TRANSPORT AND LOGISTICS TIME MOTION AND COST STUDY

FINAL REPORT

TRANSPORT AND LOGISTICS TIME MOTION AND COST STUDY

FINAL REPORT

USAID ECONOMIC PROSPERITY INITIATIVE (EPI)

CONTRACT NUMBER: AID-114-C-10-00004

DELOITTE CONSULTING LLP

USAID/CAUCASUS

WEDNESDAY, JUNE 20, 2012

DATA

ABSTRACT

This document is the final report on the Transport and Logistics Time Motion and Cost Study prepared for Deloitte Consulting LLP in the framework of USAID Economic Prosperity Initiative (EPI) by ACT Research.

Transport and logistics is one of the strategic sectors of Georgia. It can be pivotal and catalytic to a broad segment of the economy. In order to fully understand its potential impact on the economy, it was critical to make an assessment of the transportation and logistics sector, which has been identified as a crosscutting sector that the EPI will focus on.

In order to condcut a deep assessment of transport and logistics value chains and develop a strategy work plan in this sector it is critical to obtain baseline data using statistically relevant methodology. Unfortunately, there was no such recorded data in this sector until recently. Taking these considerations into account the research was arranged, planned, and then implemented from April till July, 2011.

The main purpose of ACT's research was to design and develop statistically relevant methodology for a baseline measurement of transport and logistics-related factors between specific transport nodes within Georgia and then conduct a baseline survey according to the developed methodology.

The main objectives of the baseline survey were to study the timing, costs, availability, quality, and reliability of transportation and logistics in Georgia.

For this purpose ACT Research has developed an optimal research approach, which include the following main components: (a) Desk Research (in order to obtain and analyze secondary data pertaining to the nodes that are to be studied in the scope of this project), (b) Surveys of Transport and Logistics (Warehousing and Distribution) Companies (all transport and warehousing companies were studied) and (c) Tracking the Actual Transportation Process using GPS Tracking Devices.

Besides these main components, ACT has also developed a visual map, in which all transportation and logistics companies operating in Georgia are represented.

According the survey results a major part of the transport, cargo-handling and distribution is located in three main region/cities of Georgia. These are Tbilisi, Samegrelo-Zemo Svaneti (with Poti as its center), and Adjara region (with Batumi as its center).

Different types of transportation service are available in Georgia (truck/road, rail, sea, and air). The average amount of goods/freight transported during one year by companies is 18,800 tons. The cost of transporting goods one kilometer with one truck within the territory of Georgia is USD 1.88 on average, and similarly the cost of transporting freight for one kilometer with one freight car (rail) within the territory of Georgia is USD 2.56 on average.

The average time (measured by GPS) needed for trucks to move to several destinations is: 17.8 hours – (Poti-Sadakhlo), 12.5 hours – (Tbilisi-Poti/Poti – Tbilisi), 13.8 hours (Tbilisi-Batumi)

Warehousing companies operating in Georgia use various types of storage (dry, cold-frozen, bulk) for keeping goods. The average price of storing goods is USD 2.30 (1 ton/day) in dry storages, USD 6.70 (1 ton/day) for cold-frozen storages and USD 0.40 (1 m^3/day) for bulk

storage. Based on the survey results the full-potential capacity of all warehousing companies in Georgia is 1,477,690 tons. The average capacity of a company is 3,307 tons (the average number does not include data for the Poti sea port).

Port/airport-handling companies along with various services provide loading/unloading services. On average the loading/unloading time for one truck is two hours and the cost for liquid, bulk, and general cargo is USD 13, USD 9, and USD 12, respectively.

ABBREVIATIONS

ACT	ACT Research (Market research & consulting company)
EPI	Economic Prosperity Initiative
FTF	Face to Face
GEOSTAT	National Statistics office of Georgia
GIS	Geographic Information System
GPS	Global Positioning System
USAID	United States Agency for International Development

CONTENTS

I. EXECUTIVE SUMMARY

Transport and logistics is one of the strategic sectors of Georgia. It can be pivotal and catalytic to a broad segment of the economy. In order to fully understand its potential impact on the economy, it was critical to make an assessment of the transportation and logistics sector and it has been identified as a crosscutting sector that EPI will focus on.

The main role of ACT research in the frame of this project was to design and develop a statistically relevant methodology for baseline measurement of transport and logistics-related factors between specific transport nodes within Georgia and conduct the baseline survey according to the elaborated methodology.

The main objectives of the baseline survey were to study the timing, costs, availability, quality, and reliability of transportation and logistics in Georgia.

The main components of the applied methodology were:

- Desk research (in order to obtain and analyze secondary data[1] pertaining to the nodes that are to be studied in the scope of this project);

- Surveys of transport and logistics (warehousing and distribution) companies (all transport and warehousing companies were studied) and

- Tracking the actual transportation process by GPS.

In addition to this, ACT developed the visual map where information about nodes and companies is attached.

TRANSPORTATION AND LOGISTICS MARKET IN GEORGIA

According to the database obtained from GEOSTAT, 631 transport and 333 logistics companies were registered in Georgia, but after actualization of this database, 303 transport companies and 82 warehousing, courier and port/airport handling companies are functioning currently in Georgia. All these companies are presented on the visual map developed by ACT.

In the process of goods/freight transportation, the nodes (airports, ports, terminals) located on the main transportation routes play an important role. The following nodes are of great importance in Georgia:

- Tbilisi International Airport

- Batumi International Airport

- Kutaisi Airport

- Mestia airport

---

[1] The principal source of secondary data used in desk research was GEOSTAT (National Agency of statistics).

- Poti Sea Port

- Batumi Sea Port

- Khulevi Terminal

- Sarpi

- Sadakhlo

- Tsiteli Khidi

PERFORMANCE METRICS OF TRANSPORT AND LOGISTICS COMPANIES

A major portion of the target group companies (transport, cargo-handling, and distribution) is located in three main regions (cities) of Georgia. These are Tbilisi, Samegrelo-Zemo Svaneti with center at Poti, and Adjara region with center at Batumi (approximately 85% of companies are located here).

The average number of employees in the transport companies is 17, cargo-handling companies is 35, and distribution companies is 85.

Different types of transportation service are available in Georgia (truck/road, rail, sea, air). Most frequently goods/freight are transported by road/truck. Eighty-five percent of transport companies in Georgia provide transportation service by truck/road. These companies use different kind of trucks: dry, refrigerated, bulk, container, and automobile trucks. In more than half of the cases of freight forwarding, container trucks are used (52%). The type of container is 40' and 20' standard in most cases (86%). The average amount of goods/freight transported during one year by companies is 18,800 tons.

Warehousing companies use various types of storages for keeping goods. In particular, dry storage (85%), cold-frozen storage (26%), and bulk storage (51%). The average price of storing goods is USD 2.30 (1 ton/per day) in dry storage, USD 6.70 (1 ton/per day) for cold-frozen storage, and USD 0.40 (1 m^3/per day) for bulk storage.

The whole potential capacity of all warehousing companies in Georgia based on survey results is 1,477,690 tons. The average capacity of a company is 3,307 tons (the average number does not include the data for Poti sea port).

Port/airport-handling companies along with various services provide load/unloading services. On average the load/unloading time for one truck is two hours and the cost for liquid, bulk, and general cargo is USD 13, USD 9, and USD 12 respectively.

The survey results showed that most transported/distributed/loaded/unloaded cargo in Georgia is construction materials and food products.

Seventy-five percent of distribution companies handle the goods supplied by transport companies. The majority of these companies (74%) are satisfied with the performance of transport companies. Transport companies are late on average in 17% of product supply cases and the duration of delay is on average five days. The main reasons for delays are technical problems of transport facilities and natural conditions (weather).

TRANSPORTATION TIME AND COST

The survey results showed that the cost of transporting goods for one kilometer differs across transportation types (truck, rail) and transportation routes (distance). Particularly, the cost of transporting goods on one kilometer with one truck in Georgia is on average USD 1.88, and similarly the cost of transporting freight for one kilometer with one freights car (rail) in Georgia is on average USD 2.56.

The most frequently used routes and corresponding parameter of time according to survey results are:

- Poti-Baku (2.73 days)
- Poti-Yerevan (1.8 days)
- Poti-Tbilisi (0.3 days)
- Poti-Sadakhlo (1 day)
- Istanbul-Tbilisi (7.25 days)

The outcome of GPS observation is the following: (Taking into consideration the fact that Rikoti pass tunnel is being repaired and the transport facilities have to use alternate routes over the mountain which take additional 30 minutes):

- Poti-Sadakhlo/Sadakhlo-Poti (17.8 hours/0.74 days)
- Tbilisi-Poti/Poti-Tbilisi (12.5 hours/0.52 days)
- Tbilisi-Batumi (13.8 hours/0.58 days)

II. APPENDICES

A.   BACKGROUND

B.   METHODOLOGY

C.   SURVEY RESULTS

D.   ADDITIONAL INFORMATION

A. BACKGROUND

Because of its strategic geographic location for business and cross-country trade, Georgia has been experiencing a growing transportation and logistics sector. Thanks to this emphasis on the sector, Georgian infrastructure has kept up the development despite the turmoil of war and the effects of the world economic crisis that it has undergone since 2008. This is confirmed by significantly increased traffic flows in recent years. According to the Road Department data, the traffic flows have almost doubled in 2010 compared to 2006 (See table below).

AADT[2] (Anual Average Daily Traffic) (2006-2010 year)

YEAR	SECTION	Car	Mini Buses<15, PickUPs	Buses & Trucks	Trailers & > 3 axels	Sum
2006	Igoeti km 56	6,755	2,230	617	429	**10,031**
2007	Igoeti km 56	7,826	1,508	665	564	**10,564**
2008	Igoeti km 56	8,773	1,860	697	566	**11,896**
2009	Igoeti km 56	8,502	1,881	647	498	**11,528**
2010	Igoeti km 56	12,266	2,409	1,035	779	**16,489**

The current processes in the country – the ongoing process of infrastructure development (highway construction) and modernizing the sector (check-points, customs) – undoubtedly contribute to this dynamic of growth.

EPI accordingly also views the importance of the transportation and infrastructure sectors as very high for the country's economic development potential. Development of the transportation and mechanics is intertwined with the development of any other business/economic initiative, be it agriculture, tourism, trade, etc. Considering these factors, seeing the crucial potential of this sector for the economy at large, EPI sees it necessary to perform an assessment of the transportation and logistics sector.

In order to make a deep assessment of transport and logistics and develop the strategy work plan in this sector it is critical to obtain baseline data using statistically relevant methodology. Unfortunately, there were no such data in this sector until now. Taking into account the lack of the above mentioned data the survey research was planned.

The main purpose of the research was to design and develop statistically relevant methodology for baseline measurement of transport and logistics-related factors between

---

[2] Source – Road Department of Georgia

specific transport nodes within Georgia and conduct the baseline survey according to this methodology.

The main objectives of baseline survey were to study the timing, costs, availability, quality, and reliability of transportation and logistics in Georgia.

The main issues studied during the survey are listed below:

- Significant transportation nodes in Georgia (Georgian sea ports, airports, origin/destination rail and road routes)
- Transport, warehousing, port/airport-handling and distribution companies and their performance metrics

Performance metrics include the specific information as shown below:

- Service type (air, sea, rail, road)
- Types of transport facilities (dry, refrigerated, container, bulk)
- Tonnage of the company, goods/freight served
- Transportation directions (origin, final destination)
- Transportation time and cost (cost of transporting good for 1 km)
- Types of warehouses (dry, cold/frozen, bulk)
- Price of storing goods at warehouses (1 ton/per day, 1 m²/per day, 1 m³/per day)
- Loading/unloading time and cost

In addition, it should be mentioned that the study used objective measures of time and distance such as GPS.

Information obtained as a result of this methodology allowed us to determine the exact route and distance covered by transport facilities (trucks) in Georgia (between main nodes).

