any degree in this university or any other universities and is suitable for submission of masters of Arts in logistics and supply chain Management.

Confirmation by Advisor:

TeklegiorgisAssefa (Asst.prof.)

Name

Signature

Date

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List of Acronyms/Abbreviations

ChSA.....	Charity and sociality Agency
CIP.....	International Potato center project
Concern Ethiopia.....	International NGO
ECHO.....	(Donor) European Commission - Humanitarian Aid & Civil Protection
EU.....	European Union Donor
HRP.....	Humanitarian Response program
PRM.....	(Donor) Bureau of Population, Refugees, and Migration's
HQ	GOAL Head Quarter, Dublin
IAPF.....	Irish Aid Program Funding
IRC.....	International rescue committee (INGO)
IMC.....	International mercy corps (INGO)
INGOs.....	international non-governmental organizations
Mercy corps.....	INGOS
Merlin.....	INGOS
OFSP	Orange-fleshed sweet potato
RUDP.....	Rural and urban development program
Save the Children.....	INGOs
SNNR.....	Southern Nations Nationalities and Peoples Region
USAID.....	United States Agency for International Development (Donor)
UNOCHA.....	Donor (United Nations Office for the Coordination of Humanitarian Affairs)

ABSTRACT

Logistics performance is significant to apply in relief organization program due to emergency, uncertainty and unpredictability of situation. Transportation is a logistics function which enables to achieve fast delivery of material, person and other requirement to the needed place and time. Therefore logistics performance is critical in saving life and compliance of donor /standard stock holder requirement in humanitarian organization. Although extensive research has been conducted in the area of transportation and logistics performance evaluation. The same can't be said by directly relating to rental transportation service and its influence on logistics performance, especially in developing countries like Ethiopia. The purpose of this study is addressing the effect of the third party transportation service on logistics performance. In order to understand the study objective three goal developed and these only focused on identifying the significant variable associated with logistics performance in relation to rental vehicle, examine the relationship between use of rental vehicle and logistics performance and determine the effects of use of rental vehicle on logistics performance .The study was based on one of international humanitarian organization(GOAL Ethiopia).The research design employed in this study isdescriptive using quantitative research methods for data collection. Questionnaires which include 11 factors and 33 questions distributed to 110 respondents.The findings reveal that there is a relationship between use of rental vehicle and logistics performance, and between variables selected to measure quality of use of rental vehicle and logistics performance. The result indicates that among the variables satisfaction, cooperation, response time, safety/security and infrastructure have significant effect on logistics performance. More over the study finding can be useful for other institutions and researchers.

Key words: Logistics performance, Transportation service, rental vehicle

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the study

Logistics is defined by council of logistics management as the process of planning, implementing and controlling the efficient, effective flow and storage of goods, services and related information from point of origin to point of consumption for conforming to customer requirements. The integration of two or more logistics with in a network to create value, enhance efficiency and satisfy customers is called supply chain management(Debela, 2013).

Fritz institute defines Humanitarian Logistics as the processes and systems involved in mobilizing people, resources, skills and knowledge to help vulnerable people affected by natural disasters and complex emergencies. Humanitarian logistics encompasses a range of activities, including procurement, transport, tracking and tracing, customs clearance, local transportation, warehousing and last mile delivery.

Transportation is the movement of people, animals and goods from one location to another. Several modes of transport exist and which include air, rail, road, water, cable, pipeline and space. The field can be divided into infrastructure, vehicles and operations. Transport management can therefore be defined as the process of planning, implementing, and controlling procedures and activities for efficient and effective transportation (Stock & Lambert, 2001).

In humanitarian work time and place utility is the major expectation from logistics because it affects the life of human being. Transportation is the main function of logistics that create time and place utility. It is the leading activity to move material, people and other tangible items between different facilities in supply chain. Therefore, Transportation decision must be managed to meet customers due dates and other shipping requirements at a reasonable cost, time and place (Edward Frazelle 2002).

Famine occurs not because there is not enough food in the world, but because the food is not where it is needed. In April 2000, over 12.5 million people faced shortages of food and water in Ethiopia. A major humanitarian relief effort combined with the eventual delivery of food aid averted a crisis at that time, but the danger is far from over as the physical distribution process continues to face obstacles (Cottam, 2004).

The idea of outsourcing isolated logistics activities such as transportation to external services providers is not a new phenomenon but in today's business environment, outsourcing is one more approach that can lead to greater competitiveness (Bowersox, 1989) and competitive, reliable transportation enables manufacturers to manage their distribution system with lower inventory in fewer locations and with increased confidence (Wanke et.al. 2008).

Garland et al. (1994) provided a representative set of answers to the question "what is logistics performance?" as follows: sale growth, customer satisfaction, keeping promises, job security and working conditions, flexibility, cost-efficiency, on-time delivery, product availability, social responsibility, fair price for inputs, low loss and damage, and profitability. These are incorporated into various possible dimensions of performance in a single envelope to help highlight the numerous interdependencies and conflicts between the goals.

Ira Haavisto, (2014) in his study "performance in humanitarian supply chain" Stated that research on performance measurement in the humanitarian sector has by now been conducted by de Brito et al. (2007), Schulz and Heigh (2007), Beamon and Balcik(2008), and Blecken et al.(2009),among others. In all these studies, performance measurements were developed for emergency relief operations, not for longer-term program supply chains. More specifically, Beamon and Balcik (2008) suggested that performance in humanitarian settings be measured as output, resources and flexibility.

Accordingly this study has assessed the effect of use of rental vehicle on logistics performance and identifies factors which associate with logistics performance as well as use of rental vehicle.

1.2 Back Ground of targeted organization

GOAL is an international humanitarian organization operating in 15 countries of the world. GOAL has supported communities to recover from periods of drought, and its humanitarian Response team of experienced aid workers (nurses, nutritionists, logisticians, etc.), enables it to provide a quick response to emerging food shortages.

GOAL Mission Statement; GOAL works towards ensuring that the poorest and most vulnerable in our world and those affected by man-made and natural crises, have access to the fundamental needs and rights of life, including, but not limited to, food, water, shelter, medical attention and education. It is non-denominational, non-governmental and non-political.

GOAL registered by ChSA and has been implementing emergency, rehabilitation and development programs in Ethiopia since 1984. GOAL presently operates two programs: in Ethiopia;

1. Rural and Urban Development program (RUDP)
2. Humanitarian Response program (HRP)

1. The projects under RUDP programs-Irish Aid Program Funding (IAPF) are:

- RDP IAPF Intervention (Rural Development program), Health, WASH, Livelihood and Mainstreaming
- EU water Facility project (Contributing to the achievement of Water and Sanitation Access Millennium Development Goal's targets in rural vulnerable communities of SNNP and Oromiya Regions, Ethiopia)
- CIP/DONATA (Enhanced uptake and adoption of orange-fleshed sweet potato (OFSP) technologies in Ethiopia)
- CIP/USAID Better Potato for a Better Life -International Potato center project (CIP)
- Food Security Agriculture Response to Severe Drought in Ethiopia, Southern Nations Nationalities and Peoples Region (SNNPR)
- Disaster Risk Management - Root and Tuber Crops Response Intervention in SNNP Region
- UDP IAPF Intervention- (Child Empowerment and protection), HIV/AIDS and Mainstreaming
- Comic relief fund (Child SPACE program)

2. The projects under Humanitarian Response Program(HRPprojects) funded by USAID, UNOCHA, IAP, HRM, EU and other private donors are:

- Nutrition projects (Afar, Gambella, Oromiya, SNNP regions)
- Emergency Nutrition (Gambella and Berhale refugee camp)
- Nutrition projects through sub-grants to INGOs (IMC, IRC, Concern Ethiopia, Save the Children, Merlin, Mercy corps).

GOAL Ethiopia is handling a very large and complex emergency & development programs with annual budget over 13million EURO from more than 13 donors and directly managing operations in more than 23 disperse remote projects in Ethiopia. In GOAL, logistics is a huge support department for program activities that are the main organization's established projects like HIV, Street children,refuge, livelihood, Water and sanitation, health, HRP, Child right, gender, Refuge.

There is head office and field office division coordinated by logistics coordinator based in Addis Ababa. Most of the organization work lies on logistics activities. From logistics activities the lion share is given to transport section, transport is the main unit to manageGOAL own vehicle and rental vehicles. Currently GOAL has 62 different types of own vehicle (like Toyota long wheel base used for field work, minibus and one truck) however for most of its program and office use it uses rental vehicle. Therefore the source of vehicle for its work is both organization and contract vehicles transport. However starting selecting the capable supplier that feet to the organization intended purpose until delivering the required person, item and information to the needed place and time GOAL is facing many challenges.

GOAL performs tender process and signs a frame work contract with vehicle and Freight transport companies to perform its activities. Main client for GOAL are Omo, sofeumur and Tewodros for land cruiser, minibus, 30-90 quintal trucks, TewodrosTeffera,Zemen Cross boarder Freight transport, Yaried T/Maden and other for Freight transport.

Currently GOAL is covering most of its program activities with the support of rental vehicle more than the donor and the organization expectation. Based on 2015 data annual spent for vehicle rent is 1.5 million Euro. The rental vehicles used to nutrition survey assessment, transportation of food and other emergency stocks, Seed and water distribution, Field visit and procurement activities.

1.3. Statement of the problem

Kinyua observed that logistical delays were common and had an impact on humanitarian logistics performance (Kinyua, 2013) yet this study did not reflect either third party transport company's service has any effect on logistics performance.

Being an emerging field, there are no adequate empirical studies carried on humanitarian logistics. A good and more empirical researches need to be done in developing countries and by the researchers from these countries (Kovacs & Spens 2009).

Debela, conducted an assessment on Logistics Practices in Ethiopia and concluded that the density and quality of transport infrastructure is very low, 70 percent of rural population is not connected to all weather roads, and the freight vehicles are not adequate in number and age to meet the transport demand of the country (Debela, 2013); however, his study did not take into consideration the effect of use of rental cars on logistics performance.

Cottam et al, on their study on "Outsourcing of trucking activities by relief organizations" concluded that 89% of relief organizations in the survey outsourced their trucking activities yet the outcome was negative for the trucks were old, spare parts were not available and companies were not reliable (Cottam, 2004). However, the study did not address the influence of use of outsourced vehicles on logistics performance.

Kim and Singha, on their article, "WFP supply chain Capacity in Ethiopia", concluded that WFP is actively working towards increasing its supply chain capacity and efficiency of operations, to move forward to implement Google maps lead-time displays, defining metrics for transparency including key performance indicators (KPI's) and actively map programming, shipping and procurement process (Kim and Singha, 2010); however, their study did not show the effect of use of rental vehicle and Company on logistics performance.

Internal source from GOAL Ethiopia confirmed that their logistics performance is affected by rental vehicle service like delay in providing vehicle, no of days vehicle needed, peak season (when there is high demand of vehicle by other agency or tourist), behavior of drivers, technical fitness of vehicle, lack of information sharing and on time payment.

GOAL Ethiopia logistics data base and report i.e. (2013, 2014 and 2015) identifies, the number of vehicle delivery day vary from one month to another, there are vehicles which return from field due to technical and driver behavioral problem.

According to the above selected studies, reference and direction given by (Kovacs & Spens 2009) about the need of more research in developing countries by the researchers from the countries. It was recognized that there is a need for research which focus in use of rental vehicle on logistics performance in Ethiopia context. In Ethiopia there are tour and travel agencies which give rental transport service for organization which needs 4WD vehicle and truck (30 quintal, 50 quintal and 90 quintal). So most NGO, INGO and other agencies use this companies to satisfy the transportation demand, GOAL is one of the organization which use this service provider as source of vehicle. Even if there are researches done on third party transport and logistics performance, the result and scope of their study not cover the effect of use rental transport service on logistics performance, especially in relation to stated service provider. This study therefore aimed at assessing the effect of use of rental vehicles on logistics performance case of GOAL Ethiopia, 2015

1.4. Research question

- What is the status of logistics performance in GOAL Ethiopia?
- What are the factors associated with use of rental vehicle on logistics performance?
- What is the relation between use of rental vehicle and logistics performance?