In order to better visualize the data, ACT has offered EPI to attach the companies' exact coordinates (latitude / longitude), the photos, profiles, and sizes of the companies to the map. This will allow for easily sensing the size, location, and distance between companies in the given sector.

B. METHODOLOGY

Desk research

At the initial stage of the project the desk research was applied. The purpose of the desk research was to obtain and analyze secondary data pertaining to the nodes that were to be studied in the scope of this project (Georgian sea and airports, origin/destination rail and road routes). In addition, the database of transport, warehousing, courier, port-handling and distribution companies were obtained.

The principal source of secondary data used in desk research was GEOSTAT and Road Department of Georgia.

Survey of Transport and Logistics (Warehousing and Distribution) Companies

INSTRUMENT AND TECHNIQUE

Face-to-face interviews were used for the survey. The length of an interview was approximately 30-40 minutes. In order to develop the structured questionnaire ACT conducted four in-depth interviews with target segment companies in advance. This helped to arrive at the outline of the questionnaire in close cooperation with the expert of the respective component of EPI and later tested in the pilot survey. A special guide was prepared for the above-mentioned in-depth interviews.

PILOT STUDY AND FINAL INSTRUMENT

In order to finalize the questionnaire, the pilot study (five interviews) was carried out in Tbilisi. Upon completion of the interviews, the data was sent to EPI in order to check the relevance of the data with the basic model. After receiving some specific comments from EPI about the questionnaires, five more interviews were conducted and the instrument of the survey was finalized.

Depending on the specification of the target segment organizations, three different kinds of questionnaires were made.

Content of Questionnaires:

Questionnaire 1 (transport companies):

- General information about the company (legal status, number of employees, time of operation on the market, information about branches)

- Performance metrics (types of transport facilities, goods/freight served, tonnage of the company, transportation directions)

- Concrete case of transportation (origin, final destination, check-points on the border of Georgia, transportation time, transportation cost, cost of transporting good on 1 km)

Questionnaire 2 (warehousing, courier, and port-handling companies):

- General information about the company (legal status, number of employees, time of operation on the market, information about branches)

- Performance metrics (types of transport facilities, goods/freight served, tonnage of the company, transportation directions, types of warehouses, number and size of warehouses, price of load/unloading, price of storing goods at warehouses)

Questionnaire 3 (distribution companies):

- General information about the company (legal status, number of employees, time of operation on the market, information about branches)

- Performance metrics (types of transport facilities, goods/freight distributed, tonnage of the company, types of warehouses, number and size of warehouses)

- Testing level of satisfaction (satisfaction level of distributor companies in terms of services provided to them by other logistics and transportation companies)

INTERVIEWERS' TRAINING

Training about the questionnaires was conducted on 16-17 May by the project manager to the interviewers who were selected according to their specialization and experience. On this training they learned in detail (a) the subject of the study, (b) the study tools, and (c) the sampling design. Interviewers were provided with all the materials needed for the field works, such as:

- Addresses of the companies

- Sampling guideline

- Technical report form

- Questionnaires

The practical part of the training concentrated on conducting simulated interviews and later holding an additional discussion of each component of the questionnaire. The total number of interviewers was 35. Twenty interviewers in Tbilisi, four interviewers in Kvemo Kartli, five interviewers in Adjara, three interviewers in Imereti, and three interviewers in Samegrelo region.

SAMPLING DESIGN

ACT recommended the sampling design presented below.

Sampling method – stratified random sampling

Sample frame – the database of companies obtained from GEOSTAT (business register)

Target segment – The target segment of the survey comprises three different groups of companies:

1) Transport companies

2) Warehousing, courier, port-handling companies

3) Distribution companies

For (1) and (2) target group the entire existing base was taken and exercised, and for sampling base for segment (3) the companies with GEL 1,500,000 turnover were used.

For each segment group following number of companies were identified:

N	Target segment	Number
1	Transport companies	631
2	Warehousing, courier, port-handling companies	333
3	Distribution companies	618

Initial Sampling Format

The following number of companies was intended to be interviewed initially:

N	Target segment	Number
1	Transport companies	333
2	Warehousing, courier, port-handling companies	152
3	Distribution companies	120

Fieldwork

Fieldwork began 18 May and finished 25 June. The interviews were performed in different regions throughout Georgia. Before the interview, the interviewer contacted the respondents by phone and arranged a meeting time and date. The interviewer visited the company and conducted the interview. After the interview, the interviewer brought the filled questionnaire to the head office of ACT.

Non-Responses

The magnitude of non-responses changed the final picture. As mentioned above for (1) and (2) target groups the entire base was used and each company was contacted. Because of the large number of non-responses, only 194 interviews for (1) and 48 interviews for (2) were completed. For distribution companies 128 interviews were completed. The basic reason for non-responses was imperfection of the database and refusals from respondents. One part of respondents directly refused to cooperate and other part could not find suitable time for an interview within the fieldwork terms.

Fieldwork Results

By the 25th of June, 370 interviews were completed in total. The table below presents the statistics for each of the component:

Organizations	Components		
	Transport companies	**Warehousing, courier, port-handling companies**	**Distribution companies**
Completed interviews	**194**	**48**	**128**
Refusals	109	34	74
Abolished/temporarily doesn't function	256	133	39
Not satisfy sampling demands	72	118	24
Total Contacted	**631**	**333**	**265**

Fieldwork Quality Control

Monitoring of field work was conducted by the control group. Quality assurance was enforced through (1) checking completed questionnaires by field coordinators and project manager (100%), (2) checking randomly selected completed questionnaires by phone and asking previously worked-out control questions to respondents (30%), and (3) interviewers' daily reports.

The Quality Control Group checked the interviews on the following aspects:

- Authenticity of conducting interviews and asking all questions
- Relevancy criterion of respondents
- Logic of answers to some specific questions in the questionnaire (transportation costs, time etc.)

Data Processing

After the field work (including quality control and questionnaire editing components) coding process was organized by the field manager and the open-ended questions were coded by coding specialists. The code-book frame for the project was developed during the pilot study.

Data Entry Procedure - For data entry and archiving of the corresponding documentation, the following procedures were performed:

1. Receipt of revised and coded (open-ended questions) questionnaires from the field department
2. Distribution of questionnaires to the data-entry operators
3. Collecting the entered questionnaire.

The data were entered in SPSS 15.0 by four data entry operators.

SPSS software has effective tools to identify errors. Database Specialists apply template SPSS procedures and macros designed by the ACT Database Department. Macros are designed in SPSS syntax language and are applied to filter the data. ˅

The final database was converted in the Excel format and presented in the manner requested by the EPI project team.

Attaching the survey information to the map for visualization

In addition to interviews during fieldwork, two qualified ACT team members provided with GPS devices and cameras identified the companies of target segments (all transport, warehousing, and distribution companies participating in the survey) in Tbilisi as well as in regions of Georgia. Two or three photos were taken on each company and the coordinates (longitude and latitude) were defined. ACT intends to attach this information along with the other important characteristics (profile, size) of the companies to the Geographic Information System (GIS) map for visualization.

ACT involved GIS expert Giorgi Japaridze in this stage of survey.

Faced challenges and mitigation measures

- There were a number of companies from the database which were out of business or temporarily non-operational. ACT obtained this data from the National Statistics Office of Georgia and considered it carefully. This problem was solved by contacting the respondent. If the company appeared to be out of business, the next respondent was contacted.

- Some of the companies did not satisfy sampling demands. Information about this fact was obtained from the first contact to respondents by means of filter questions. If the company did not match the sampling requirements the next respondent was contacted.

- In the database that was purchased from GEOSTAT some companies' addresses were unclear, whether they were actual or juridical. The interviewer contacted the respondent and clarified if these two addresses coincided, and if not then obtained the actual address.

- During the fieldwork there were some difficulties about arranging the interviews with respondents as they were busy or the relevant person in the company was not available at the time. The interviewer contacted the respondents several times or even visited the companies several times in order to find a suitable time for the respondent and conduct the interview properly.

- Sometimes there were problems from respondents giving some specific information, such as prices as they deemed it to be confidential. Before the interview, the interviewer assured the respondents that any information they gave would be kept confidential. Respondents' answers would be analyzed on an aggregate basis and their personal information would not be disclosed under any circumstances. Despite this some respondents still refused to be open. In addition to this some companies, especially small ones did not possess the information about price making factors at all.

TRACKING THE ACTUAL TRANSPORTATION PROCESS BY GPS

In parallel to fieldwork, active negotiations were carried out concerning the installation of GPS trackers on the trucks. One hundred two observations were conducted in total. Ninety-seven cases were analyzed in the report, five of them were finished by 15 July and were not taken into account during analysis.

GPS tracking devices are used for tracking the actual transportation process. The observation provided information about the current location of a truck, the distance between any two geographical points, the speed used for transportation between these two points, coordinates of places where and timing when trucks stop. The observations were conducted throughout Georgia only.

Data obtained by GPS was analyzed by ACT database specialists. The observation data is presented in Excel format and its electronic version is attached to the document.

CHALLENGES FACED AND MITIGATION MEASURES

- Purchasing GPS trackers – According to the contract, ACT had to hire specific configuration GPS trackers from a GPS service providing company. But some problems arose from this contractor and ACT was obliged to start negotiations with another supplier and purchased 20 GPS trackers at the beginning of June.

- It was difficult to reach an agreement with truck owners about the installation of GPS devices. The respondents had no wish to install the trackers in their cars. ACT used all its resources (involvement of specially trained group of people, use of personal ties with companies' managers) for implementing 100 trackers.

- Force majeure situation: the process of observation by GPS trackers was impeded because of flood and landslide on Rikhoti Pass. This was the main reason for the delay of fieldwork by two weeks.

C. SURVEY RESULTS

Below are the results of the survey about the transport, warehousing, courier, port-handling, and distribution companies. These include (1) general information about the companies: operating time on the market, number of employees, location of company's head office and branches; (2) Performance metrics: types of transportation service and types of ownership of transport facilities, annual tonnage of companies, transportation routes, time, and cost. (3) Types of goods served, amount of goods loaded/unloaded during one year, capacity of warehouses, rates of service of these companies, etc.

Here are descriptive analyses of all important and interesting parameters.

TRANSPORT AND LOGISTICS COMPANIES - STATISTICS

According to the database obtained from GEOSTAT, 631 transport and 333 logistics companies were registered in Georgia, but after actualization of this database, 303 transport companies and 82 warehousing, courier, and port/airport handling companies are functioning currently in Georgia, others have changed their profile or stopped functioning at the current moment.

In the process of goods/freight transportation the nodes (airports, ports, terminals) located on the main transportation routes play an important role. The following nodes are of great importance in Georgia:

- Tbilisi International Airport
- Batumi International Airport
- Kutaisi Airport
- Mestia airport
- Poti Sea Port
- Batumi Sea Port
- Khulevi Terminal
- Sarpi
- Sadakhlo
- Tsiteli Khidi

Their locations are presented on the visual map developed by ACT in the frame of this project (see below the picture of visual map).

Figure 1: Visual Map
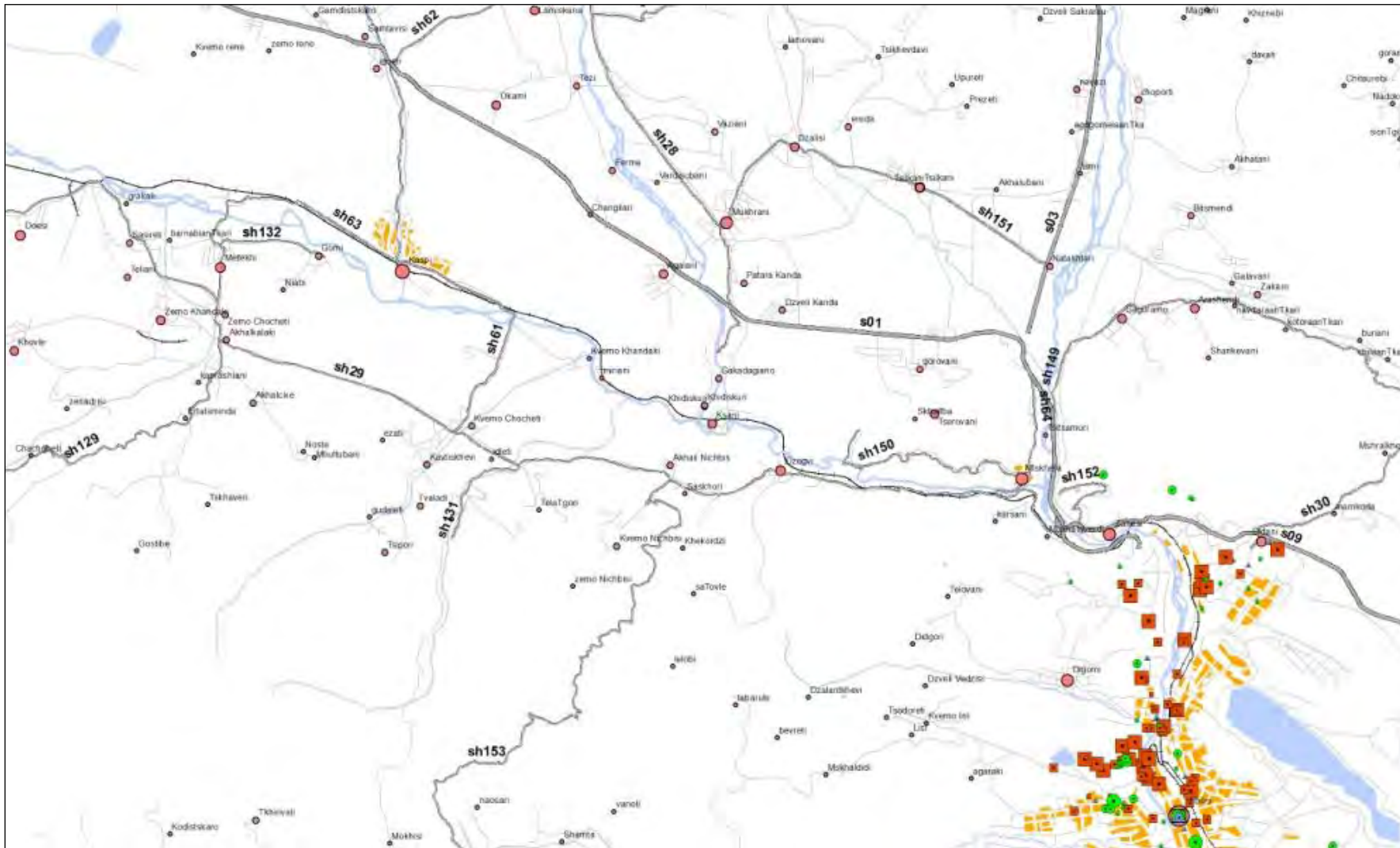
TRANSPORT COMPANIES - OPERATING TIME, NUMBER OF EMPLOYEES, HEAD OFFICES, AND BRANCHES

OPERATING TIME ON THE MARKET

Survey results show that the picture about the companies' operating times on the market are not homogeneous: the most common interval is five or more years, where 43% of transport companies fell in. The smallest part of the target group companies is operating on the market in the time interval from 0 to 1 year (13%). (See Figure 2)

Figure 2: Percentage distribution of operating time (on the market) intervals
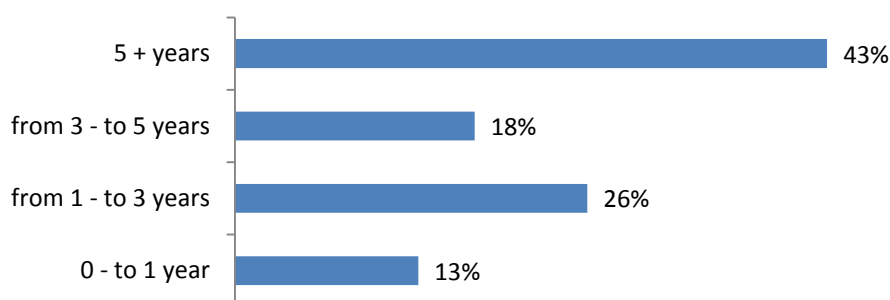
NUMBER OF EMPLOYEES IN TRANSPORT COMPANIES

According to the number of employees (permanent staff and short-term workers) three main groups of transport companies were designated: small companies (1-10 employees), middle-sized companies (11-40 employees), and large companies (41 and more employees). As expected, the share of small companies is significantly bigger than the share of other groups. About the half (52%) of the questioned companies were determined to be small companies, 32% as middle-sized companies, and 11% as large companies. (See Table 1). The average number of employees in transport companies is 17.
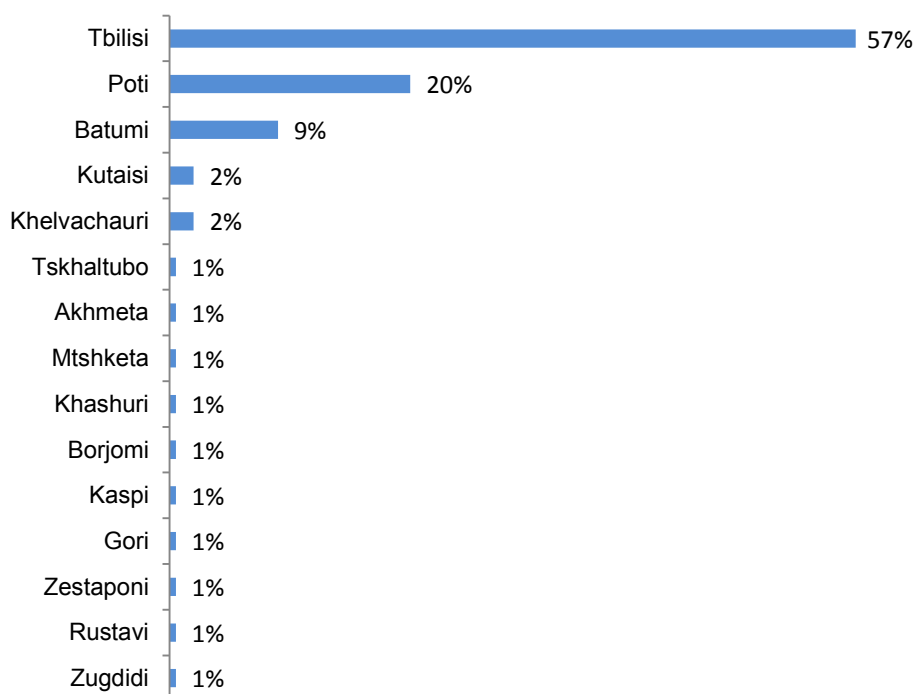
Table 1: Company size distribution according to number of employees

|	Frequency	Percent
Small company (1-10 employees)	101	52%
Middle size company (11 - 40 employees)	61	32%
Large company (41 and more employees)	22	11%
I do not know / difficult to answer	10	5%
Total	**194**	**100**

HEAD OFFICES AND BRANCHES

Head offices of the transport companies are congregated in three main cities of Georgia: more than half (57%) of the companies' head offices are located in the capital Tbilisi, one fifth (20%) and 9% are situated in the sea cities Poti and Batumi respectively, the rest 14% of the companies are scattered through various cities and towns of Georgia. (See Figure 3)

Figure 3: Location of head offices

City	Percentage
Tbilisi	57%
Poti	20%
Batumi	9%
Kutaisi	2%
Khelvachauri	2%
Tskhaltubo	1%
Akhmeta	1%
Mtshketa	1%
Khashuri	1%
Borjomi	1%
Kaspi	1%
Gori	1%
Zestaponi	1%
Rustavi	1%
Zugdidi	1%

One fifth (19%)of companies have branches apart from the head office. (See Figure 4)

Figure 4: Percentage distribution of companies having branches

81% no branches
19% branches
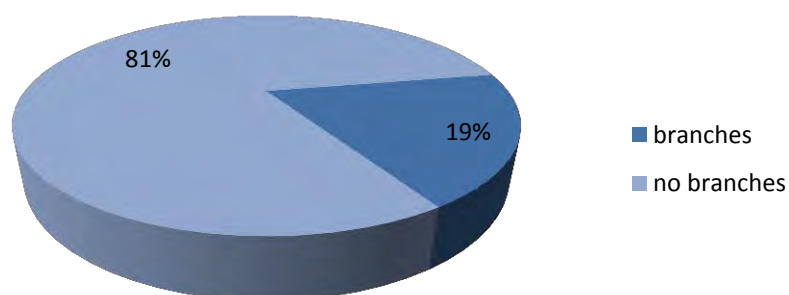
The distribution trend of companies' branches is more or less similar to the distribution of head offices.

The major part of the branches is located in Samegrelo-Zemo Svaneti region and specifically in Poti (68%); 35% in Tbilisi and the third biggest part (16%) in Adjara region and Batumi. The interesting fact is that some companies (11%) have branches outside Georgia, particularly in Azerbaijan, Armenia, and EU countries. (See Figure 5)

Figure 5: Percentage distribution of branches
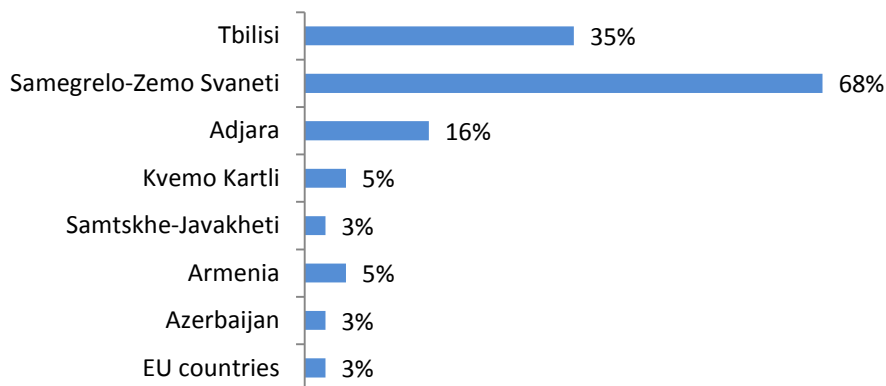
TYPES OF TRANSPORTATION SERVICE AND OWNERSHIP OF TRANSPORT FACILITIES

The survey results revealed that companies in Georgia provide different kinds of transportation services: truck/road, rail, sea, and air. Some companies provide all four services together and some only one service type. The general trend is the share of the companies diminishes as the number of types of transportation service that company provides increases. The majority of the transport companies (63%) provide only one (truck/road, rail, sea or air) type of transportation service, and only a tiny part (2%) provide customers with all types of service. (See Figure 6)

Figure 6: Percentage distribution of companies in terms of transportation service types
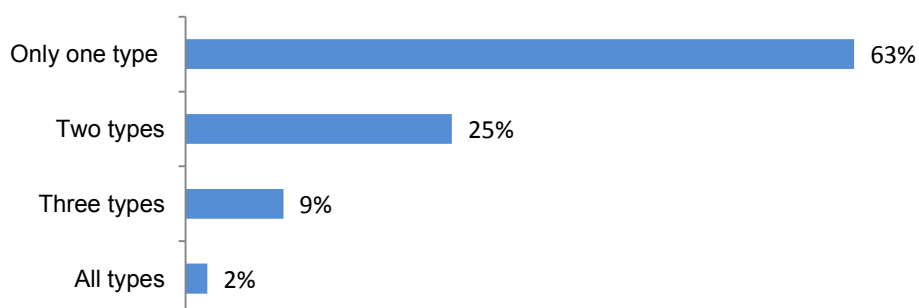
The majority of questioned companies (85%) provide transportation service by road. Out of this about half (52%) of the companies use trucks for containers. Most rarely transport companies use bulk trucks (1%). The trucks do not entirely belong to the transport companies. Roughly half of the trucks are owned by companies and the other half is leased from the private sector, only an insignificant part is leased from government. (See Table 2)

A little less than one third of the transport companies provide transportation service by rail. They use different kind of freight cars/goods vans. Here it should be mentioned that all railway cars/vans belong to Georgian Railway and other transport companies hire from them.