1.5 Objectives of the study

1.5.1 General Objective

To assess the effect of use of rental vehicles on the logistics performance and its associated factors, case of Goal Ethiopia, 2015.

1.5.2 Specific objectives

- To determine the extent to which use of rental vehicles influence logistics performance of GOAL Ethiopia, 2015.
- To assess factor associated with logistics performance in case of GOAL Ethiopia, 2015.

- To find out the most influential variable for logistics performance in relation to use of rental vehicle case of GOAL Ethiopia 2015.
- To examine the relationship between use of rental vehicle and logistics performance in case of GOAL Ethiopia 2015.

1.6 Significance of the study

This study will be useful in creating a clear understanding about the effect of use of rental vehicle on organization logistics performance, then the logistics department can able to give better service to achieve organizational GOAL. Therefore the community will indirectly benefit as the result of implementation of the recommendation in this study. Moreover it create awareness among organization working with contract vehicle transport for fulfillment of vehicle need. It also enable other researchers to use it as an additional source for further investigation in the area.

1.7 Scope of the Study

This research will take GOAL Ethiopia program as a case study, therefore the results of the study cannot be fully accepted as being completely relevant and applicable to all humanitarian, governmental and private companies in Ethiopia which use rental vehicle service:

Because the study sample size and sampling procedure is limited, in addition the study particularly focuses on one international humanitarian organization. However some micro level of generalization for similar organization in the same service requirement might be possible (Krauth.et.al, 2005).

The researcher only focused on the group respondents who use rental vehicle, staff who are not using rental vehicle excluded (clerks and support officers).

1.8. Limitation of the study

The research method used questionnaire for collecting data hence respondents might reply based on their own perception and there is a level of subjectivity that is not acknowledged. Respondents' potential bias and subjectivity can also be considered as limitation since the data was collected based on convenient source. Due to time constraint, the data collection for the project was done through convenient method and sources. Thus further and

more comparison study between organizations and the service provider is needed to fully understand this area of research.

1.9 Organization of the Research

The study was organized into five chapters. The first chapter deals with introduction the problem and its approach. The second chapter concerned with presenting the review of the related literature that focus on performance indicator, logistics performance and transportation done by different scholars. The third chapter covered research methodology. The fourth chapter explained the analysis of the data collected and interpretation. The fifth chapter brought to an end this study with summary, conclusion and recommendation.

1.10 Conceptual definition of terms

- Availability: Extent of the service offered in terms of geography, time (operating hours) frequency and transport mode.
- Accessibility: Access and egress to/from the public transport system including interface with other transport modes.
- Information: Systematic provision of knowledge about the system to assist the planning and execution journeys.
- Time: Aspects of time relevant to the planning and execution of passenger and train journeys, including journey time, punctuality and reliability.
- Customer Care: Service elements introduced to match the requirements of any individual customer, including staff reaction to customer complaints and kindness of staff.
- Comfort: Including crowding, cleanliness and service elements introduced for the purpose of making journeys as comfortable as is reasonably possible.
- Security: Offering safety and security to customers for the whole journey.

Source: Anderson et al 2013

- Efficiency: Seeks to measure how resources are used, consisting of financial metrics framework. Key indicators are: Production costs, Distribution costs, Transaction cost, Results and return on investment.

- Flexibility: Indicates the degree to which the supply chain responds to changes in the environment and to customer requests. Key indicator Customer satisfaction; Volume flexibility; Delivery Flexibility; Exceptional orders.
- Responsiveness: Assesses the ability to respond to customers and helps to promote product requirements in a short time cycle. Service level; Delays in orders; Response time to customer; Complaints and shipping errors.
- Quality: Evaluates aspects of sensory property, shelf-life, safety, production and marketing. Product quality; Process quality.

Source: Aramyan et al (2007).

CHAPTER TWO

REVIEW OF LITERATURE

Over View

A number of factors have been associated with logistics performance in different contexts and situations. However, the nature of association and effect on logistics performance is not well documented by relating rental transport service through empirical research. This review will summarize rental vehicles related factors and their effect on logistics performance.

2.1 Theoretical review/Contemporary/

2.1.1 Supply chain player in relief chain

Olorutoba et al (2009), there are various players or actors in international emergency relief chain. The supply chain managers have to have a capacity of managing multiply relationship with these players to achieve the objective successfully.

The main players or actors in emergency relief chain are:

- *Governments and their donor agencies who fund emergency relief chain and to whom accounts and reports must be given.*
- *International humanitarian organizations(NGOs)(delivery partner) who receive donor funds to procure relief goods and goods-in-kind(GIK) for delivery to sites where humanitarian action is taking place;*
- *Multilateral/international organizations and their specialized agencies*
- *Vendors of food and non-food relief good*
- *Transportation, shipping, freight forwarding companies, and allied support services;*
- *Governmental agencies of the aid-receiving country*
- *Corporate donors who give in kind or in cash as a part of their corporate social responsibility obligations; and the international media*

2.1.2 Outsourcing

Zaryab et al (2013) on their study on outsourcing stated that service performance (flexibility, lead time and delivery reliability) has direct influence on outsourcing whereas the performance (when outsourcing total distribution network management) activities enhance with the rising level of demand complexity.

Table 1: Advantages and Disadvantage of using Third-party logistics provider.

Advantages	Disadvantages
Cost Reduction	Loss of control over the logistics function
Improved efficiency, service and flexibility	Impact on in house workforce
Focus on core competency	More distance from clients loss of personal touch
Freeing up resources	Discontinuity of services of a 3PL provider
Elimination of infrastructure resources	Differences of opinion or perception of the service level of the 3PL provider
Risk sharing	
Better cash flow	
Access to resources not available at one's own organization	

Source: Forrest B.et al(2008)

2.1.3 Logistics performance

Logistics performance is a methodology to optimize the execution of business strategy. It consists of a set of integrated, closed loop, analytic processes, supported by technology, addressing financial as well as operational data (Kalathil 2010). It enables firms to define measures and manage its performance against set strategic goals. A great deal of logistics research is conducted around the premise that a relationship exists between a particular course of action and logistics performance (or effectiveness) (Chow, Heaver &Henriksson 1994).

Gleason & Barnum chose to distinguish between effectiveness and efficiency. They defined effectiveness as the extent to which an objective has been achieved. Efficiency was defined as the degree to which resources have used economically (Gleason & Barnum, 1986). Rhea and Shrock suggested a number of goals that included; customer satisfaction, cost efficiency, profitability, flexibility, sales growth, social responsibility among others and defined logistics performance as the extent to which such goals are achieved within an organization.

2.1.4 Performance Measurement

Measuring performance can easily be performed in commercial sectors since they use financial metrics which have clear and precise performance indicators (Beamon & Balcik, 2008). However, in the humanitarian sector, the unpredictability of demand, intangibility of service, variety of interest, standard of stock holder and other factors make measuring performance difficult. Therefore, having a logistics strategy to select high service quality for time and place utility makes the organization minimize the effect of obstacles on logistics performance.

2.1.5 Transportation

The overall goal in transportation should be to connect sourcing locations with customers at the lowest possible transportation cost within the constraints of the customer service policy (Ensermu, 2011, p 91).

The ability to transport goods quickly, economically, and reliably is vital to a nation's prosperity and capacity to compete in the global market. The Ethiopian logistics system is characterized by poor logistics management system and lack of coordination of goods transport, low level of development of logistics infrastructure and inadequate fleets of freight vehicles in number and age, damage and quality deterioration of goods while handling, transporting and in storage. This coupled with lack of sea port resulted in poor linkage of producers (farmers) to the consumers (market) and non-competitiveness of Ethiopian goods on the global market, which compromised the livelihood of the people and economy of the country. There is a very high rate of traffic accident (first in the world) and congestion in cities and at city inlets/outlets to which freight vehicles contribute significantly. Efficient and effective logistics systems need to be put in place to solve these socio-economic problems (Debela, 2013).

2.1.6 Relationship between transportation and logistics

Tseng et al. (2005) believe that logistics could not bring its advantages into full play without a well-developed transportation system. Besides, a good transportation system in logistics activities could provide better logistics efficiency, reduce cost of operation and promote service quality. Moreover, the improvement of transportation systems needs the effort of both public and private sectors. A well-operated logistics system could increase the competitiveness of the

organization. They further added that an efficient transportation system is the most important economic activity among business logistics systems. About one third to two thirds of most organization's logistics costs are spent on transportation (Harriet, et.al 2013).

Logistics and transportation managers face a very different environment today than merely of few years ago. Continued economic deregulation, increased safety and social regulation, escalating customer expectations, increased globalization, improved technologies, labor and equipment shortages, and the continually changing face of the transportation service industry present today's managers with an array of challenges and opportunities that contrast dramatically, with those of a decade ago"(Ensermu 2011 p91).

Transport management is gaining new successes and respect by transforming from a tactical department to a full partner in the supply chain. Transport is a major component in calculating the cost of goods sold. It is therefore imperative to embrace the transport management practices that can lead to cost savings and operational efficiency for humanitarian organizations procurement and distribution of much needed relief aid at times of disaster (Thomas & Kopczak 2005).

2.1.7 Measuring Transportation performance

Measuring Transportation performance allows the firm to identify problem areas and then make changes, resulting in improved transportation services. Measures of performance can be compared against predetermined standards, competitive benchmarks, or previous period performances to identify problems. These are transportation cost, percent on time deliveries and average transit time (Ensermu, 2013).

Performance Indicators measure effectiveness of fleet resources but will requires diligent record keeping by drivers, mechanics and other fleet staff. These can form a basis to determine ideal fleet size and plan for acquisition and/or disposal, monitor performance of individual vehicles and drivers, calculate running costs of a vehicle and prepare budgets. Some of the indicators are:

Kilometers Traveled; Fuel Consumption; Vehicle Availability; Vehicle Utilization; Safety Records and Running Cost per KM = spare parts replaced + fuel consumed + consumables replaced which are all hardware costs (GOAL Logistics Manual Ver 2010).

2.1.8 Vehicle Lease

“A vehicle or asset lease is a contract by which one party lets vehicles or assets to another Party for a specified period of time. “Or a lease is a written agreement by which one party agrees to let another party have the use of specified assets for a period of time for a fixed amount of money.”

In an external leasing option the ownership could:

- Remain with the leasing company of entity, but the rights for use are passed on to the lease for the period of the lease;
- In other cases, at the expiry of the lease, the ownership is transferred to the lessee; and
- The ownership remains with lessee, but management of some aspects such as maintenance, could remain with the leasing company depending on negotiation.

However internal leasing is difficult. The organization itself owns the vehicles which are centrally managed and issued to programs on a cost recovery basis. Organizations therefore budget for leasing costs only (Fleet management, log.logcluster.org).

2.2 Empirical Findings Review

Humanitarian logisticians possessed are too much of administrative and functional. Henceforth, a number of additional skills on top of the T-shaped model of commercial logistics skills are required. These are the skills logisticians would need to develop before entering the humanitarian field. Unfortunately, the logisticians come from diverse and varied backgrounds and acquired their humanitarian skill through trial and error (Thomas & Kopczak, 2005).

Muhindo et.al 2014 in their research conclusion states that, information asymmetry is likely to occur since the principal companies find it difficult to fully monitor activities provided by the logistics service providers in the long run. However solutions must be thought for the counteract challenges associated with strategy so that there is a continuous going concern between the principal company and service providers. This is one way of avoiding conflict interests thereby achieving efficient customer service delivery.

Mihai(2011) concluded that interactive relationships between organization and third party transport could result in several benefits. In the decision phase,interaction would favor a more

complete understanding of potential consequences of logistics outsourcing as well as a thorough evaluation of potential carriers. Furthermore, interaction would be helpful in determining the scope of the outsourcing arrangement through a joint analysis of the requirements of the company, the capabilities of the carrier and the costs and benefits associated with different types of arrangements.