Around one third of companies provide transportation service by sea. Different kinds of ferries are used during transport. The ferry for container is used in half of the transportation cases by sea (53%). Similar to railroad, almost none of the companies own the ships (just 4.5% for container ferries), whereas the greater part is for cases, which are leased from government or private sector.

Only 7% of transport companies provide transportation service by air. As the results showed, the companies in Georgia who transport freight by air do not possess aircraft entirely (only 24%). Most of them hire aircraft (52%). (See Table 2)

Table 2: Percentage distribution of types of transportation service and types of ownership of transport facilities

Types of transport facilities		%	Number of transport facilities (all)	Own %	Leased from government %	Leased from private person %	Do not know %
Truck/Road 85 %	Dry	34	696	54.6	0.4	43.1	1.9
	Refrigerated	11	223	31.4	0.0	67.3	1.3
	Bulk (Tank)	1	25	24.0	0.0	68.0	8.0
	For containers	52	1068	22.8	0.9	75.4	0.9
	For automobiles	2	33	93.9	0.0	3.0	3.0
Rail 28 %	For containers	7	450	100	0.0	0.0	0
	For bulk freight	33	2000	100	0.0	0.0	0
	Tank cars	20	1206	100	0.0	0.0	0
	For ordinary freight (open, half-open)	33	2011	100	0.0	0.0	0
	Platform car (for transporting technique)	7	410	100	0.0	0.0	0
Sea 30 %	Ferry for containers	53	44	4.5	9.1	59.1	27.3
	Ferry for railway cars	27	22	0.0	4.5	54.5	40.9
	Ferry for trucks	20	17	0.0	0.0	82.4	17.6
Air 7 %	Aircraft	100	29	24.1	3.4	48.3	24.1

In the shaded cells the railway cars/vans all belong to Georgian Railway and all other transport companies hire from them.

# CONTAINER TYPES & TONNAGE OF TRANSPORT COMPANIES

From survey results, it is seen that during transport in half of the cases, companies transport various kinds of goods with containers. Most commonly, transport companies use 40' (87%) and 20' (86%) standard containers. In addition to this, other kinds of containers are also used. (See Figure 7)

Figure 7: Percentage distribution of container types
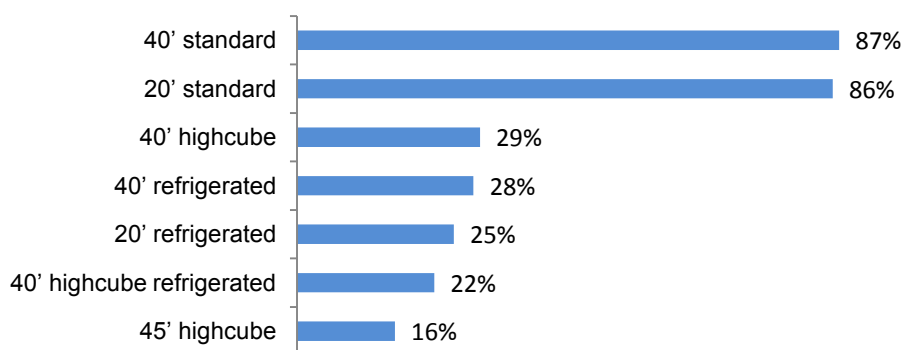
Transport companies significantly differ from each other in terms of amount of transported goods during one year. Five key intervals were designed according to survey results: 0-1,000 tons, 1,001-5,000 tons, 5,001-20,000 tons, 20,001-100,000 tons, and greater than 100,001 tons. Moreover no sharply leading interval was expressed. Survey results showed that the percentages were equally distributed among all intervals. The exception would be the interval greater than 100,001 tons with the least share (7%) (See Figure 8)

**Figure 8: Percentage distribution of companies' annual tonnage**
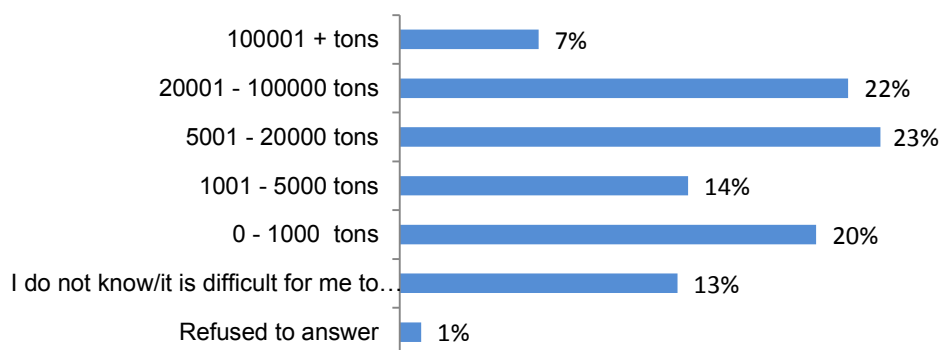
The average amount of goods/freight transported in one year by a company is 18,800 tons.

TYPES OF GOODS/FREIGHT & TRANSPORTATION ROUTES

TYPES OF GOODS /FREIGHT

During the survey besides the companies' tonnage ACT project team analyzed the distribution of types of transported goods/freight. The prevalent type of good is construction materials which were transported by 64 percent of transport companies. Following types of freight are food materials and household technique with the shares 48% and 40% respectively. The least portion got logging (13%) and oil (5%). (See diagram 2.3.5 a)

Figure 9: Percentage distribution of transported goods/freight
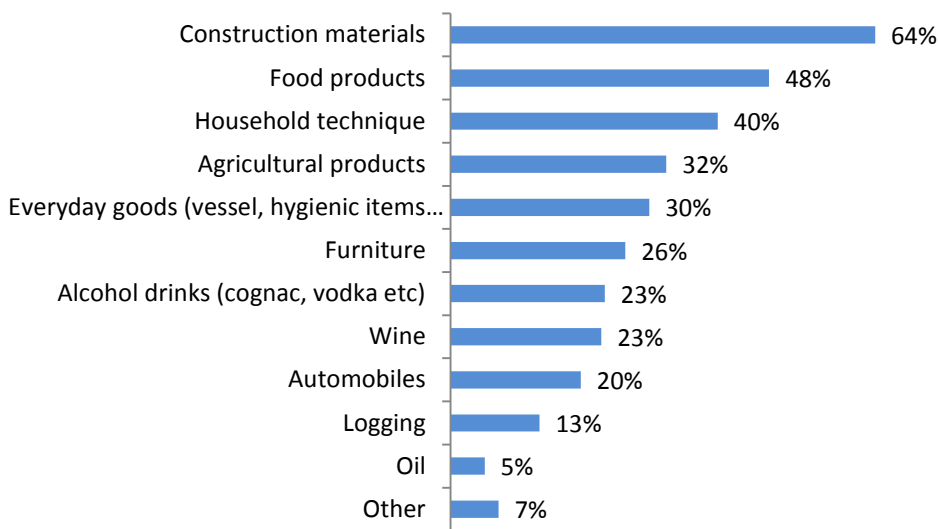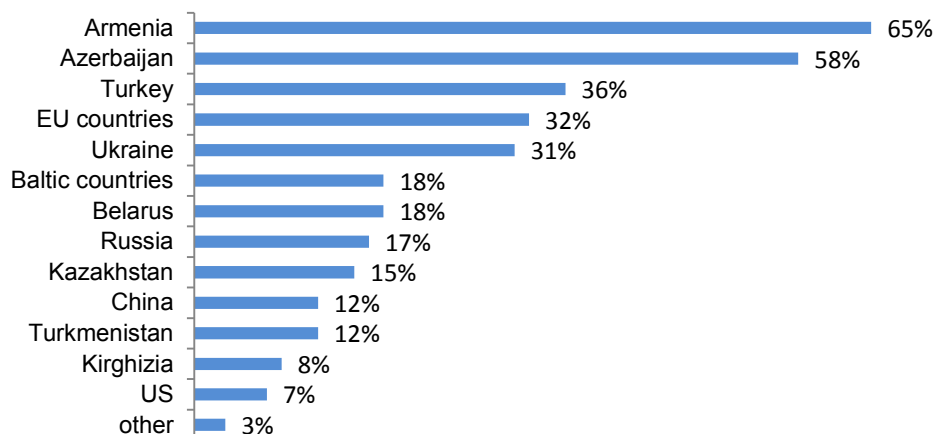

TRANSPORTATION ROUTES

The major part of the target group companies (63%) are focused on international as well as domestic transportation simultaneously. Less than one third (27%) of companies do only domestic transportation and 10% of target group companies are specified in transporting goods only abroad. (See Figure 10)

Figure 10: Distribution of transportation routes (percentage)
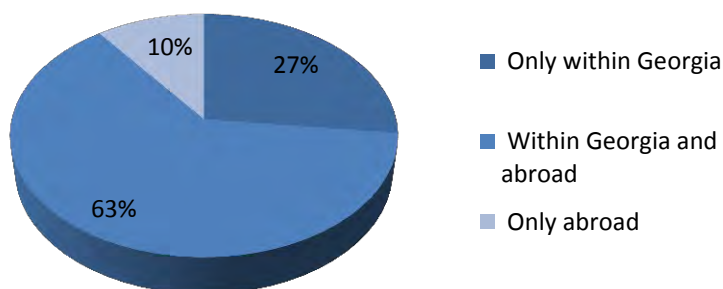
From Georgia, goods/freight are being transported to various countries. Specifically two countries stand out from others: Armenia and Azerbaijan. Goods to these two countries are transported by 65% and 58% of transport companies respectively. In third place is Turkey (36%). This outcome is not surprising because all of these countries are neighbors of Georgia and transportation processes among these countries are rather dense. The share of EU countries is 32% and the share of US is 7%, which is the least portion. (See Figure 11)

Figure 11: Distribution of transportation directions (countries)

TRANSPORTATION PRICE-MAKING & COST OF TRANSPORTING GOODS FOR 1 KILOMETER

The survey results revealed that plenty of factors have influence on making of transportation costs. The most prevalent factor is cost of fuel, 80 percents of respondents take it into consideration while charging for the transportation service. Also important factors are cost of drivers' salaries (46%) and cost of load/unload service (34%). For transport companies who carry goods with railroad the rates of Georgian Railway is one of the most significant factors as they hire goods vans from Georgian Railway. Other important aspects are cost of insurance (31%) and cost using the service of other mediator companies (23%). (See Figure 12)

Figure 12: Percentage Distribution of factors affecting transportation price
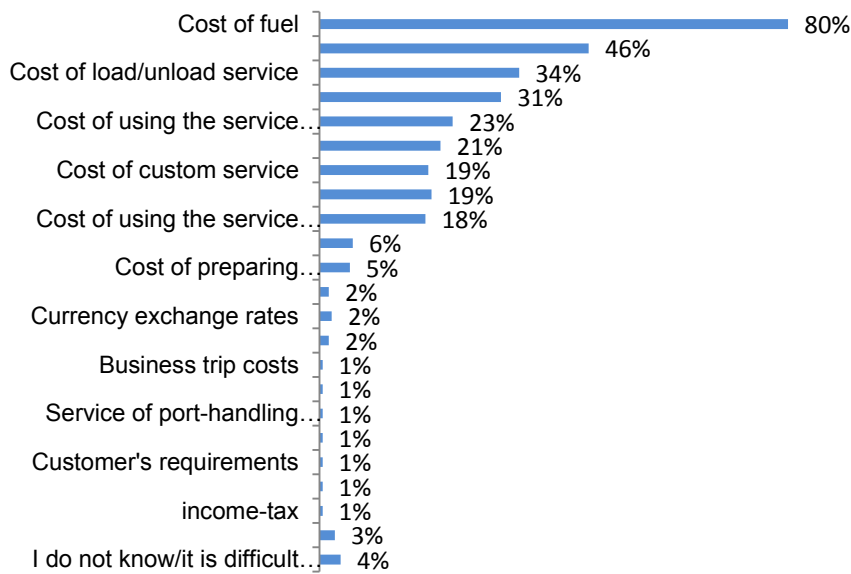
PARTICULAR TRANSPORTATION CASES

In the frame of the survey, particular transportation cases were considered separately. Origin, final destination, transportation time, and cost of the particular route were identified. Below the results of several of the most frequently occurring transportation cases are summarized. The Absolute majority of these cases were executed during May and June, so the parameters are actual and relevant.

In total, 273 cases of transportation of goods/freight were considered. As it was expected import has the biggest portion (32%) and the smallest share comes from export (17%). (See Figure 13)

Figure 13: Percentage distribution of transportation types in terms of export, import transit and internal races
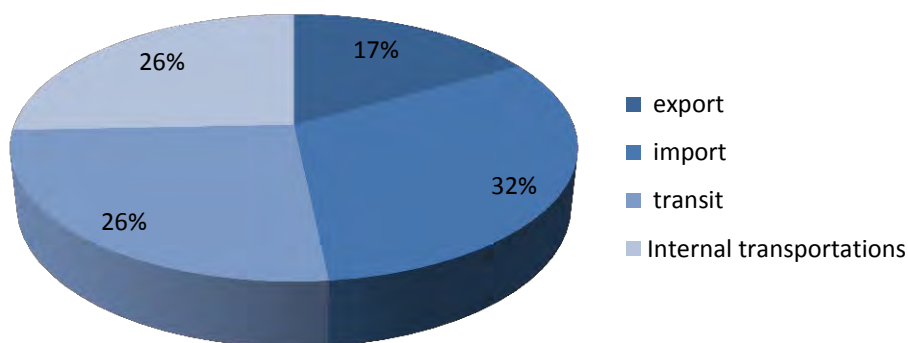
Below in Table 3 are the most frequent transportations cases. For each case, the origin and final destination, transportation type (road, rail), average number of days needed for transportation, and average cost of transportation for one unit of transport facility (truck, goods van) are indicated. For example, transportation of goods/freight from Poti to Baku by

road takes on average 2.73 days and average transportation cost is USD 1,438. Transportation from Warsaw to Tbilisi with trucks on average takes 9.5 days and costs USD 6,460 for one truck. (See Table 3)

Table 3: Particular transportation cases

Transportation routes	Transportation types	Number of cases	Average number of days needed for transportation	Average transportation cost for 1 unit transport facility (USD)
Poti-Baku	Truck/Road	13	2.73	1438
	Rail	4	4.75	1700
Poti-Tbilisi	Truck/Road	25	0.3	747
	Rail	5	1.25	1055
Poti-Yerevan	Truck/Road	13	1.8	1305
	Rail	4	2.75	1000
Istanbul-Tbilisi	Truck/Road	5	7.25	2350
Poti-Gardabani	Rail	5	1.85	1464
Poti-Sadakhlo	Truck/Road	3	1	752
	Rail	1	2	650
Warsaw-Tbilisi	Truck/Road	4	9.5	6460

One of the most important parameters of the study was the cost of transporting goods for 1 kilometer. The survey results showed that this parameter varied according to transportation types (truck, rail). Particularly, the cost of transporting goods for 1 kilometer with one truck is on average USD 1.88 and similarly the cost of transporting freight for 1 kilometer with one goods van (rail) is USD 2.65.

TRANSPORTATION TIMING BETWEEN SPECIFIC NODES (GPS RESULTS)

In the frame of the survey GPS devices were used to observe particular transportation cases in order to track actual transportation time and distance between specific nodes in Georgia. Ninety-seven cases of goods transportation were considered. The table below shows the results of the observation process, which includes most important and frequently used routes, origin and destination of the route, distance between the nodes, time needed to cover the distance, and average transportation speed. For example distance between Poti and Sadakhlo is 394 km and transport facilities need on average 17.8 hours to move from origin to destination (this time include break times during transportation process. See detail

information in attached Excel file – GPS observation results). Average speed of motion on this route is 48 km/hour.

Table 4: GPS observation results

Transportation Route	Distance (km)	Average Time (hour)	Average Speed of Motion (km/h)
Poti – Tbilisi/Tbilisi - Poti	323	12.5	48
Poti – Sadakhlo/Sadakhlo-Poti	394	17.8	45
Poti – Tsiteli Khidi	389	43	42.6
Tbilisi - Batumi	407	13.8	47.4
Tbilisi – Sadakhlo/Sadakhlo -Tbilisi	68	1.6	47.9

Note: Due to repair process on Rikoti tunnel the average time is increased by 0.5 hours

By means of GPS devices along with transportation time and distance time spent on check-points on the border of Georgia was analyzed. Specifically, trucks were held on Sadakhlo (border to Armenia) check-point on average for 1.5 hours and on Tsiteli Khidi (border to Azerbaijan) for 4.5 hours.

PORTS AND CHECK POINTS ON THE BORDER OF GEORGIA

During the transportation process transport facilities cut the Georgian border in different places. It can be ports, airports, and check-points. In all places transport facilities and goods pass through different procedures. These procedures can include preparing the juridical documents, parking on the sea port/check point territory, freight loading/unloading, freight storing, service of carrying the transport facilities on the ferry, etc. All of these procedures are connected with time and financial costs. In Table 5 the most important ports and checkpoints in terms of these parameters were analyzed.

After analyses of the results, it turned out that Batumi sea port, Poti sea port, and Tbilisi airport are connected with greater time and financial expenses. Namely, it takes on average 32, 31, and 8 hours to pass all the procedures at Batumi sea port, Poti sea port and Tbilisi airport and it costs USD 851, USD 233, and USD 112 respectively. In other check-points (Gardabani, Sadakhlo, Sarpi, and Tsiteli khidi) the situation is simpler: Average time needed to pass the procedures is 6 hours and average cost is USD 19. (See Table 5)

Table 5: Ports and check points on the border of Georgia

Name of port/airport/check-point	Number of cases considered	Average number of hours needed for procedures	Average cost of procedures (USD)
Tbilisi Airport	11	8	112
Batumi Sea Port	25	32	851

Poti Sea Port	54	31	233
Gardabani (Railway)	20	5	3
Sadakhlo (Railway)	10	5	17
Sadakhlo	33	5	24
Sarpi	49	11	15
Tsiteli Khidi	28	5	34

COURIER AND PORT-HANDLING COMPANIES (OPERATING TIME, HEAD OFFICES & BRANCHES, NUMBER OF EMPLOYEES)

OPERATING TIME

The survey results revealed that more than half (60%) of the target group companies are operating on the market five or more years. The rest of the firms are more or less equally distributed through different time intervals. (See Figure 14)

Figure 14: Period of performance of companies on the market

5 + years	60%
from 3 - to 5 years	10%
from 1 - to 3 years	15%
0 - to 1 year	15%
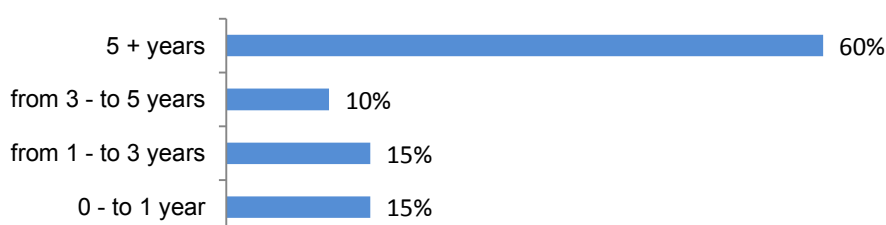
NUMBER OF EMPLOYEES

The average number of workers in a company is 35. This parameter is greater than analogous parameter for transport companies (17) and less than distribution companies (98).

The survey showed that the share of companies gradually decreases as the number of employees in the company increases. The portion of small companies is 40% and the portion of large companies is 23%. (See table 6)

**Table 6: company size distribution according to number of employees**

	Frequency	Percent
Small company (1-10 employees)	19	40%
Middle size company (11 - 40 employees)	14	29%

| Large company (41 and more employees)	11	23%
I do not know / difficult to answer	4	8%
Total	**194**	**100**

HEAD OFFICE AND BRANCHES

The head offices are mainly concentrated in the capital, Tbilisi (48%). The significant part of companies' head offices are situated in Poti (21%). The interesting fact is that the US also has a portion (2%). (See Figure 15)

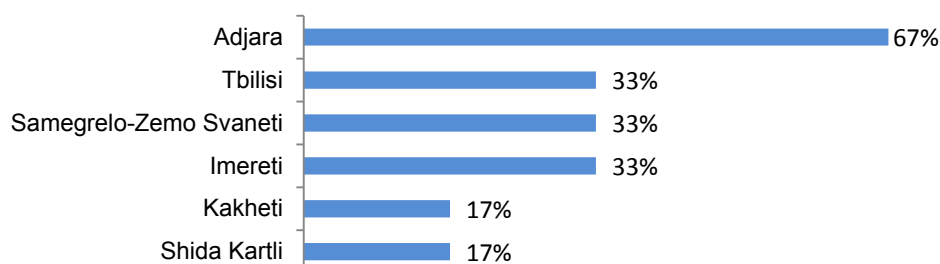**Figure 15: Location of head offices (percentages)**
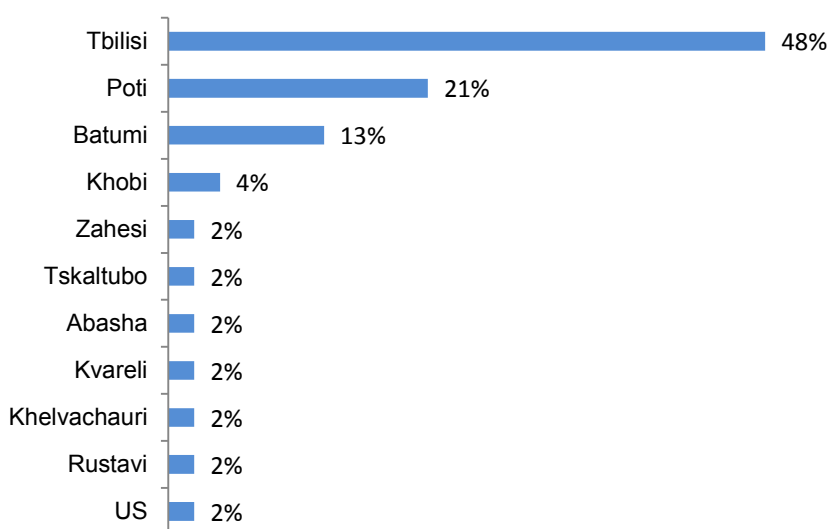
According to research results, most of the companies of this target group (87%) do not have branches. This picture is similar to transport companies (81%), but not to distribution companies (12%) (See Figure 16)

Figure 16: Percentage distribution of companies in term of having branches
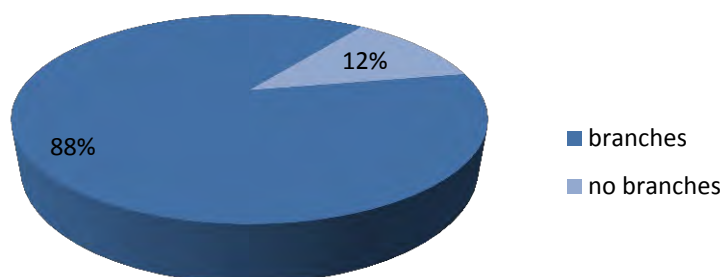
The biggest share of branches is located in Adjara (67%) and the smallest share is in Kakheti and Shida Kartli (17% for each). (See Figure 17)