Mohan et.al 2016 on their research finding described that almost all the organization in India using third party logistics services are satisfied with the performance of 3PL service providers with respect to their expectations. A total of 9.6% indicated that their overall satisfaction with 3PL service provider was more than expected. 96% of the respondents indicated that the use of third party logistics service providers had been a positive development looking at the impact of the usage of 3PL services on business objectives which indirectly related with logistics performance.

Humanitarian logistics operates in such areas where difficult to reach under normal circumstances because roads are often inadequate. Humanitarians need robust equipment that can be set up and dismantled quickly enabling them to be extremely adaptable and prepared for the unexpected circumstances. Unfortunately, logisticians in this sector often have to work with fragmented technology and poorly defined manual processes Wassenhove (2006). This has been very common in the region of East Africa which suffers from fragile physical logistics systems such as: poor road surfaces, unstable rail track bedding and weak bridges (Beresford, et.al 2010).

Moberg and Speh (2004) study the process of selecting logistics service providers in order to outsource warehousing. Their empirical evidence is based on a survey in the US to customers of logistics service providers that offer warehousing activities. According to their findings, the most important indicators for choosing a particular logistics service provider are related to responding to service requests, general management and ethical issues. Criteria that seem to be less important are the risk affinity of logistics service providers, information technology, company size and coverage.

Koh et al. (2007) studied the relationship between logistics management practice and operational and business performance in a sample of SMEs producing metal products and equipment in

Turkey. Despite the limitation of the study being confined to the city of Istanbul, the authors concluded that the practice of outsourcing and strategic collaboration does not have a direct impact on organizational performance, but can have a direct influence on SMEs' operational performance.

Aramyan *et al.* (2007). Based on the results obtained from their finding, a Performance Measurement System was developed for the specific logistics of the agri-food production chain, finding that the most relevant indicators to evaluate logistics performance were related to costs, results (profit), customer satisfaction, delivery time and product quality.

The latest model, developed by Töyli et al (2008), analyzes logistics performance as dependent on the efficiency of logistics costs, quality of logistics services and logistics performance.

2.2.1 Vehicle safety and security on logistics performance

The Multiple regression analysis finds a significant positive relationship between accident rates and non-compliance of accident reporting requirements a negative relationship with firm size (vehicle miles) and higher accident rates for general commodity carriers(Philip June 1977 p153).

Kunz and Reiner (2012) depicted that type of regime, the national regulations toward relief organizations, the efficiency of the state, the level of corruption and customs clearance are among many other government factors affecting performance of humanitarian logistics.

H1 Both vehicle safety and security positively affect the performance of logistics.

2.2.2 Response time and logistics performance

According to the research done in Korea, all flexibility related variables, namely ability to adjust order quantities and order specifications, distribution system flexibility, and ability to react to market fluctuation were considered relatively high in importance but low in satisfaction.

Evaluating factors affecting logistics customer service performance for car manufacturing companies in Korea through the structural equation model, found the relationships between customer service factor across the other factors (flexibility, IT system, inventory, and responsiveness factors) and relationships among the others (Youl et al 2006).

Many firms have been observed to evaluate performance, primarily on the basis of cost and efficiency (Skinner, 1971). Besides the financial measures, we now have the non-financial measures which include time, quality and flexibility. Time element has strategic importance in business and hence time has to be used as a strategic metric in performance measurement (Stack et al, 1990) (Ira Haavisto, (2014).

H2 Response time positively affects logistics performance.

2.2.3 Satisfaction of the company and logistics performance

Logistics performance Mulama (2012) investigated the impact of the marketing mix on customer satisfaction and share of business for primary suppliers and secondary suppliers and identified difference between the two groups, using multi group structural equation modeling. The results indicate that perceived performance on logistics attributes significantly affects customer satisfaction and the percentage of business that is allocated to primary and secondary suppliers, which is key information for developing competitive strategies. The result show that in the customer service factor, advice of late delivery, order consistency, full range of product availability, order cycle time, on time delivery, response to priority delivery request, and response capabilities to customer enquiries were characterized by a relatively low level of satisfaction and a high level of importance.

A research done on quality of management influences on logistics performance note that the morale of logistics employees is most significantly, and favourably, affected by the availability of logistics performance and productivity data (i.e. Information) and efforts to measure, compare and analyse work performance and improvement (i.e. Work Measurement) Ronald D et.al 2008.

H3 Satisfaction of the rental company positively affects logistics performance.

2.2.4 Cooperation of the company and logistics performance

The finding from the study which is done by using data from 232 Australian firm's shows, that logistics integration has a significant effect on operations performance. Information technology capabilities and information sharing both have significant effects on logistics integration. Furthermore, long-term supplier relationships have both direct and indirect significant effects on

performance; the indirect effect via the effect on information integration and logistics integration(Hsiaoet.al 2012).

Mihai Felea (2011) concluded that interactive relationships between organization and third party transport could result in several benefits. In the decision phase, interaction would favor a more complete understanding of the potential consequences of logistics outsourcing as well as a thorough evaluation of potential carriers. Furthermore, interaction would be helpful in determining the scope of the outsourcing arrangement through a joint analysis of the requirements of the company, the capabilities of the carrier, and the costs and benefits associated with different types of arrangements.

H4 Cooperation of Rental Company positively affects logistics performance.

2.2.5 Community Restriction and Logistics Performance

Socio-economic situational factors, such as the type of market economy, the presence of local suppliers, the level of education of the population, the local culture and religion will oblige relief organizations to adapt their operation to the context, and can affect the performance of humanitarian logistics (Altay et al., 2009; Dowty and Wallace, 2010; Kandiyoti, 2007; Leon et al., 2009; Maon et al., 2009). In a well-developed economy, some basic supplies can be purchased from local suppliers, and staff can be hired locally for logistical activities. In a less developed context, all supplies have to be imported and most tasks must be managed by expatriate staff (Kunz and Reiner 2012).

Humanitarian logistics are faced with several challenges. Thomas & Kopczak, 2005, presented challenges afflicting Humanitarian Logistics that are common and applicable to most countries in the world; lack of recognition of the importance of logistics, lack of professional staff, inadequate use of technology, lack of institutional learning and limited collaboration among the humanitarian organizations themselves and with other stakeholders

H5 Community restriction positively affects logistics performance.

2.2.6 Cost of Rental vehicle and Logistics Performance

The study result on analysis of third party logistics performance and service provision 2011 suggest that excellence in operations is more important than wide-ranging service provision. Furthermore, cost has always been the main indispensable dimension in assessing the logistics Performance (Andersson et al., 1989; Banomyong & Supatn, 2011).

Logistics management impacts not only upon the profit and loss account of the business, but also upon the balance sheet. Logistics is also increasingly being recognized as having a significant impact upon economic value added and hence shareholder value. It is critical that decisions on logistics strategies made based upon a thorough understanding of the impact they will have on the financial performance of the business (Christopher et al 2004).

H6 Cost of rental vehicle positively affects logistics performance.

2.2.7 Operating area Infrastructure on logistics performance

A study done in Turkey that was take Logistics Performance as dependent variable and the effect of some of the components like infrastructure as independent variable, the result expressed that there is high rate relationship between logistics performance and some of the components like infrastructure ($R^2=0,748$). It boost trade and allow goods to reach their destinations needs efficient infrastructure as well as streamlined customs procedure (Hummels 2012).

Infrastructure situational factors, such as the availability of a road network, railway, airports, power supply, play an important role in the performance of humanitarian logistics (Chakravarty, 2011). Indeed, the existences of a well-developed road infrastructure in Organization working area facilitate the logistical operations or logistic infrastructure (airports, seaports, roads, electrical and water system, etc.) is a fundamental foundation for transportation. Variables to be included delays in movement of goods and manpower, delay in assigning vehicle and cost variance from contract agreement.

H7 Operating area infrastructure has a significant effect on logistics performance.

2.2.8 Peak Season on logistics performance

Based on the information from GOAL logistics staffs during tourist season and country emergency there is shortage of vehicle and this indirectly affect the performance of logistics.

Capacity management plays vital role infrastructure efficiency. Most of the transport facilities operate with low utilization rates, yet suffer from capacity constraints in peak periods due to high variability of demand. Flexible transport systems, better resource allocation, and higher utilization of existing physical infrastructure provide less costly and more efficient improvement opportunities than capacity extension, World Bank's bi-annual Logistics Performance Index (LPI) 2013, Lauri Ojala et.al 2015.

Diaz and Perez (2002) carried out empirical and statistical analysis on data obtained by questionnaire survey to identify the key characteristics that resulted in operational, market and state inefficiencies that constrained logistics development in Venezuela. They also basically dealt with business logistics and integration into a supply chain. They considered external factors such as the effects of infrastructure, macroeconomic uncertainty (due to short-term economic policies), human resource scarcity, inefficient customs, presence of foreign competitors and un-identifying foreign markets as threats to logistics development but the variance was low and they concluded that factor analysis has limitations in the explanatory power.

H8 Peak Season has a significant effect on logistics performance.

2.2.2.9 Topography, Weather and logistics performance

Kunz and Reiner (2012) on various literatures, Weather, topography, geography, vegetation, presence of water, effects of climate change is among other environmental situational factors impacting performance of humanitarian logistics.

Humanitarian supply chains are specialized in managing high stakes associated with the timeliness of deliveries; and. lack of resources in terms of supply, people, technology, transportation capacity, and money (Balcik and Beamon (2008, P. 102). This characteristics is also indicative of the challenges faced by humanitarian logisticians.

H9 Topography, Weather and logistics positively affect logistics performance.

2.2.2.10 Duration/Number of day's vehicle required

Internal source from GOAL Ethiopia confirmed that the number of days vehicle required affect logistics performance. If the number of days are less than 10 days the service provider is not interested to give response on time.

Fugate et al. (2010) analyzed the relationship between logistics performance and organizational performance, stating that logistics performance is multidimensional and is a function of the resources used in logistics, according to outlined objectives and outcomes against competitors. In this context, the authors theorized that analysis of logistics performance should be based on evaluation of a set of dimensions of the activities carried out by the logistic function, which are namely, efficiency, effectiveness and differentiation.

H10 Duration has a significant effect on logistics performance.

2.3 Logistics performance

Chen and Paulraj (2004) proposed a research framework for supply chain management based upon the “collaborative advantage” paradigm. The framework incorporates environmental uncertainty, strategic purchasing, and information technology, supply network structure, and logistics integration as impacting buyer-seller relationships and subsequently resulting in improved buyer and seller performance Deshpande (2012).

According to Josh Kearns from Inter Action (2006, p.3) “organizations gave short shrift to the importance of logistics in humanitarian relief”, leading to “slow delivery times of materiel and staff and unnecessarily high costs for an industry forever in needs of funds”. This lack of priority on changes of process, explains John Rickard (2006), director of logistics at International Rescue committee, is due to the lack of interest from other departments regarding better training, inter-agency integration and collaboration, supply contracts, third party logistics (3PL) providers, or clear policies and procedures. Eventually, an Indonesian tsunami in 2004 and hundreds of thousand victims later, NGO managers understood the importance of supply chain management (Tabbara 2008).

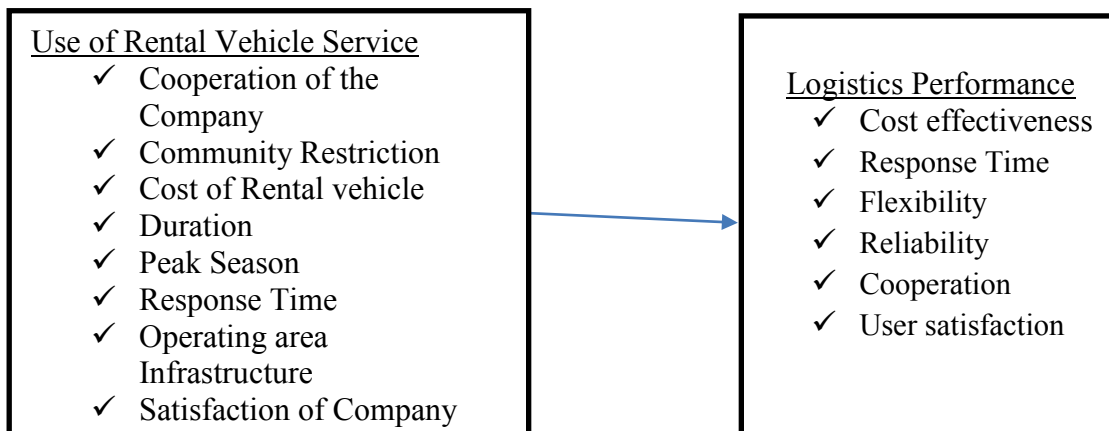
As most departments track their goods, there is important data, covering various aspects from supplier effectiveness, costs and speed of response to information management that can be analyzed for post-event learning (Thomas and Kopczak, 2005).