Figure 17: Distribution of branches across regions (percentages)

Region	Percentage
Adjara	67%
Tbilisi	33%
Samegrelo-Zemo Svaneti	33%
Imereti	33%
Kakheti	17%
Shida Kartli	17%

TYPES OF TRANSPORTATION SERVICE, GOODS AND DIRECTIONS (FOR COURIER COMPANIES)

Courier companies provide different kinds of service by different transport means: by road, rail, sea, and air. Eighty-six percent of courier companies provide service by road which is the leading transportation means. Regarding ownership of transport facilities,cars and trucks are mostly owned by courier companies (63% and 59% respectively), whereas minibuses and aircraft are leased from the private sector (79% and 50% respectively). (See Table 7)

Table 7: Percentage distribution of types of transportation service and types of ownership of transport facilities
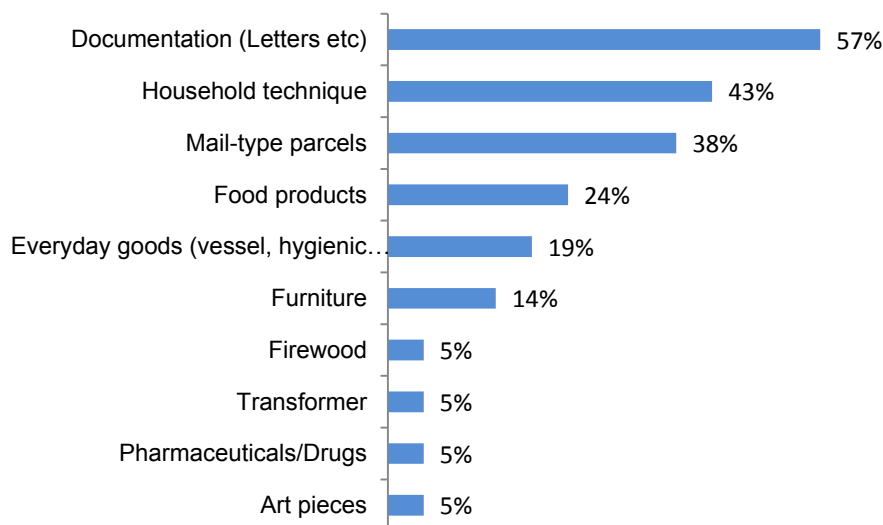
Types of transport facilities		Number of transport facilities (all)	Own %	Leased from government %	Leased from private person %	Do not know %
Road 86 %	Car	38	63.2	15.8	21.1	0.0
	Minibus	47	12.8	0.0	78.7	8.5
	Truck	29	58.6	0.0	27.6	13.8
Rail 5%	Goods van/freight car	1	0.0	0.0	0.0	100.0
Sea 5%	Ferry/Ship	1	0.0	0.0	100.0	0.0
Air 19%	Aircraft	4	0.0	0.0	50.0	50.0

GOODS AND TRANSPORTATION

Distribution of goods transported by courier companies is quite homogenous. After analyzing data it turned out that mostly carried goods are different kinds of documentation. Also

significant shares hold household technique (43%) and mail-type parcels (38%). (See Figure 18)

Figure 18: Percentage distribution of goods carried by courier companies

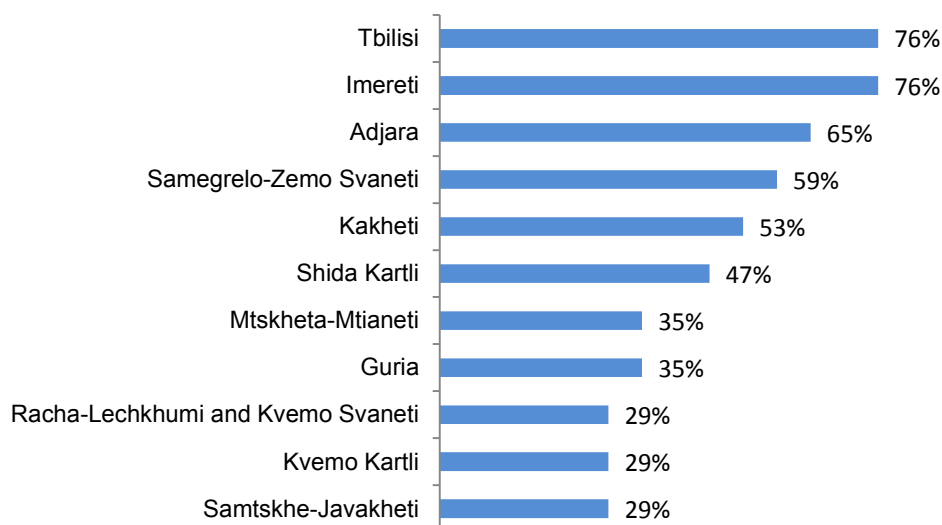| Category	Percentage
Documentation (Letters etc)	57%
Household technique	43%
Mail-type parcels	38%
Food products	24%
Everyday goods (vessel, hygienic…)	19%
Furniture	14%
Firewood	5%
Transformer	5%
Pharmaceuticals/Drugs	5%
Art pieces	5%

Courier companies transport goods to various final destinations. Most frequently they carry goods within Georgia (62%). (See Figure 19)

Figure 19: Percentage distribution Transportation directions

Direction	Percentage
Only within Georgia	62%
Within Georgia and abroad	19%
Only abroad	19%
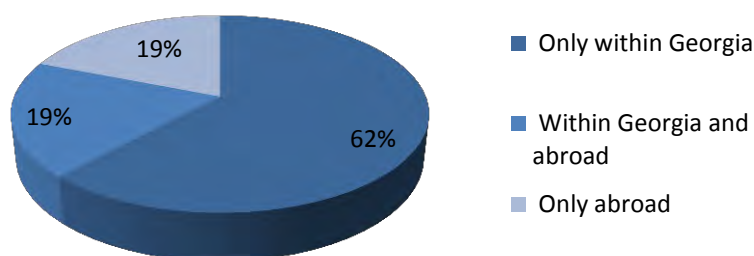
After considering this portion (Georgian territory) in more detail, it is seen that domestic region's shares are more or less equally distributed. The biggest share has Tbilisi and Imereti (76% each) and the smallest share has three regions: Racha-Lechkhumi and Kvemo Svaneti, Kvemo Kartli, and Samtskhe-Javakheti (29% each). (See Figure 20)

**Figure 20: Percentage distribution across regions of Georgia**

Region	Percentage
Tbilisi	76%
Imereti	76%
Adjara	65%
Samegrelo-Zemo Svaneti	59%
Kakheti	53%
Shida Kartli	47%
Mtskheta-Mtianeti	35%
Guria	35%
Racha-Lechkhumi and Kvemo Svaneti	29%
Kvemo Kartli	29%
Samtskhe-Javakheti	29%

PERFORMANCE METRICS OF WAREHOUSING AND STEVEDORING COMPANIES

Cargo handling companies provide different kinds of services. These services can include loading/unloading, packing, preparing juridical documents, and warehousing. Some companies provide a single type of service and some several types of services simultaneously. About 90% of cargo-handling companies provide warehousing services and only 23% provide packing services. Half of the questioned companies do not have diverse profiles and concentrate only one specific service (see Figure 21).

Figure 21: Percentage distribution of companies in terms of transportation service types provided by them

Service	Percentage
Warehousing	90%
Load/unloading	50%
Preparing the juridical documents	27%
Packing	23%
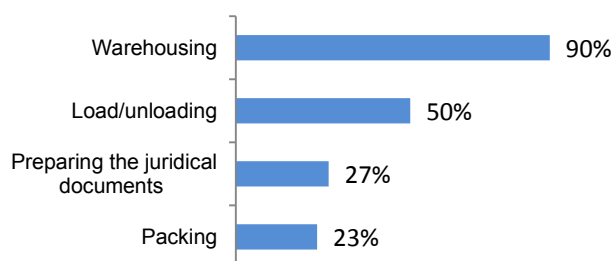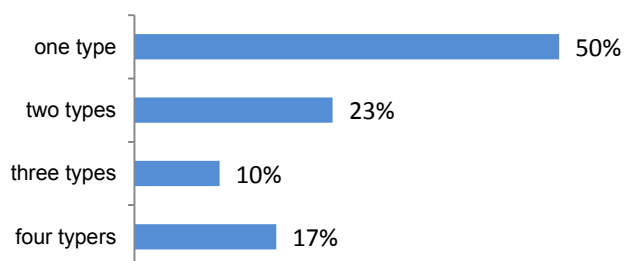
Stevedoring companies are mainly operating in the biggest ports and airports of Tbilisi. The survey showed that more than half (56%) of the companies are operating in Poti sea port, 38% are concentrated in Batumi sea port, and 31% are at Tbilisi airport. (See Figure 22)
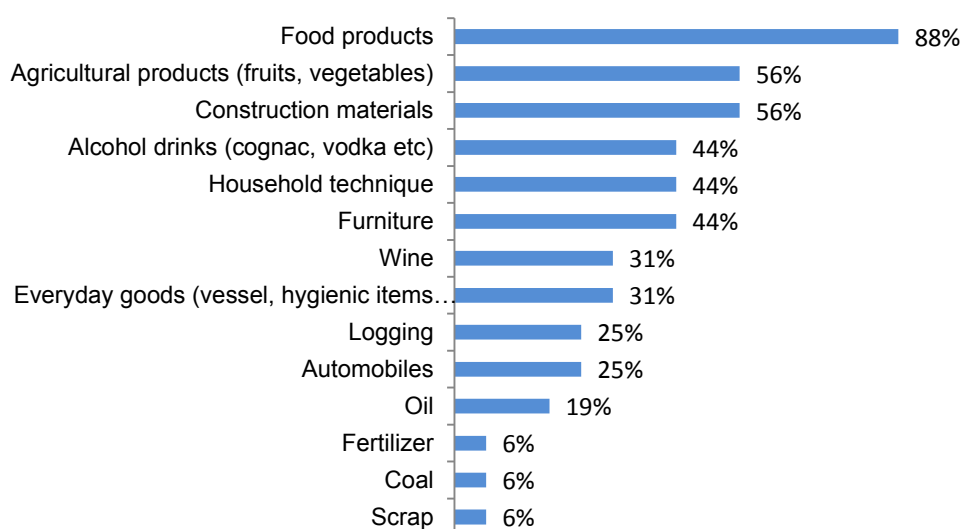
Figure 22: Distribution of performance place of stevedoring companies
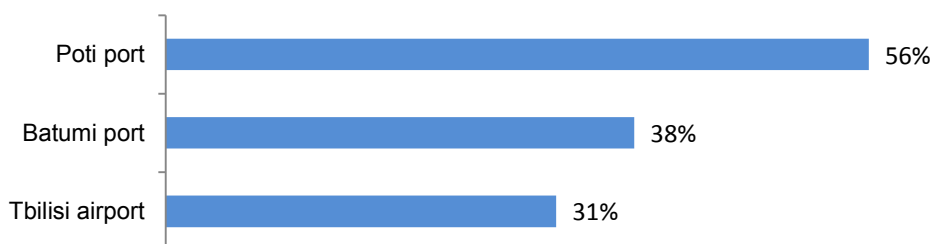
GOODS/FREIGHT SERVED BY PORT/AIRPORT STEVEDORING COMPANIES

The survey results revealed that the most frequently served (loaded/unloaded, packed) type of good is food products which were named by 88% of target group companies. Along with food products, the important shares are agriculture products and construction material at 56% each. (See Figure 23)

Figure 23: Percentage distribution of Goods/freight served by port/airport stevedoring companies

Category	Percentage
Food products	88%
Agricultural products (fruits, vegetables)	56%
Construction materials	56%
Alcohol drinks (cognac, vodka etc)	44%
Household technique	44%
Furniture	44%
Wine	31%
Everyday goods (vessel, hygienic items…	31%
Logging	25%
Automobiles	25%
Oil	19%
Fertilizer	6%
Coal	6%
Scrap	6%

LOADING/UNLOADING TIME, COST, AND TONNAGE

The process of loading/unloading is connected to specific time and financial costs. These parameters differ across types of transport facilities to/from which the freight is loaded/ unloaded and across types of freight. The survey results identified the average measures of these parameters. For example, loading one truck requires two hours, and loading 1 ton of bulk cargo costs USD 9. (See Table 9)

Table 8: Average measures of load/unload time and cost

Type of transport facility	Load/Unload time for 1 unit (hour)		Type of cargo	Load/Unload price for 1 ton (USD)
Truck	2		Liquid cargo	13
Goods van/Freight car	1		Bulk cargo (grains, metal scrap and other)	9
Ship	22		General cargo (in bags, in boxes, in barrels and other)	12
Aircraft	2			

The interesting measure of a company's capability is how much goods/freight they can serve (load/unload, pack) during a certain period of time. The survey results are shown in Table 9.