Aramyan et al. (2007) theorized a conceptual framework for evaluation of logistics performance, which suggests dividing the analysis of logistics chain performance in four categories or clusters of indicators. The first category is, efficiency which, according to Lai et al. (2002), seeks to measure how resources are used. This category consists of a set of logistical process indicators, such as distribution costs, transaction or possession of stock. The second category, flexibility, supported in the literature by Bowersox and Closs (1996) and Beamon (1998), indicates the ability of the Performance Measurement System to respond to changes in the environment and exceptional customer orders. The third category, called responsiveness, according to Pearson and Olhager (2002), helps to promote what the customer wants in the shortest amount of time.

2.4 Conceptual Framework and Hypothesis Development

This study focused in examining the effect of rental vehicle service on logistics performance case of GOAL Ethiopia .It has independent variable that investigated against dependent variable. Independent variables use of rental vehicle service evaluated by making bench mark key performance indicator adopted from different literature, then examined its effect on logistics performance. Logistics performance also measured with matrix which adopted from different literature. The independent variables examined on their effect on rental company service efficiency and logistics performance. The following figure clarifies the number of factors and relationship with the logistics performance.

Conceptual framework assessing the effect of use of rental vehicle on logistics performance in GOAL Ethiopia 2015.



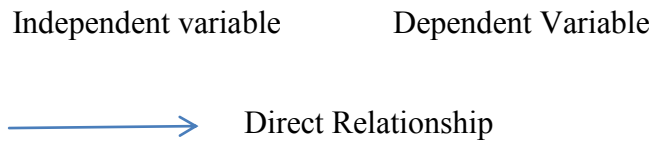


Figure 1: conceptual frame work for assessment of effect of rental vehicles on logistic performance modified from (Mansidão, *et al.* 2014)and Kunz and Reiner (2012) model.

CHAPTER THREE

METHODS AND MATERIALS

3.1 Study area and period

The study was conducted in GOAL Ethiopia in which its head office is Addis Ababa and program sites (Southern Region, Oromia, Gambella and Afar areas).

GOAL Ethiopia has:

- 74 permanent base national staff and 4 international staff who work both at Addis Ababa and field level.
- 279 temporarily base at Gambella refugee camp and 43 temporarily base at Afar. (GOAL HR Employee data tracker July 2015).

A transport companies which has framework agreement with GOAL are Omo, Sofeumur and Tewodros for light vehicle and 50/90 Tone truck capacity. For truck above 90 Tone capacity Tewodros Teffera, Zemen Cross boarder Freight transport and Yarad T/Maden.

3.2 Research Design

Quantitative study approach was conducted in order to show the effect of use of rental vehicle on logistics performance. According to Burns and Gorge in 1993, quantitative approach helps researchers to test relationships between variables. Besides it also helps in examining and

describing a cause and effect interactions among those variables. Therefore, employees of GOAL staff who are using rental vehicle for organization business chosen as statistical population, use of rental vehicle as independent variable and logistics performance as dependent variable.

Descriptive and exploratory research designs were used. Descriptive research design was used in order to understand and systematically describe the use of rental vehicle and logistics performance. In addition the design also used to identify the most influential variables that affect logistics performance. Different literatures and empirical studies were reviewed to gain more insights and background information about the dependent as well as independent variables. Information gained from this step helped in designing questionnaire and better understanding the problem of the study.

3.3. Target Population

GOAL Ethiopia was selected as unit of analysis for this study. The organization is chosen because it is one of the leader humanitarian organization which use rental vehicle for the support of its program in Ethiopia. The annual spent for rental vehicle is around 1.5 Euro which makes the organization leader on using rental vehicle. Target population were workers of GOAL Ethiopia who use rental vehicle to perform GOAL's business both at field and head office level.

3.4 Sampling Technique and Sample Size

3.4.1. Sample size determination

As it is stated on the scope of the study, staff who are not using rental vehicle (clerical workers and temporary support officer) were excluded from this study since they have never used rental vehicles. Therefore the researcher focused only on employees who has relationship with use of rental vehicle.

The total population of staff who are using rental vehicle was taken. Due to limited no of participant statistical sampling technique was not applied.

The response rate of the study was found as 72.3% (80/100). Study sample size equal to or above 30 is statistically sufficient for generalization (Cooper and Schindler 2003).

Response Rate of Respondents

As shown in the below table out of the 110 distributed questionnaires 75.45% response rate has been obtained. During data editing 3 incomplete questionnaires were identified and discarded. Therefore, out of the 83 collected questionnaires 80 found to be valid and used for data analysis.

Table2: Summary of Respondents Response Rate

Description	Respondents
Selected Respondent	110
Questionnaire distributed	110
Questionnaire Returned	83
Usable Response	80

Data Source: Own Survey 2015

3.5 Data Collection Method and Procedure

3.5.1 Data collection tool

In order to investigate the effect of use of rental vehicle on logistics performance, in case of GOAL Ethiopia, both primary and secondary sources were used as a supply of data.

3.6.1.1 Primary data

The primary data collected from GOAL Ethiopia (both head and field office) by distribution questionnaire. The study were adopted a face –validated and a structured questionnaire on logistics performance and associated factors. The questionnaire is prepared in English. The questionnaire has two parts: socio-demographic and 10 major factors associated with logistic performance in rental case as independent variable and logistics performance as dependent variable. The questioner is adopted from Kunz and Reiner (2012) ,world bank’s logistics performance index (LPI) and drivers of logistics performance (Ojala et al 2015) and Mansidão et al. 2014 model which is a base for conceptual frame work. To determine the performance of logistics there are 14 items. Generally the questioner has had 11 constructs and 33items.

Respondent were asked to rate their level of agreement to each statement by using five point Likert scaled questionnaire ranging from “Strongly Disagree” (1) to “Strongly Agree” (5) were used in the questionnaire. Questionnaire was developed by reflecting the independent variables

(Vehicle safety & Security, Response Time, Satisfaction of company, Cooperation of the company, Community Restriction, Cost of Rental vehicle, Operating area Infrastructure, Peak Season, Topography and Duration/No of days vehicle required) and the dependent variable reflecting various aspects of logistics performance (Cost effectiveness, Response Time, Flexibility, Reliability, Cooperation and User satisfaction information).

3.6.1.2 Secondary data

The secondary data was collected from different articles (extensive article reviews were conducted), books, and documents from the organization data base was reviewed to supplement the primary data.

3.6.2 Data collection procedures

The questionnaire addressed to GOAL staff that has direct relationship on use of rental vehicle through email and personally by the researcher. The data collected over a period of three weeks. The questionnaire was prepared in English language since all the respondents know the language well in addition GOAL Ethiopia work language is English.

3.7. Variables

In this study, two variables were examined, these are the use of rental vehicles at the case organization which might affect the level of logistics performance as independent variable and logistics performance as dependent variable. Each of this was measured as described below.

3.7.1. Logistics performance (Dependent Variable)

It is the first specific objective of this study to determine the level of logistics performance. Six factors developed from different literature: (Cost effectiveness, Response Time, Flexibility, Reliability, Cooperation and User satisfaction information) to use as criteria in measuring logistics performance. Therefore 14 questions were constructed in order to get information from the respondents about the practice and level of service. In addition the organization transport data base was reviewed, which help the researcher to understand the response time variance and different practice.

3.7.2. Use of Rental Vehicle (Independent variables)

Use of rental vehicle selected as independent variable to this study. 10 factors developed from different literature:(Cost of rental vehicles, Cooperation of the company, Community restriction, Duration, Operation area infrastructure,Peak Season, Response time, Safety/security, Satisfaction of company and Topography). Each variable types include their own service measuring dimensions and the effect measured by analyzing responses of the respondents. There were questions developed under each dimension. These questions were believed to show how those dimensions affect logistics performance and how respondents' consider them.

3.8. Validity and Reliability

Reliability: According to Zikmund et al (2010) cronbach's alpha is a measure for the internal consistency of items to the concept. Scales with coefficient alpha between 0.8 and 0.95 are considered to have very good reliability, scales with coefficient alpha between 0.7 and 0.8 are considered to have good reliability and coefficient alpha between 0.6 and 0.7 indicates fair reliability.

Therefore before administering the questionnaire 11 copies of questionnaire were distributed to IRC logistics staffs since IRC is partner of GOAL in some program and IRC also use similar rental company.10% of the total sample size was distributed as pilot scale for its reliability and the value of cronbach's alpha (α) was calculated.The reliability and the value of cronbach's alpha reliability test showed good and very good internal consistency with a coefficient of 0.7 and higher. The cronbach's alpha coefficient of variables for the pilot test is depicted under in table3. Aggregate cronbach's alpha table included in Annex I.

Table 3: Cronbach's alpha coefficient of variables for the pilot test

Variables	Cronbach's alpha Coefficient	No of items
Vehicle safety & Security	0.737	5
Response Time	0.715	2
Satisfaction of company	0.713	2
Cooperation of the company	0.710	2

Community Restriction	0.703	2
Operating area Infrastructure	0.857	2
Logistics performance	0.820	14

Data Source: Own Survey 2015

Validity: In order to ensure the quality of this research design content of the research instrument were checked. The content validity was verified by the advisor of this research who looks in to the appropriateness of questions and the scales of measurement. Peer discussion with other researchers and logisticians was also conducted since it is another way of checking the appropriateness of questions. This was done to find out whether the developed instruments measures what it was meant to measure and also to check the clarity, length, structure and wording of the questions. This test also helped the researcher to get valuable comments to modify some questions.

The questionnaire was forwarded to the subject matter specialists to check whether the questionnaires measure what they are intended to measure. These activities enable the questionnaire to have reliability and validity.

3.9. Data Analysis Method

The data collected were organized and analyzed. Mixed statistical software package (SPSS) version 22 was used. Data was analyzed by using both descriptive and inferential statistics. The descriptive statics included frequencies, valid percentages, means and standard deviation. These were used to present the demographic, use of rental vehicle performance and level of logistics performance part of the questionnaire in a summarized manner. Inferential statistics like Pearson correlation coefficient and regression analysis were also computed for the collected data. The Pearson correlation was made to examine the relationship that exists between the independent and dependent variables and also between the independent variables to each other. In addition the regression analysis used to know the effects of each independent variable to the dependent variable (logistics performance) in relation to relevant variables. It was also used to test the most influential independent variable to logistics performance.

3.10. Ethical consideration

Ethical clearance was obtained from Addis Ababa University School of Commerce and permission was obtained from the Goal Ethiopia Head office. Written consent to participate in the study secured before conducting the interview. For this a consent letter attached to cover page of each questionnaire stating about the general purpose of the study and issues of confidentiality to be discuss by interviewers before they start feeling the questionnaires. Additionally, participants informed that they have a full right to refuse or discontinue participating.

CHAPTER 4

RESULT AND DISCUSSION

4.1 Descriptive Analysis

4.1.1 Respondents profile

The first part of the questionnaire consists questions about respondents' profile. This part of the questionnaire requested a limited amount of information related to personal and professional characteristics of respondents. Accordingly the following variables were described in Table 4.1 below, this variables includes: service year, educational back ground, duty station and position in the organization.

Table 4.1: Summary of Demographic characteristics of respondents

Characteristics	Description	frequency	percentage
Education	Diploma	17	21.3
	Degree	38	47.5
	Masters and above	25	31.3

Serviceyears	Less than 5 years	34	42.5
	5-10 years	40	50.0
	Above 10 years	6	7.5
Position in the organization	Officer	25	31.5
	Supervisor	20	25
	Manager	20	25
	Coordinator	15	18.75
Duty station	SNNR	13	16.5
	Addis Ababa	26	32.5
	Oromia	10	14.5
	Gambella	16	20
	Afar	13	16.5

Own Source survey 2015

The respondents profile (table 4.1) show that 42.5% of the respondents had worked in their organization less than 5 years, 50% of the respondents indicated that they had worked in the organization from 5-10 years while 7.5% of the respondents said they have worked in the organization over 10 years. The result indicates that majority of the respondents have worked in GOAL for 5-10 years an indication that they understand the effect of use of rental vehicle on logistics performance.

The result on position in the organization (Table 4.1) indicate that from 80 respondents, 31.5% are officers, 25% are Managers or supervisor while 18.75% are coordinator. This indicate majority of rental vehicle users are implementers and they can understand the practical influence of rental vehicle.

The result on education (Table 4.1) shows that 47.5% of the respondents are under graduate and 31.3% of the respondents are post graduate while 21.3% have diploma. The finding indicates that the respondents can understand the benefits and challenges of use of out sourcing practice.

The result on duty station (Table 4.1) shows that 32.5% of the respondents are Addis Ababa base with frequent field visit, 20% of the respondents are based in Gambella, and 16.5 % respondents are based SNNR or Afar while 14.5% of respondents are based in Oromia. The result indicate that majority of the respondents based in Addis Ababa with frequent field visit that is an

indication the respondents use rental vehicle for most of their visit from head office to different field site then respondents have sufficient experience in evaluating the use of rental vehicle and its effect on overall as well as department objective.

4.1.2. Vehicle Safety and security in relation to Rental vehicle at GOAL Ethiopia 2015

The aspect linked to safety indicates the degree of safety from crime or accidents and the feeling of security resulting from psychological factors; therefore, this aspect refers not only to safety from crimes while riding or at stops and from accidents, but also to safety related to the behavior of drivers. There were five questions raised for respondents in order to understand and examine what they feel about the safety/security of rental vehicle. It includes five sub items. Each item tries to find out either the vehicles are net and comfortable (including cleanness crowding..), road worthy, availability of safety equipment (safety belt, reserve tyre...), capacity/knowledge of drivers and also sense of security when respondent uses rental vehicle. The following table shows summarized responses by number and percentages.

Table 4.2: Summary of Responses of respondents on vehicle service quality at goal Ethiopia

Question items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Vehicle safety and security					
	Percent	Percent	Percent	Percent	Percent
Rental vehicles is net and comf	7.5	22.5	57.5	10.5	2
Road worth	5	23.8	23.8	31.1	16.3
Safety equipment	5	15	46.2	26.3	7.5
Rental drivers	1.3	18.6	52.5	26.3	1.3
Rental vehicles	9.5	43.8	36.3	8.4	2
Ave	5.6	24.74	43.26	20.52	5.82

Number of respondents: 80

Source: Own Survey 2015

The above table 4.2 depicted the result on examining the current rental vehicle service quality in relation to safety/security. Accordingly respondents were requested to answer both vehicle safety and security requirements are fulfilled, the result show on average 43.26% of respondents replied Neutral, 24.74% of respondents disagreed and 20.52% agreed.

4.1.3. Response Time in relation to Rental vehicle at GOAL Ethiopia

Ability to respond to customer when replacement of rental vehicles needed and delivery of vehicles according to specified requirement or complaints are the main items which evaluate response time to meet the schedule and satisfy the user. The following table 4.3 shows summarized responses by number and percentage

Table 4.3: Summary of Responses of respondents on Response time at goal Ethiopia, 2015.

Question items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Response time	%	%	%	%	%
Delay for replacement of vehicles	10	14	40	32	4
Delivery of rental vehicles	12	15	37	32	4
Ave	11	14.5	38.5	32	4

Number of respondents: 80

Source: Own Survey 2015

The above table (4.3) depicted the responsiveness on rental vehicle. Accordingly, on average 38.5% of the respondent replied neutral for the question on delay for delivery and replacement of rental vehicle. 32 % agreed on the responsiveness of the rental vehicle. 14.5 % and 11 % of the respondents disagree and strongly disagree on responsiveness of use of rental vehicles, however 4 % of the respondents strongly agree on responsiveness.

4.1.4. Satisfaction of company in relation to Rental vehicle at GOAL Ethiopia

Two major items included to find out satisfaction of the service provider, the first was to request the respondents about feeling of rental driver when they work with them and then frequency of

with drawrate(for rental driver)due to unfavorable condition from the leaser company(GOAL).The following table (4.4) shows the summarized responses by number and percentages.

Table 4.4: Summary of Responses of respondents on Satisfaction of Co. at goal Ethiopia, 2015.

Question items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Company satisfaction	%	%	%	%	%
Driver satisfaction	12	30	23	14	7
Withdrawal rate	6	21	40	16	5
Ave	9	25.5	31.5	15	6

Number of respondents: 80

Source: Own Survey 2015

The above table (4.4) shows the satisfaction level of the rental company in working with respondents, therefore on average 15 % of the total respondents agree there is company satisfaction and only 6 % strongly agree on availability of companysatisfaction. Contrary to this 31.5 % of respondentsare Neutral or couldn't deicide either the company is satisfied or not.25.5% and 9% disagreed and strongly disagrees respectively for the question rental vehicle driver are satisfied.

4.1.5. Cooperation of company in relation to Rental vehicle at GOAL Ethiopia

Three Key performance indicator defined in this category and included in questions are :(Degree of information sharing, Degree of cooperation and Degree of flexibility). The following table (4.4) shows the summarized responses by number and percentage.

Table 4.5: Summary of Responses of respondents on Cooperation of Co. at goal Ethiopia

Question items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Cooperation of the company	%	%	%	%	%
Flexibility of company	2	25	36	12	5
Drivers cooperation	2	13	35	28	2
Ave	2	19	35.5	20	3.5

Number of respondents: 80

Source: Own Survey 2015

According to Mansidão et al. 2014 model, in humanitarian supply chain the cooperation and exchange of data between actors (enter as well as intera) involved in a disaster/any development program are indispensable in order to effectively respond to the emergency or normal situation request. Moreover, the standardization of procedures could accelerate and improve the resolution of the disaster. As shown in above table 4.5 on average 20% and 3.5% of respondents agree and strongly agree on the cooperation between companies. On the other hand 35.5% of the respondents are not sure about the availability of cooperation, 19% and 2% of the respondents

disagreed and completely disagree on availability of cooperation, information sharing and flexibility.

4.1.6. Community restriction in relation to Rental vehicle at GOAL Ethiopia

Table 4.6: Summary of Responses of respondents on Community at goal Ethiopia, 2015.

Question items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Community Restriction					
	%	%	%	%	%
No resistance	3	17	38	18	4
No pressure	4	29	32	13	2
Ave	3.5	23	35	15.5	3

Number of respondents: 80

Source: Own Survey 2015

Respondents requested to confirm either there is no resistance or pressure from the community when moving by rental vehicle (which come from different region) around GOAL program sites. As shown in the above table 4.6, on average, 35 % of the respondents' attitude towards community restriction is neutral. 23 % and 3.5% of the respondents disagree and strongly disagree respectively on not availability of resistance and pressure from community. On the other hand 15.5 % and 3% of respondents agree and strong agree as there is no community restriction.

4.1.7. Cost in relation to Rental vehicle at GOAL Ethiopia

Table 4.7: Summary of Responses of respondents on Cost at goal Ethiopia, 2015.

Question items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Cost of Rental Vehicle	%	%	%	%	%
It has noImpact	6	16	32	20	6

Number of respondents: 80

Source: Own Survey 2015

To examine respondents attitude about cost (described in table 4.7) respondents have been requested either cost of rental car has no impact on program implementation. 32 % of the respondent does not have information about its impact and responded neutral. 16 % and 6% of respondents disagree and strongly disagree as cost not has any impact on their program. Contrary to that 20% and 6 % of the respondent agree and strongly agree as cost does not have any impact. Majority of the respondent select neutral regarding cost impact that might be the result of rental vehicle cost handling in the organization: i.e. in rental vehicle service usage one year fixed price contract will be signed and cost is allocated at the beginning of fiscal year or opening of new grant, therefore respondents might not have chance to know about impact of cost or might not affect their activity since cost is known and allocated in advance. This situation support by the following research(Santarelli 2010), although the costs are not the predominant resource metrics for humanitarian supply chain, it isimportant to evaluate them. Due to the unpredictable demand and nature of cost handling, the evaluation and control of costsare difficult in humanitarian logistics.

4.1.8. Operating area infrastructure in relation to Rental vehicle at GOAL Ethiopia

Table 4.8: Summary of Responses of respondents on Infrastructure at goal Ethiopia, 2015.

Question	Strongly	Disagree	Neutral	Agree	Strongly agree
----------	----------	----------	---------	-------	----------------

items	disagree				
Operating area Infrastructure					
	%	%	%	%	%
No impact	15	30	20	10	5
No Delay	4	23	33	18	2
Ave	9.5	26.5	26.5	14	3.5

Number of respondents: 80

Source: Own Survey 2015

Two question developed to evaluate the impact of operating area infrastructure. That is bad road condition not affects the delivery of rental vehicles and there is no delay in the movement of goods and manpower in any infrastructural condition. As shown in the above table 4.8 on average 26.5% of respondent disagree or have no any idea /neutral on no impact of infrastructure. 14% and 3.5% agree and strongly agree as bad road condition has no effect and there is no delay as the result of infrastructure, on the other hand 9.5% of respondents disagree as the operation area infrastructure has no impact on their activity.

4.1.9. Peak season in relation to Rental vehicle at GOAL Ethiopia

Table 4.9: Summary of Responses of respondents on Peak Season at goal Ethiopia, 2015.

Question items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Peak Season					
	%	%	%	%	%
No Impact	6	17	29	20	7

Number of respondents: 80

Source: Own Survey 2015

The above table 4.9 show that 29% of respondents' attitude towards peak season impact is Neutral. 20 % and 7% of the respondents agree and strongly agree as peak season such as peak tourism time and declared emergency in the country has no impact on delivery of rental cars. On contrary 17% and 6% of respondents disagree and strongly disagree as such peak season has no impact.

4.10. Topography in relation to Rental vehicle at GOAL Ethiopia

Table 4.10: Summary of Responses of respondents on Topography at goal Ethiopia, 2015.

Question items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Topography and weather condition	%	%	%	%	%
No impact	2	19	30	26	3

Number of respondents: 80

Source: Own Survey 2015

The above table 4.10 show that 30% of respondents' attitude towards topography and weather condition impact on delivery of rental vehicle is Neutral. 26 % and 3% of the respondents agree and strongly agree as topography and weather condition has no impact. On contrary 19% and 2% of respondents disagree and strongly disagree as such that topography and weather condition of the GOAL operation site has no impact on delivery of rental cars .

4.11. Duration in relation to Rental vehicle at GOAL Ethiopia

Table 4.11: Summary of Responses of respondents on Duration at goal Ethiopia, 2015.

Question items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Duration/No of days vehicle required	%	%	%	%	%
No effect	10	22	32	15	11

Number of respondents: 80

Source: Own Survey 2015

The number of days the vehicle needed or duration of the project is a quantitative, no-financial index measured by the project's duration. The above table 4.11 show that 32% of respondents' attitude towards duration (number of days vehicle required) impact on delivery of rental vehicle is Neutral. 15 % and 11% of the respondents agree and strongly agree as number of days has no

effect on response time,contrary to that 22% and 10% of respondents disagree and strongly disagree as number of days vehicle required has no effect.

4.2 Logistics performance

The questionnaire includes 14 indicators that used to evaluate the performance of logistics in GOAL Ethiopia. The respondents asked to give answer based on five Likert scale (strongly disagree, disagree, neutral, agree and strongly agree).