Table 9: Average amount of cargo served (load/unload, pack) during a specified period of time

	Amount of cargo (tons)*
Served during last month (May)	23369

Served during last year (2010)	318460
Potential to serve during one year	423470

*These numbers do not include the data for Poti sea port.

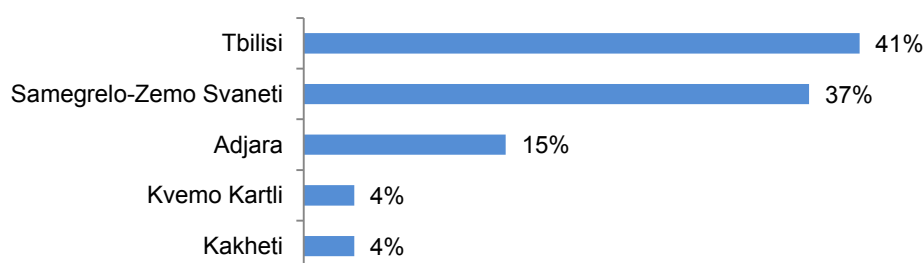# WAREHOUSING COMPANIES, ITS LOCATION

In the process of freight transportation, warehousing companies play a considerable role . These companies provide different kinds of warehousing services. Seventy-eight percent of companies have dry storage out of which 90% is in their ownership. Twenty-six percent and 15% of companies have cold-frozen and bulk storages respectively. (See Table 10)

Table 10: Percentage distribution of types of warehouses and types of ownership of warehouses

Types of transport facilities		Number of warehouses (all)	Own %	Leased from government %	Leased from private person %
78 %	Dry	89	89.9	0.0	10.1
26 %	Cold-Frozen	19	89.5	0.0	10.5
15%	Bulk	167	98.2	1.8	0.0

The location of warehouses repeats the trend of distribution of head offices and branches. They are congregated in three regions: Tbilisi (41%), Samegrelo-Zemo Svaneti with center Poti (37%), and Adjara with center Batumi (15%). (See Figure 24)

Figure 24: Percentage distribution of location of warehouses

Region	Percentage
Tbilisi	41%
Samegrelo-Zemo Svaneti	37%
Adjara	15%
Kvemo Kartli	4%
Kakheti	4%

CAPACITY AND COST OF STORING GOODS IN WAREHOUSING COMPANIES

The whole potential capacity of all warehousing companies in Georgia based on survey results is 1,477,690 tons. The average capacity of a company is 3,307 tons. (The average

number does not include the data for Poti sea port). The picture of average size of warehouses is as follows:

Type of warehouse	Average Size
Dry	953 m^2
Cold-Frozen	140 m^2
Bulk	1422 m^3

Type of warehouses	Average price USD
Dry	2.3 (1ton/per day)
Cold-frozen	6.7 (1ton/per day)
Bulk	0.4 (1m^3/per day)

The interesting fact is that the storage price of goods in cold-frozen warehouses is approximately three times higher than the storage price of dry warehouses.

DISTRIBUTION COMPANIES - OPERATING TIME, HEAD OFFICES AND BRANCHES, AND NUMBER OF EMPLOYEES

The analysis of distribution companies includes general parameters such as the number of employees, location of head offices, and distribution of branches countrywide; secondly the specific parameters characterizing the performance of companies like types of transport facilities, types of goods served, types of warehouses and finally testing the level of satisfaction of distribution companies.

The picture of age of distribution companies is similar to transport, warehousing, courier, and port-handling companies. Namely the share of companies who are operating on the market five or more years is prevalent and includes 65% of distribution companies. The smallest portion (2%) includes young companies who fall into the interval 0 – 1 years. (See Figure 25)

Figure 25: Percentage distribution of operating time (on the market) intervals
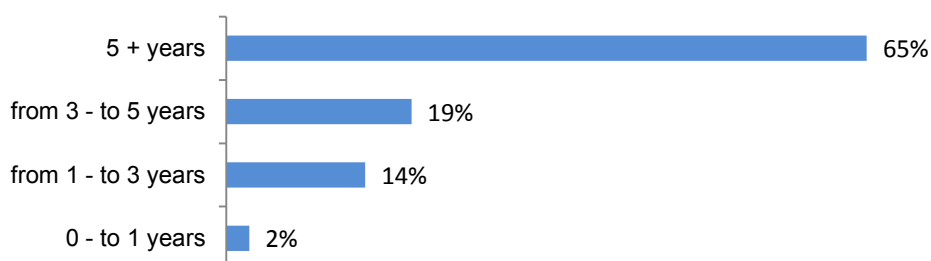
The picture of employees in the distribution companies is quite diverse. Fifty-eight percent of questioned companies are large companies and 12% are small companies. (See Table 11)

Table 11: Number of employees of distribution companies

|	**Frequency**	**Percent**
Small company (1-10 employees)	15	12%
Middle size company (11 - 40 employees)	35	30%
Large company (41 and more employees)	75	58%
Total	128	100 %

The average number of employees in the distribution companies is 98.

HEAD OFFICE AND BRANCHES

As mentioned above, during the study 128 distribution companies were interviewed. Out of 128 companies, an absolute majority of 127 companies (99%) have their head office in Tbilisi. Only one company has a head office in Kutaisi.

It is worth noting that a significant portion of distribution companies (88%) have branches apart from head offices. (See Figure 26)

Figure 26: Percentage distribution of companies in term of having branches
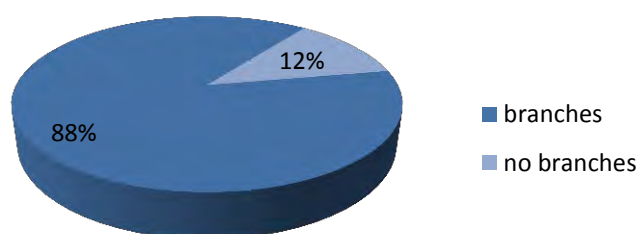
Unlike the distrubtion of head offices, the distribution of branches is rather diverse. The branches are located in every region of Georgia and even abroad. The leading regions are Tbilisi, Imereti, and Adjara with the shares 57%, 53%, and 49% respectively. As it was expected Armenia and Azerbaijan received the smallest shares with 2% each. (See Figure 27)

Figure 27: Percentage distribution of branches
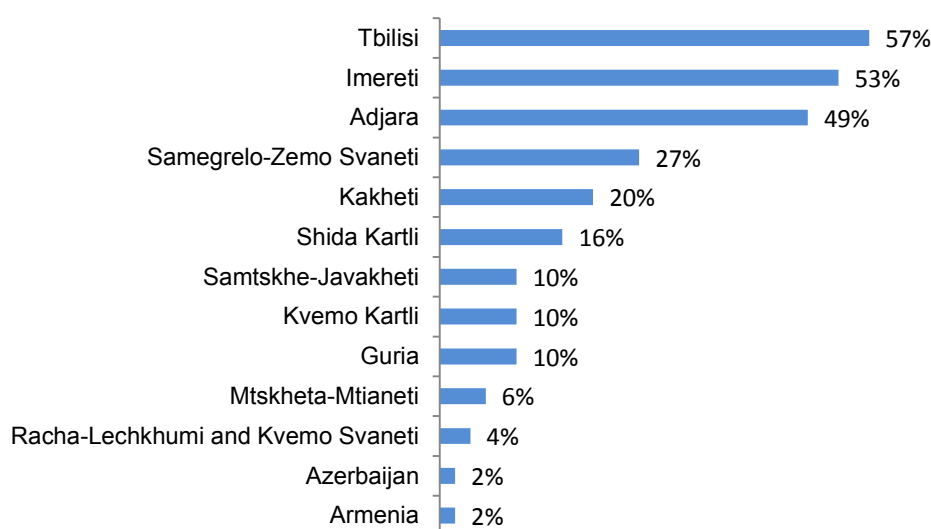
PERFORMANCE METRICS OF THE DISTRIBUTION COMPANIES

On the basis of survey data it can be concluded that almost every distribution company (97%) provides service with cars, minibuses, or trucks. Approximately 74% of these transport facilities are in ownership of distribution companies. Others are leased from third parties.

A small portion of companies use railway, sea, or air during distribution, at 11%, 12% and 7% respectively. Unlike road transport facilities, the majority of these transportation means are leased from the private sector (77%) (See Table 12)

Table 12: Percentage allocation of types of distribution service and types of ownership of distribution facilities

Types of transport facilities		%	Number of transport facilities (all)	Own %	Leased from government %	Leased from private person %	Do not know %
Road 97%	Car	32	302	82.5	0.0	16.2	1.3
	Minibus	40	383	83.3	1.3	14.9	0.5
	Truck	28	260	51.9	1.2	45.0	1.9
Rail 11%	Goods van/freight car	100	18	16.7	5.6	55.6	22.2
Sea 12%	Ferry/ Ship	100	20	5.0	5.0	85.0	5.0

Air 7 %	Aircraft	100	9	0.0	0.0	88.9	11.1

DIVISION OF COMPANIES IN TERMS OF PRODUCTION SOURCE

The survey results show that distribution companies have different sources of production. Mostly the companies distribute production supplied by transport companies (75%) and only a small part (24%) distribute production from their own manufacturing. (See Figure 28)
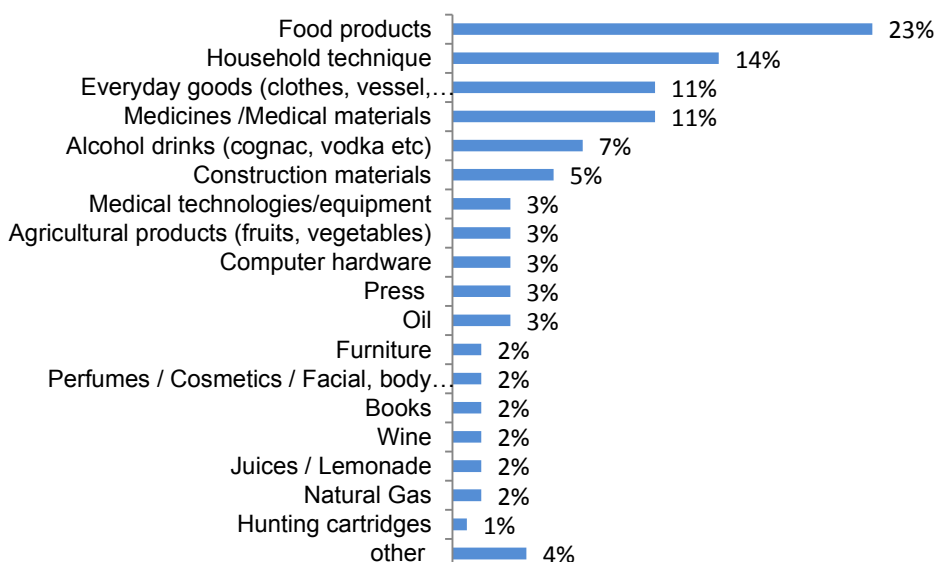
Figure 28: Division of companies in terms of production source
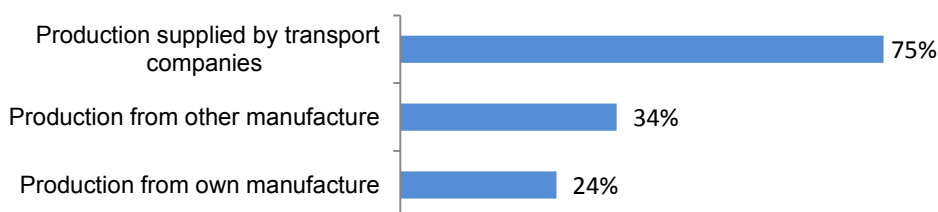
GOODS SERVED