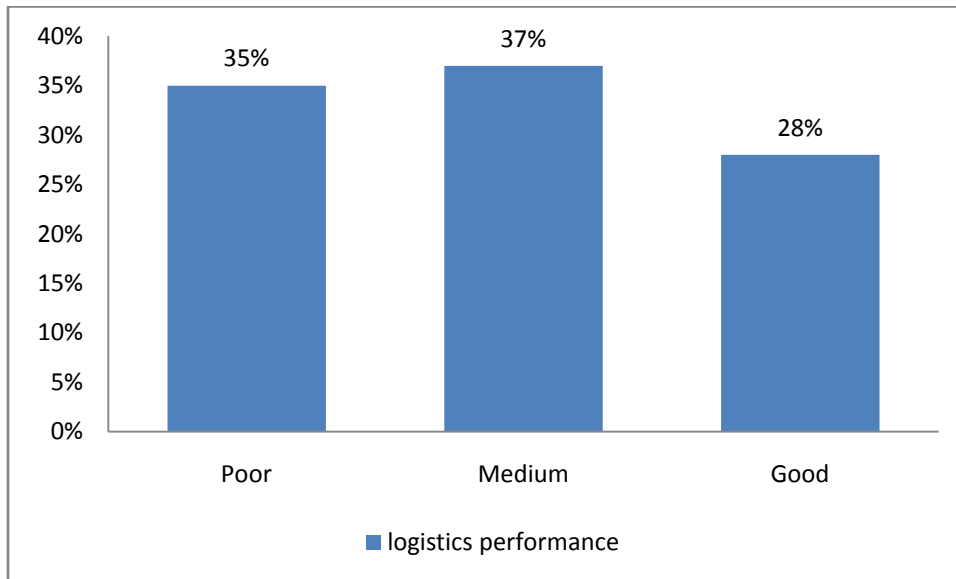


Figure 2: Assessment of logistics performance at Goal Ethiopia, 2015

Source: Own Survey 2015

The findings of this study show that the level of logistics performance using median+/- standard deviation (46 + 0.6) indicates the highest rates were in the range of medium position. It ranges from 45.4 through 46.6. It shows that 35% was poor, 37% medium and 28% good as shown in figure 1 above.

Table 4.12 Logistics Performance

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
LpLogistics was able to process requests on time.	80	1.00	4.00	3.1750	.65168	.425

LpLogistics was able to deliver goods and services with in promised time during emergency.	80	1.00	5.00	3.2125	.64109	.549
LpLogistics was able to deliver goods and services with in promised time during normal situation.	80	2.00	5.00	3.5000	.69355	.481
LpLogistics was able to deliver goods up to beneficiary/distribution site on time	80	2.00	5.00	3.5250	.61572	.479
LpLogistics is flexible enough to accommodate additional quantity on top of requested quantity	80	2.00	5.00	3.1250	.68205	.465
LpLogistics is able to deliver full list of requested items and exceptional requests	80	2.00	5.00	3.0250	.65871	.531
LpGOAL Warehouse location is convenient for easy distribution.	80	1.00	5.00	3.1000	.69590	.499
LpLogistics update requesters about the status of order on regular manner.	80	1.00	5.00	3.0625	.71666	.667
lpThere is coordination between GOAL logistics and rental company	80	2.00	5.00	3.3500	.67693	.458
LpThere is standard GOAL logistics procedure and performance management	80	2.00	5.00	3.7475	.72903	.531
LpSatisfaction level of end users with GOAL logistics performance is high	80	1.00	4.00	3.0125	.73250	.537
LpLogistics service process is improving from time to time.	80	2.00	5.00	3.4500	.63740	.529
LpLogistics Uses IT to follow up and facilitate order	80	2.00	5.00	3.0750	.62582	.402

LpLogistics is able to save cost by reducing transit time, coordinating requests and measuring the performance of rent Co. Service.	80	1.00	5.00	3.0875	.61863	.538
logistics performance	80	35.00	64.00	45.5875	5.52461	30.521
Valid N (listwise)	80					

Source: own Survey 2015

Fourteen questions were developed to measure logistics performance (independent variable). As indicated in conceptual frame work the questions used the following standard logistics performance indicator adopted from literature: Cost effectiveness, Response Time, Flexibility, Reliability, Cooperation and User satisfaction.

The result in Table 4.12 shows that the level of logistics performance which lead to overall logistics effectiveness Mean (45.5875).In general the mean for the key performance indicators is with range of (3.1-.3.7) which indicate the level of the logistics performance is at medium level .The size of each of the constructs included as key performance can be affected in the specific environment, efficiency, effectiveness and service level, but during measuring the performance the response from respondent indicate the level of the logistics performance is at medium level.

The low variation of the standard deviation which is <0.9 indicated that respondents were unanimous the performance of logistics performance is good at medium level, whenit's measured by selected criteria: cooperation (information sharing and standardization), response time (on time delivery, response during normal as well as emergency situation, warehouse location & presence) flexibility /reliability (volume and mix of flexibility in change the number and variety from planned request), cost effectiveness and satisfaction level of user.

4.1.3 Correlation Analysis

This study analyzed relationships by using the correlation analysis, which investigates the strength of relationships between the studied variables. Person correlation coefficients reveal magnitude and direction of relationships (either positive or negative) and the intensity of the

relationship (-1.0 to +1.0). Correlations are perhaps the most basic and most useful measure of association between two or more variables (Marczyk et al 2005).

According to Marczyk et.al(2005) general guidelines correlations of .01 to .30 are considered small, correlation for .30 to .70 are considered moderate, correlation of .70 to .90 are considered large and correlations of .90 to 1.00 are considered very large. Depending on this assumption, all basic constructs were included into the correlation analysis and a bivariate two tailed correlation analysis was done.

Table 5 Correlation Analysis

	Log istics performance	Safety & Security	COST	Peak Season	Duration	Cooperat ion	Weather, Topgrahy	Response Time	infrastruc ture	Community Restriction	Satisfaction Company	
Pearson Correlation	Log istics performance	1.000	0.452**	.181	-.130	.038	0.573**	-.127	0.623**	0.424**	-.093	0.592**
	Safety & Security		1.000	.047	-.109	-.134	0.375**	.103	0.433**	.082	-.036	.231
	COST			1.000	-.152	-.056	0.350**	-.086	.172	0.082**	0.221**	.263
	Peak Season				1.000	.267	-.058	.134	-.128	.158	-.025	.009
	Duration					1.000	-.119	.114	-.006	.204	-.252	.081
	Cooperation						1.000	-.033	0.484**	0.326**	-.089	0.405**
	Weather,Topgrahy							1.000	-.065	-.014	-.074	-.045
	Rensponse Time								1.000	.211	-.040	0.504**
	infrastructure									1.000	-.134	0.410**
	Community Restriction										1.000	-.150
	Satisfaction Company											1.000

Own survey 2015

As per Table 5 above the coefficients shows that seven of the independent variables are positively related with the logistics performance with in the range of 0.038 to 0.623 all were significant at the 0.01 level. Five independent variables i.e vehicle safety and security, response time, satisfaction of company, cooperation of a company and operating area infrastructure show a moderate level of positive relation with the dependent variable (logistics performance).

Two of independent variables i.e cost and duration/number of days show a small level of positive relation with the dependent variable (Logistics Performance).

Regarding the relationship between the independent variables, Table 5 clearly shows that figures with the symbol ** indicate that each of the variables are significantly correlated with each other at a significance level of $P < 0.01$.

4.1.4 Regression Analysis

In order to see the effect of use of rental vehicles on logistics performance, multiple linear regression analysis was employed. Logistics performance was used as the dependent variables while the use of rental vehicle (Safety security, Response Time, Satisfaction of company, Cooperation of the company, Community Restriction, Cost of Rental vehicle, Operating area Infrastructure, Peak Season, Topography/ weather condition and Duration/No of day's vehicle required) were used as the independent variables. This allows us to make statements about how well one or more independent variables will predict the value of a dependent variable. According to Chatterjee and Hadi (2006), the true relationship between independent variables and dependent variables can be approximated by the regression model: The ten variables under use of rental vehicle were entered into regression analysis to determine their relative importance in contributing to the overall logistics performance.

Model summary and ANOVA for multiple linear regression

Table 6: Model summary

R	R Square	Adjusted R Square	Standard error of the estimate
0.791 ^a	0.626 ^a	.571	0.153

a. Predictors: (Constant), SS, PS, INFR, COMR, SC, DUR, COST, TOPG, RT, COP

b. Dependent Variable: Logistics performance

Source: Own Survey 2015

Above Table 6 result predict the goodness of the regression to fit the model. The multiple correlation coefficient (R), Coefficient of determination (R square), and Standard error were

examined. The coefficient of determination (R square) presents how much of the variance in the measure of logistics performance is explained by the use of rental vehicle (independent variable). The model or the independent variables have accounted for 62 % (adjusted R square 57%) with estimated standard deviation 0.153, of the variance in criterion variable (logistics performance). This indicates that 57% of the variance in the dependent variable is explained by the independent variables in the model. The model also indicates that, the remaining 43% of the variance can be explained by other variables out of this model and indicates that further research is needed to identify the additional factors that influence logistics performance.

Table 7: ANOVA table summary

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	2.731	10	.273	11.529	.000 ^b
Residual	1.634	69	.024		
Total	4.365	79			

a. Dependent Variable: Logistics performance

b. Predictors: (Constant), SS, PS, INFR, COMR, SC, DUR, COST, TOPG, RT, COP

Source: Own Survey 2015

The ANOVA (Table 7) above shows the overall significance/acceptability of the model from a statistical perspective. The F-ratio, which explain whether the result of the regression model could have occurred by chance, has a value of 11.53 and is significant at 0.000. Large F value and a small significance level (typically smaller than 0.05 or 0.01) indicate that the results probably are not due to random chance. Therefore, it is possible to say that the regression model adopted in this study could have not occurred by chance and is considered significant.

Standard Beta Coefficient

As it is stated earlier in this chapter, this study aims to identify the most contributing independent variables in the predication of the dependent variable. Thus, the strength of each independent (predictor) variable influence on the dependent variable can be investigated via standardized Beta Coefficient. The regression coefficient explain the average amount of change in the dependent variable that caused by a unit of change in the independent variable. The larger value of Beta coefficients indicate that the independent variable has brings support to independent variable and also has importance in predicting the dependent variable.

The coefficient of determination (R-Square) value only indicates the variance in overall level of logistics performance as it is explained by the independent variables. However, when we see the extent to which each independent variable influences the dependent variable, satisfaction of the company, cooperation of the company, response time, safety & security and Infrastructure were found to be the determinant of logistics performance, in their descending order referring Satisfaction of the company as the most important one to influence logistics performance.

Table 8: Summary of linear Regression Analysis

Coefficients ^a											
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.947	.254		3.730	.000					
	safety/security	.131	.058	.195	2.266	.027*	.452	.263	.167	.734	1.363
	COST	-.028	.035	-.070	-.816	.417	.181	-.098	-.060	.744	1.345
	Peak Season	-.037	.026	-.113	-1.415	.162	-.130	-.168	-.104	.855	1.170
	Duration	.027	.027	.084	1.009	.317	.038	.121	.074	.790	1.266
	Cooperation	.152	.060	.246	2.518	.014*	.573	.290	.185	.571	1.752
	Topography	-.034	.024	-.107	-1.404	.165	-.127	-.167	-.103	.939	1.064
	Response Time	.150	.061	.237	2.439	.017*	.621	.282	.180	.573	1.746
	Infrastructure	.089	.043	.177	2.068	.042*	.424	.242	.152	.739	1.353
	Community Restriction	.016	.038	.036	.437	.663	-.093	.053	.032	.820	1.219
	Satisfaction of Company	.198	.070	.269	2.828	.006*	.592	.322	.208	.601	1.663

a. Dependent Variable: Logistics performance

Source: Own Survey data 2015

Table 8 shows the regression standardized coefficients for the ten independent variables. The relative importance of the use of rental vehicle (independent variables) in contributing to variance of logistics performance (dependent variable) was explained by standardized Beta Coefficient. As such of the ten independent variables, the factor which had the greatest effect on

the overall logistics performance in GOAL Ethiopia was Satisfaction of the company with a coefficient ($\beta=.269$).The result revealed that, a one unit increase in satisfaction would lead to a 26.9 percent increase in level of logistics performance

The other independent variable, Cooperation of the company with a coefficient ($\beta=.246$) also appear to play an important role in influencing logistics performance. Response time with ($\beta=.237$) have also been significant in impacting logistics performance.