According to survey results the four most frequently distributed goods were identified:

- Food products (23%)
- Household technique (14%)
- Everyday goods (clothes, vessel, hygienic items etc) (11%)
- Medicines/Medical materials (11%)

Figure 29: Percentage distribution of goods served

DISTRIBUTION DIRECTIONS

It is not surprising that the companies with Georgian origin mostly distribute goods in Georgia. The survey results confirm this statement: 85% of distribution companies allocate goods only within Georgia. Just a tiny part carries goods only abroad (2%). (See Figure 30)

Figure 30: Percentage shares of distribution directions
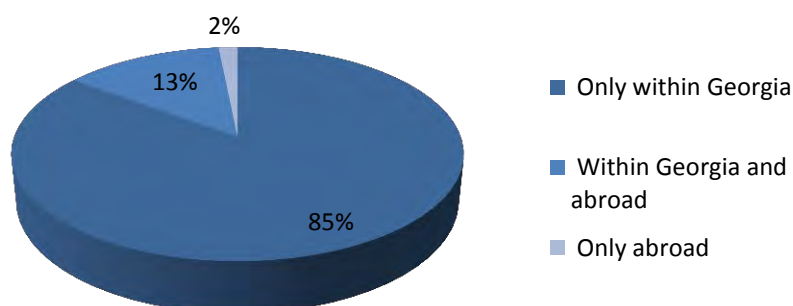
If the distribution of shares in terms of Georgian regions is looked at, the picture is rather homogeneous. The only exception would be Tbilisi which has a significantly greater portion than other regions (94%) and Racha-Lechkhumi and Kvemo Svaneti with the smallest share (25%). (See Figure 31)

**Figure 31: Percentages of distribution regions in Georgia**
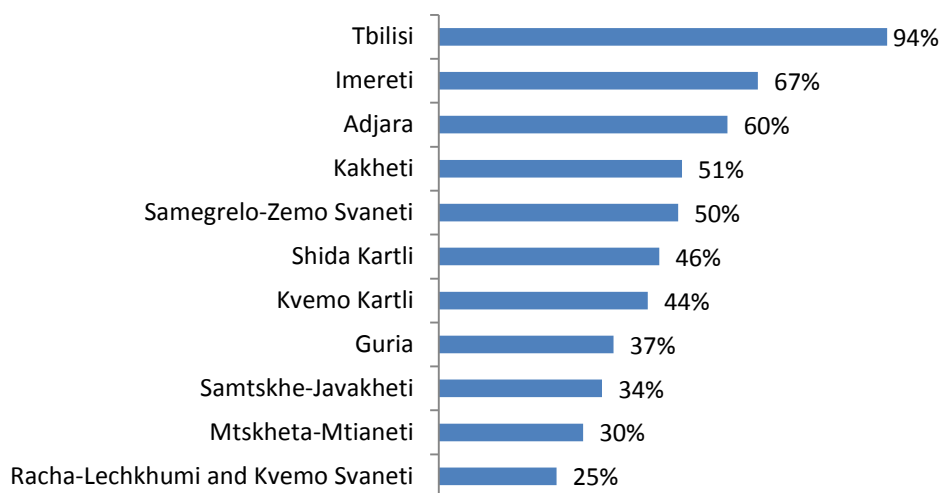
Out of the 15% of companies who distribute goods abroad, two countries have the leading position: Armenia and Azerbaijan with 68% and 53% respectively.

STORING GOODS AT WAREHOUSES

During the distribution process in most cases there is a need to store goods. Eighty-eight percent of distribution companies keep product in warehouses. (See Figure 32)

Figure 32: Shares of Distribution companies who store goods at warehouses and who do not

■ Store goods in warehouses

■ Do not store goods in warehouses
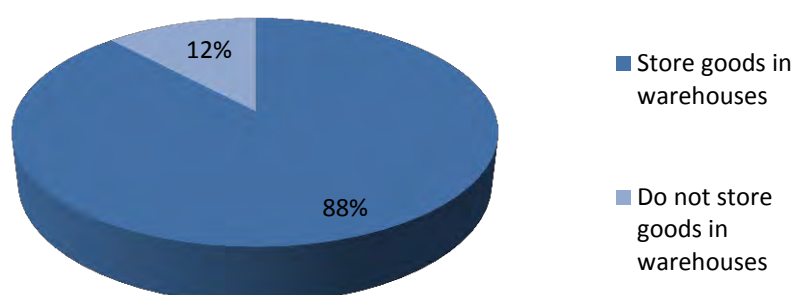
TYPES OF WAREHOUSES

Distribution companies, depending on the type of goods, use different kind of warehouses. These are dry, cold-frozen, and bulk warehouses. Most of the companies use dry warehouses (92%) and only a small part use cold-frozen (10%) and bulk (7%) warehouses. The majority of these warehouses are owned by companies (78%) and the rest are leased from third parties. (See Table 13)

Table 13: Percentage distribution of types of warehouses and types of ownership of warehouses

	Types of transport facilities	Number of warehouses (all)	Own %	Leased from government %	Leased from private person %	Do not know %
92%	Dry	231	67.5	3.0	29.0	0.4
10%	Cold-Frozen	22	77.3	0.0	22.7	0.0
7 %	Bulk	122	98.4	0.8	0.0	0.8

TONNAGE OF DISTRIBUTION COMPANIES

An interesting indicator of a company's size is tonnage of the company. In this case this would be the amount of goods that the company can store in every warehouse together. Forty percent of the companies that have warehouses had no answer to how much goods they could store. Seventeen percent have capacity of up to 50 tons and 13% from 51 to 100 tons. The percentages for the other capacities are distributed more or less equally. The average tonnage among the companies that have warehouses is 1,941 tons. (See Figure 33)

Figure 33: Percentage distribution of companies' tonnage
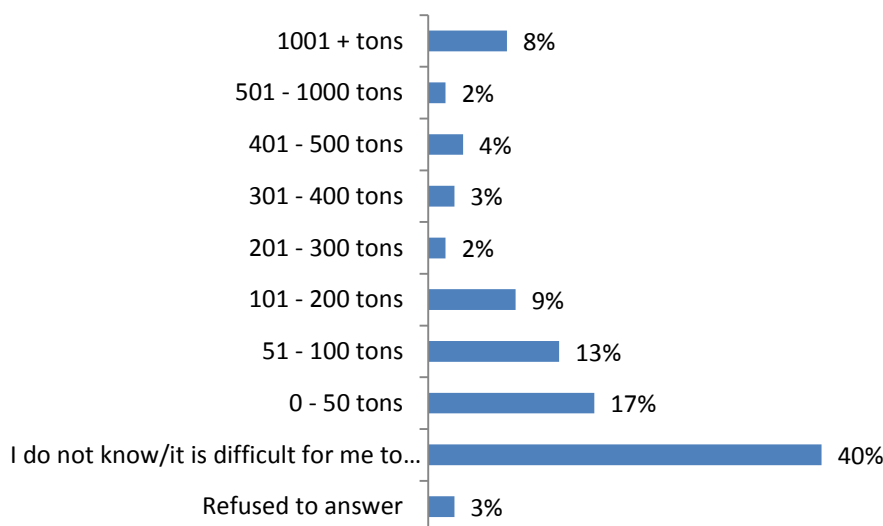
SIZE OF THE WAREHOUSES

The average size of the dry storage among the distribution companies of the research is 581 m2 and the average size of cold-frozen storage is 174 m2. As for the bulk warehouses, the average size is 3,600 m3.

| Type of warehouses	Average size
Dry	581 m^2
Cold-frozen	174 m^2.
Bulk	3600 m^3.

SATISFACTION LEVEL OF DISTRIBUTION COMPANIES

As mentioned above, 75% of distribution companies carry goods supplied by transport companies. This is often connected to some problems and delays. Analyzing the general attitude of distribution companies towards performance of transport companies shows that 74% of the companies are satisfied and only 5% of companies are dissatisfied. (See Figure 34)

Figure 34: Percentage shares of distribution companies' satisfaction levels
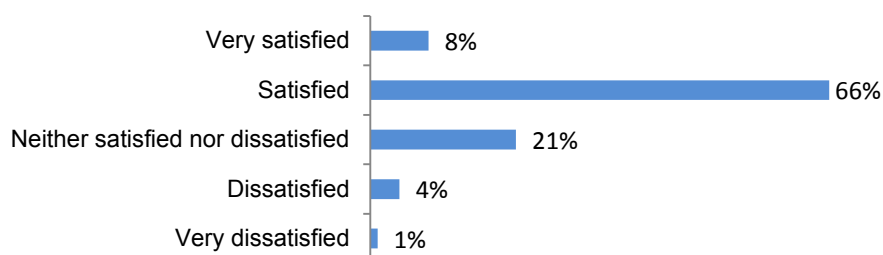
This outcome is not surprising while taking into account the fact that from every ten cases of production supply from transport companies they are late on average 1.7 times. And the duration of delay is on average five days. The percentage distribution of delayed time intervals is represented in Figure 35.

Figure 35: Percentage distribution of time intervals being late
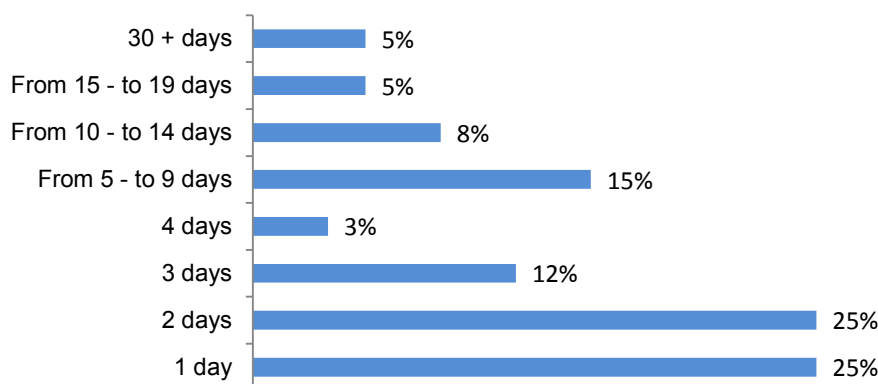
REASONS FOR DELAYS

The reasons for delays are significantly different. Most frequently the problem is caused by technical problems of transport facilities (32%), storm on the sea (24%), and technical problems at the customs house (22%) (See Table 14)

Table 14: Percentage distribution reasons for delays

Name of reason	Number of cases	Percent
Technical problems of transport facilities	19	32
Storm on the sea	14	24
Accidents on the roads	7	12
Natural disasters (hail, landslide, snow-slip, earthquake)	12	20
Technical problems at the custom-house	13	22
Problems concerning juridical documents	8	14
Lack of transport	1	2

USAID Economic Prosperity Initiative (EPI)
6 Samgebro St.

Tbilisi, Georgia

Phone: +995 32 43 89 24/25/26

Fax: +995 32 43 89 27