Respondent also consider vehicle safety and security ($\beta=.195$) is the fourth basic variable which influence logistics performance. The response also shows operating area Infrastructure with a ($\beta=.177$) is another influential independent variable.

In addition to the regression standardized coefficients, partial and part correlations provide a means of assessing the relative “importance” of independent variables in determining logistics performance. Specifically, the squared part correlation for a variable tells us how much R^2 will decrease if that variable is removed from the regression equation.

Multicollinearity(or Collinearity) is used to describe the situation when a high correlation is detected between two or more predictor variables. Such high correlations cause problems when trying to draw inferences about the relative contribution of each predictor variable to the success of the model. According to Andy F (2006),Multicollinearity exists when there is a strong correlation between two or more predictors in a regression model.Multicollinearity poses a problem only for multiple regressions because simple regression requires only one predictor.Low levels of collinearity pose little threat to the models generated by SPSS,but as collinearity increases,the standard errors of the B coefficients,which in turn affects whether these coefficients are found to be statistically significant.In general, high levels of collinearity increase the probability that a good predictor of the outcome will be found non-significant and rejected from the model.

Andy also suggested that, one way of identify mult collineairity is to scan a correlation matrix of all of the predictor variables and see if any correlate very highly (0.80 or.90). The other good method is performing collinearity diagnostics using SPSS. VIF (variance inflation factor) is the first. It indicates whether a predictor has a strong linear relationship with the other predictors(S).

Myers (1990) suggests that a VIF value 1 is a good value at which to worry. Bowerman&O’Connell(1990) on the other hand propose if the average VIF is greater than 1,then multicollinearity may biasing the regression model. Related to the VIF is tolerance statistic. This is a reciprocal (1/VIF). As such, value below.1 indicates serious problem although menard (1995) suggests that the values below.2 are worthy of concern.

Table 8 show collinearty and VIF result: the effect of multicollinearity was examined by using the variance inflation factor (VIF) and tolerance value for each of the regression coefficients. As seen in the table 8 collinearty statistics revealed a tolerance values between 0.571 and0.939 and VIF value between 1.064 and 1.746.The average VIF value is 1.39 which is greater than 1 but not substantially. Tolerance value we also significantly higher than .2. Consequently, theresults show that multicollinearity is trifling /insignificant in this study.

Testing Hypothesis

This section deals extensively with the statistical testing of the hypotheses formulated for this study and also interpreting the result making use of Beta correlation coefficient.

In addition to regression analysis done under Table 8 above which aims in general to identify significant and non-significant independent variable affecting logistics performance, another linear regression analysis is done by grouping the independent variable in to two. The grouping is based on the result from table 8. The first group table 9 is for independent variable which has significant p value less than 0.05. The second group is for independent variable which has P value greater than 0.05.This is in order to test the hypotheses and reveled the influence of independent variables.

Table 9Factors of use of rental vehicle that significantly affect logistics performance

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.922	.177		5.207	.000
	Safety and security	.131	.057	.205	2.286	.025

Satisfaction	.189	.060	.299	3.131	.002
Infrastructure	.119	.057	.177	2.088	.040
Response Time	.140	.056	.226	2.479	.015
TOPG	.098	.042	.194	2.326	.023

a. Dependent Variable: Logistics performance
Own survey 2015

As can be seen from table 9 above the five independent variable: satisfaction of the company, cooperation of the company, response time, vehicle safety/security and operating infrastructure has significant level of 0.000 to 0.040 respectively which are less than 0.05. This indicate that there is relationship between them and dependent variable. The relative importance of each independent variable (satisfaction, cooperation, response time, safety/security and infrastructure) in contributing to dependent variable (logistics performance) was explained by standardize beta coefficient.

Table 9 above also reveals that satisfaction of the company relate with ($\beta=0.262, P<0.05$), Cooperation of the company ($\beta=0.246, P<0.05$), Response time ($\beta=0.237, P<0.05$), Vehicle safety and security ($\beta=0.195, P<0.05$) and Operating Infrastructure ($\beta=0.177, P<0.05$), therefore the hypothesis were accepted as five of the independent variable (satisfaction, cooperation, response time, vehicle safety/security and operation infrastructure has positive effect on logistics performance.

In general as table 9 shows, among the five predictors, standard linear regressions (Beta Coefficients) analysis revealed that Satisfaction of the company is the first most significant variable for logistics performance followed by cooperation of the company, response time, vehicle safety/security and infrastructure. On the other hand, Cost, Peak Season, Duration, Topography and community restriction have no significant effect on logistics performance as they are explained by the significance level $P>0.05$.

A research done on quality of management influences on logistics performance support this result by giving emphasis on that the morale of logistics employees is most significantly, and favourably, affected by the availability of logistics performance and productivity data (i.e.

Information) and efforts to measure, compare and analyse work performance and improvement (i.e. Work Measurement).Hsiaoet.al (2012) revealed that cooperation of supply chain member has significant effects on logistics integration and performance. The World Bank performance index 2014 confirmed that logistics performance is strongly associated with the reliability of supply chains and the predictability of service provides which is similar with this research result.

Table 10Factors of use of rental vehicle that does have significantly affect logistics performance

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.741	.257		10.684	.000
	COMR	-.074	.052	-.164	-1.404	.164
	COSToR	.081	.047	.200	1.715	.091
	INFR	-.037	.036	-.117	-1.038	.303
	PS	-.033	.039	-.100	-.848	.399
	DUR	.019	.038	.060	.509	.612

a. Dependent Variable: Logistics performance
Own survey 2015

As can be seen in table 10,The result from respondents show COST with a ($\beta=-0.070$, $P>0.05$), Peak Season ($\beta =-0.113$, $P>0.05$),Duration ($\beta =0.084$, $P>0.05$), Topography ($\beta =-0.107$, $P>0.05$) and Community Restriction ($\beta =0.036$, $P>0.05$) were found independent variable which doesn't have significant effect on logistics performance .Then the hypothesis that stated as cost, peak season, duration, topography and community restriction has been rejected.

Cost has always been the main indispensable dimension in assessing the logisticsPerformance (Andersson et al., 1989; Banomyong & Supatn, 2011).However this study reject the finding of Banomyon et al. and confirm cost might not be significant in all transport service specially when fixed price contract is signed between the parties. In fixed price long term contract, budget holders already include transportation cost at the beginning of budget year so cost doesn't make major difference in relation to logistics performance at implementation stage.

Similar to standardized beta coefficient, the squared part correlation shows the highest contribution of the five variables (Satisfaction of the company, cooperation of the company, response time, Vehicle safety/security and infrastructure) to logistics performance. Amongst the five significance variables satisfaction of the company has higher part correlation followed by response time and cooperation of the company.

Table 11: Summary of the overall output of the research hypotheses.

	Hypotheses	Result	Reason
H1	Vehicle safety and security positively affect the performance of logistics.	H1 Accepted	P<0.05
H2	Response time positively affects logistics performance.	H2 Accepted	P<0.05
H3	Satisfaction of the rental company positively affects logistics performance.	H3 Accepted	P<0.05
H4	Cooperation of Rental Company positively affects logistics performance.	H4 Accepted	P<0.05
H5	Community restriction positively affects logistics performance.	H5 Rejected	P>0.05
H6	Cost of rental vehicle positively affects logistics performance	H6 Rejected	P>0.05
H7	Operating area infrastructure has a significant effect on logistics performance.	H7 Accepted	P<0.05
H8	Peak Season has a significant effect on logistics performance.	H8 Rejected	P>0.05
H9	Topography, Weather and logistics positively affect logistics performance.	H9 Rejected	P>0.05
H10	Duration has a significant effect on logistics performance.	H10 Rejected	P>0.05

Source: Own Survey 2015

CHAPTER 5

Summary of Findings Conclusion and Recommendation

5.1 Summary of Findings.

Summary of finding based on research question (What is the effect of the use of rental vehicles on logistics performance and which variables significantly influences logistics performance)

The study is designed and carried out in order to examine the effect of use of rental vehicle on logistics performance. According to the study findings, five independent variables: cooperation of the company, satisfaction of the company, response time, vehicle safety/security and infrastructure have significant effect on logistics performance. Amongst the five variable satisfaction of the company has a significant effect on logistics performance.

Satisfaction of the company

The study main finding that is done on the relationship between employee satisfaction and organization performance (Mafin et al 2013) show positive correlations between organization performance and all five employee satisfaction factors, namely working conditions, ability utilization, creativity, teamwork and autonomy. Amongst the five factors, teamwork had the greatest impact on organizational as well as logistics performance, followed by ability. Therefore this study finding also supported by the above result.

Cooperation of the company

Next to satisfaction of the company, cooperation factors are strongly associate with logistics performance, this is also supported by the finding of study done by : Chandes and Pache (2010) emphasized that lack of coordination affects performance of humanitarian logistics operations and actors from this sector need to engage in collective action for achieving positive impact on their logistics performance.

Response Time

The third important factor associated with logistics performance is response time. According to the World Bank logistics performance index 2014 logistics performance is strongly associated with the reliability of supply chains and the predictability of service delivery for producers and exporters.

Vehicle safety and Security

The fourth important factor associated with performance of logistics was vehicle safety and security. Previous study stated that firms that place a high strategic priority on security/safety show a greater ability to detect and recover from security incidents both inside the firm and across the supply chain in comparison to firms that place a low strategic priority on security (Douglas et al 2009).

Operating area infrastructure

Suitability of roads infrastructure and consistent and reliable utilities of water, electricity and communication, positively affect logistics performance towards rental vehicle service. Similarly this finding supported by research conducted by Wassenhove (2006) that humanitarian logistics operates in such areas where roads are often inadequate, with fragmented technology and poorly defined manual processes.

Summary of finding based on research question (Is there a relationship between use of rental vehicle and logistics performance?)

The study intended to identify either there was relationship between use of rental vehicle and logistics performance. The study findings revealed that, use of rental variables (safety and security, Response time, cooperation of the company, operating area infrastructure satisfaction of the company, cost and duration are positively related with the logistics performance. The finding shows that seven independent variables have a positive relationship with the dependent variable (logistics performance).

Similarly, Mulama (2012) in his study done on logistics performance proved that perceived performance on logistics attributes significantly affects customer satisfaction and the percentage of business that is allocated to primary and secondary suppliers, which is key information for developing competitive strategies. The result show that in the customer service factor, advice of

late delivery, order consistency, full range of product availability, order cycle time, on time delivery, response to priority delivery request, and response capabilities to customer enquiries were characterized by a relatively low level of satisfaction and a high level of importance.

5.2 Conclusion

This study was intended to examine the effect of the use of rental vehicles on logistics performance. In addition it identified the relationship between use of rental vehicle and logistics performance and the difference of logistics performance in relation with use of rental vehicles depending on different demographic variables.

As per the finding of this study, the high percentage the staffs included in this study were officers 25(31.5%) while the list number were coordinators 15(18.75%) which is an indication that the majority of the respondents were engaged in specific activities. So individual level intervention would be a good area to bring out the full potential of individual officers to support and involvement in better logistics performance at Goal Ethiopia.

The correlation analysis expressed that vehicle safety/security, response time, cooperation, operating infrastructure and satisfaction of the company are positively related with logistics performance. Which means GOAL Ethiopia practice of giving attention for third party service provider is not enough. The organization logistics procedure, program planning and coordination with rental vehicle transport service has to be improved. This involves integration, co-ordination and collaboration across and within organization departments and throughout the logistics chain.

In addition, when service provider satisfied with the working atmosphere and payment from GOAL Ethiopia, rental companies' employees will have a chance to cooperate and give response on time. Therefore, the response of GOAL staffs' indicate that GOAL as well as rental companies need to work on aspect of establishing good reporting and cooperation mechanism to enhance the quality of logistics performance in relation to rental vehicles. Transport service provider capacity (skill manpower and number of vehicles and their driver knowledge) has to be reviewed to suggest possible improvement tools.

Therefore to achieve logistics operational objective and to increase the efficiency of logistics performance it requires an integration between internal (intra organizational) and external (inter organizational) functions.

5.3 Recommendation

The findings of this study have clearly shown that the level of logistics performance towards using of rental vehicle is moderate. This shows there is a need to work more on improving the performance of service provider by identifying the gap and work with rental vehicle companies in order to increase the level of efficiency on rental companies' satisfaction, cooperation, response time and safety/Security. This can be done by establishing performance evaluation mechanism on agreed time frame, sharing of information during planning stage and by giving feedback(recognition)for the work well done and take appropriate major for the tasks that is not done according to the agreement.

According to Bowersox, et al. (2002) logistics operational objectives are base to measure logistics performance. Organization must plan to achieve the following six different operation objectives when they set logistics system design and administration; i.e. rapid response, minimum variance, minimum inventory, movement consolidation, quality, and life-cycle support. In addition to operational objectives logistics plan must be capable of satisfying the company objective and meeting profitably the demand of targeted customers (user of logistics department and beneficiaries). Therefore GOAL Ethiopia need to design objective which take in to consideration the above factors.

Best practices for a management field are a set of useful solutions for the managers at every level (strategic, tactical, and operational) for performing their job (planning, organizing, leading, controlling) (Livi & Emil, (n.d)). Transport Management practice refers to those methods or techniques found to be the most effective and practical means in achieving transportation objectives such as low costs, timely delivery of transportation related information to the rest of the enterprise and to customers, increase transportation velocity while making optimum use of the firm's resources. Younkin, 2006, as cited by Livi & Emil, (n.d), advanced the following transport management best practices; carrier management practices, load planning and

optimization practices, preparing and executing shipments practices, shipment monitoring practices, freight payment and audit practices, and performance monitoring practices (Mulama 2012). Hence GOAL Ethiopia managers has to strength the above mentioned transport management best practice.

Enforcement of the transport contract is vital for better performance of the logistics operation and vehicle safety/security. It is also good practice to review transporters performance to ensure strict adherence to the terms and conditions of the transport contract.

To establish standard criteria's that are used to measure contract vehicle transport service and logistics performance. This will enhance decision making, improve performance, response time and provide accountability. According to (wisner et al., 2005:300) measuring transportation performance allows the firm to identify problem areas and then make changes, resulting in improved transportation services. Measures of performance can be compared against predetermined standards, competitive bench marks, or previous period's performances to identify problem. These are transportation cost, percent on-time deliveries, and average transit time. (Ensermu, 2011, p 93).

GOAL has to develop new strategy to buy own vehicle: Given the road infrastructure problems in the country, full reliance on the private sector for transport of emergency relief and conducting nutritional survey is risky. Some of the disaster prone areas are not easily accessible and not attractive to private service provider. To minimize the risk of not reaching disaster victims or not achieving the intended objective in such areas it is vital for GOAL Ethiopia to plan having own vehicles and truck.

Giving due emphasis to service related criteria during the selection process of the service provider: outsourcing decisions in the humanitarian logistics tend to be less cost driven than they are on average over all industries. So in order to benefit from the competencies of transport providers, GOAL Ethiopia should give emphasis on service related criteria for selecting private transport companies to get transporters who are better qualified.

Giving due attention to effective reporting mechanisms: To avoid lack of information and to take the right action at the right time effective reporting mechanisms should get enough emphasis this also strength

Coordinator, supervisor, manager and officer should be motivated and be given refreshment training to improve their ability. In addition giving awareness about GOAL Ethiopia requirement, logistics polices, mission, objective and other donor requirement to transport service provider improve their response and motivation to participate on relief work.

Suggested Future Research

This study is limited to GOAL Ethiopia only but it would be better, if the scope expand to include rental vehicle service provider, UN agencies and other NGOs. In addition other researchers are recommended to refine the methodology to focus on a comparative study between different INGOs, NGO, UN agencies and charitable organizations.

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Appendix

Annex I: Aggregate Cronbach's alpha

a) Reliability Statistics for safety and Security

Variable	Cronbach's Alpha	Number of Items
Safety & Security	.737	5

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Safety & Security				
Neat and comfortable	10.8875	2.278	.280	.690
Technically fit	10.8000	1.909	.617	.729
Safety equipment	10.6750	2.349	.376	.642
Driving service	10.7000	2.238	.399	.732
Sense of Security	10.9375	2.009	.483	.893

b) Reliability Statistics for Response Time

Variable	Cronbach's Alpha	Number of Items
Response Time	0.715	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Response Time				
Replacement delay	2.7875	.499	.581	
Requested standard	2.3250	.653	.581	

c) Reliability Statistics for Satisfaction

Variables	Cronbach's Alpha	Number of Items
Satisfaction	0.713	2

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Satisfaction				
Driver Satisfaction	3.1500	.357	.462	
With draw rate	2.7750	.658	.462	

d) Reliability Statistics for Cooperation

Variable	Cronbach's Alpha	Number of Items
Cooperation	0.710	2

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Cooperation				
Driver cooperativeness	2.5750	.425	.551	
Flexibility	2.6250	.415	.551	

e) Reliability Statistics for Community restriction

Variable	Cronbach's Alpha	N of Items
Restriction	.703	2

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Community Restriction				
Community resistance	3.3750	.364	.432	
Pressure to use local vehicle	3.2250	.354	.432	

f) Reliability Statistics for Infrastructure

Variable	Cronbach's Alpha	Number of Items
Infrastructure	.857	2

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Infrastructure				
Road condition	2.3875	.544	.756	
Movement delay	2.4500	.706	.756	

g) Reliability Statistics for logistics

Variables	Cronbach's Alpha	N of Items
Logistics Performance	.820	14

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Logistics performance				
On time order process	35.2125	9.804	.227	.853
Response on emergency	35.2625	10.015	.161	.900
Response on normal	34.9125	10.100	.251	.888
On time distribution	34.9625	9.863	.299	.830
Logistics flexibility	35.1125	8.726	.635	.840
Logistics mixing of order	35.0750	10.015	.161	.800

Warehouse location	34.8125	9.930	.181	.998
Information sharing	35.2000	8.587	.602	.840
Coordination goal and rental	35.2375	8.683	.643	.939
Logistics procedure	34.5750	10.709	.075	.943
End user satisfaction	35.1750	8.395	.603	.813
Logistics service improvement	35.1250	9.311	.396	.870
IT usage	34.9875	9.924	.210	.893
Logistics saved cost	35.1000	11.028	.137	.937

Annex III: Consent form

Dear Participants,

My name is Emebet Zerihun; I am a student at Addis Ababa University School of Commerce, undertaking a Master's degree in logistics and Supply chain management. One of the requirements for the degree is to conduct a research project. This letter serves to ask consent from you to take part in this research. The purpose of the research is to assess the effect of using rental vehicles on logistics performance and its associated factors among staffs of Goal Ethiopia.

This will be critical input for organizations and stakeholder involved on rental car in logistics department. Your participation in this research is voluntary. If you decide not to participate there will be no negative consequences for you. If you do decide to participate there will be no benefits for you. However your participation on this study is very important for achievement of the study and for paving logistic performance. There is no any risk will occur to you because of your participation in this study. All the responses given by you and results obtained will be kept confidential using coding system whereby no one will have access to your response. You are not expected to give your name or phone number. Without permission from you and legal body any part of this study will not be disclosed to third person.

Name of investigator: EmebetZerihun

Name of advisors: TeklegiorgisAssefa (Asst.Prof, PhD)

Thanks!!!

Annex II: questionnaire

Please put tick (✓) mark in the box according to your choice.

Part 1: demographic characteristics of respondents

1. Educational status

- ✓ Diploma
- ✓ Degree
- ✓ Masters
- ✓ Others

2. What is your position in the organization?

- ✓ Manager
- ✓ Driver
- ✓ Coordinator
- ✓ Others

3. Have you used renal vehicle?

- ✓ Yes
- ✓ No

4. Service year in this organization

- ✓ Less than five years
- ✓ 5-10 years
- ✓ Over 10 years

5. Work area _

- ✓ Addis Ababa

- ✓ Southern Region
- ✓ Oromia Region
- ✓ Gambella Region
- ✓ Afar Region

Part 2: factors associated with logistics performance

Please show the extent to which you believe about the following statement. Circling (1) means that you strongly disagree (2) Disagree (3) Moderate (4) Agree (5) Strongly agree.

No	Measurement Items	Measurement Scale				
		Strongly Disagree(1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree(5)
	<u>Vehicle safety & Security</u>					
1	Rental Vehicle is neat & Comfortable.	1	2	3	4	5
2	Road worthy and technically fit vehicles are delivered.	1	2	3	4	5
3	Safety equipment's such belts, first aid kit, and reserve tyre....are presented in working condition.	1	2	3	4	5
4	Rental drivers give driving service in a defensive/professional manner.	1	2	3	4	5
5	Use of rental vehicle gives sense of security.	1	2	3	4	5
	<u>Response Time</u>					
6	There is no delay for replacement of rental vehicle for any failer.	1	2	3	4	5
7	Rental Vehicle is delivered as per requested requirement.	1	2	3	4	5
	<u>Satisfaction of company</u>					
8	The rental driver was satisfied while working with GOAL.	1	2	3	4	5
9	There is no high withdraw rate of rental driver.	1	2	3	4	5
	<u>Cooperation of the company</u>					
10	Rental vehicle drivers are cooperative when working					

	with GOAL Ethiopia.	1	2	3	4	5
11	Rental vehicle Companies are flexible for short notice.	1	2	3	4	5
	<u>Community Restriction</u>					
12	In GOAL programme site, there is no resistance when allocating rental vehicle from Addis Ababa.	1	2	3	4	5
13	In GOAL programme site, there is no pressure to take vehicles from local rental company.	1	2	3	4	5
	<u>Cost of Rental vehicle</u>					
14	Cost of rental car has no impact on program implementation.	1	2	3	4	5
	<u>Operating area Infrastructure</u>					
15	Bad road condition of operation area not affects delivery of rental vehicles.	1	2	3	4	5
16	There is no delay in the movement of goods and manpower when using rental cars.	1	2	3	4	5
	<u>Peak Season</u>					
17	Peak season such as peak tourism time and declared emergency in the country has no impact on delivery of rental cars.	1	2	3	4	5
	<u>Topography and weather condition</u>					
18	Topography and weather condition of the GOAL operation site has no impact on delivery of rental cars.	1	2	3	4	5
	<u>Duration/No of days vehicle required</u>					
19	Number of days the rental vehicle required has no effect on response time.	1	2	3	4	5
	<u>Logistics performance</u>					
20	Logistics was able to process requests on time.	1	2	3	4	5
21	Logistics was able to deliver goods and services with in promised time during emergency.	1	2	3	4	5
22	Logistics was able to deliver goods and services with in promised time during normal situation.	1	2	3	4	5
23	Logistics was able to deliver goods up to beneficiary/distribution site on time.	1	2	3	4	5
24	Logistics is flexible enough to accommodate additional quantity on top of requested quantity.	1	2	3	4	5

25	Logistics is able to deliver full list of requested items and exceptional requests.	1	2	3	4	5
26	GOAL Warehouse location is convenient for easy distribution.	1	2	3	4	5
27	Logistics update requesters about the status of order on regular manner.	1	2	3	4	5
28	There is coordination between GOAL logistics and rental company	1	2	3	4	5
29	There is standard GOAL logistics procedure and performance management.	1	2	3	4	5
30	Satisfaction level of end users with GOAL logistics performance is high.	1	2	3	4	5
31	Logistics service process is improving from time to time.	1	2	3	4	5
32	Logistics Uses IT to follow up and facilitate order.	1	2	3	4	5
33	Logistics is able to save cost by reducing transit time, coordinating requests and measuring the performance of rent Co. Service.	1	2	3	4	5