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Export Trade Logistics Determinant Factors: The Case of Ethiopian Major Export Products

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Abstract
The purpose of this study was to identify salient factors influencing Ethiopian Export Trade Logistics (ETL) and the significance of each factor in hampering competitiveness. It focuses on unilateral international trade, export trade logistics of some selected export items: coffee and oilseeds. Explanatory research design was used. In this research, both primary and secondary source of data were utilized through questionnaire and interview. A combination of sampling techniques (cluster, purposive and random) and data analysis tools (Multi variant and factor analysis) were utilized based on the nature of data and respondents. According to the Factor Analysis, the determinant factors of Ethiopian ETL performance are transport operation system, telecom and ICT services, terminal facilities and operation system, technological and administrative capabilities of institutions, and regulatory frameworks of logistics, particularly transport operations. Infrastructural limitation is common to almost all of ETL factors. Predictability and reliability of SC have imposed a significant impact on exporters' competitiveness. The time variation ranges between 15-30% depending on availability of stock. On the other hand, the Order Preparation takes longer time than clearing shipment via all legal processes in Ethiopia and the transit country- Djibouti. Out of international logistics costs freight costs significantly vary ranging between 25-40%. At every joint of ETL there would be either infrastructural (hard/soft) or communication disconnections of the ETL.
Keywords: Trade Logistics, Reliability, Predictability, Export Trade Logistics

1. INTRODUCTION

Logistics is one of the trade facilitating factors in the global trade. It is a multidimensional factor in trade operation focusing on process, skills sets and technologies. Specifically, logistics affects trade performance of a country in terms of cost, time, reliability and predictability and customer services, which further affect overall competitiveness of the export in the international market other things being constant Arvis et.al (2007). Several investigations have been undertaken to try to estimate the extent of impact of logistics on the economy. In Trade Logistics (TL), recent studies that introduce time for exports from the new Doing Business Survey into gravity model estimates find that a 10% increase in time reduces bilateral trade volumes by 5 and 8% (Hildegunn et.al, 2006; Djankov et.al, 2009). Limao and Venables (2001) find that a 10% increase in transport costs reduces trade volume by 20%. The costs of trade associated with logistics in the global trade accounts for more than 18% of developing countries' GDP, whereas it accounts for 8-10% of developed nations' GDP (Arvis et.al, 2010).

In the global economy, logistics received more attention as a major cost driver when the revolution of information technology to better monitor transaction activities such as the ordering, movement, and storage of goods is possible combined with the availability of computerized quantitative models. Ethiopia as a developing country recognized the significance of Trade Logistics before a decade after experiencing a bottleneck when importing heavy machineries to fulfill the demand of the industry and service sector. Similarly, the export market began to demand instant delivery and cost efficiency. Since Ethiopian economy is largely dependent on Exportable agricultural products mainly Coffee and oilseeds, logistical efficiency is very crucial. As a result, the Ethiopian government practiced many reforms in response to changes in the economy. Specifically, the country issued proclamations, deregulated the transport sector, merged logistics enterprises, restructured customs Authority and established dry ports connected by railway, which are the major move in the country that gave recognition to trade logistics.

Trade Logistics (TL) is a demanding task for developing nations since many of the factors are interwoven and it demands advanced technologies and high level infrastructural (Yusuf, 2011). Regardless of these challenges facing developing countries the current global trade demands an instantaneous and cost efficient trade logistics. Nevertheless, the existing trade logistics system of Ethiopia is characterized by inefficient, time

taking and complex Ciuriak and Preville, (2010). Furthermore, Ethiopian TL performance index is low even as compared to countries with similar economic development (Arvis et.al, 2012). However, there is no common agreement on the salient factors; different researchers put different findings for instance, Ciuriak and Preville, (2010) stipulate complex process of exporting and importing, sluggish and expensive transport, lack of seamless transport and cumbersome customs procedure. Ernest, (2008) generalizes that landlocked developing countries face higher restrictive freight cost than tariff barriers. Contrarily, Connecting to compete report of 2007, 2010 and 2012 indicates that countries having coastal access but registering poor Logistics Performance Index (LPI). Therefore, having the importance of logistics, imprecise factors and impacts the purpose of this study was to identify comprehensive factors influencing Ethiopian Export Trade Logistics (ETL) and the level of significance of each factor in hampering competitiveness.

1.1. Statement of the Problem

Ethiopia as developing country needs to exploit the opportunities of globalization. Since trade and FDI are the key channels for the international diffusion of knowledge, poor logistics may impede access to new technology and know-how, therefore slowing the rate of productivity growth. Conversely, increased trade creates demand for good logistics, putting pressure on facilitating reforms and sustaining a market for modern services (Arvis et.al, 2012). Trade cost of Ethiopia is labeled very high as compared to even countries with similar economic development. Some of the contributing factors are complex export/import procedures requiring 8 documents as compared to world minimum which is 2 in France for each case (Ciuriak and Preville, 2010), the long time it takes to export even standard containers 49 days (Arvis et.al, (2010). Furthermore, according to Arvis et.al, (2010), report on easiest countries to do business and TL performance, Ethiopia is ranked 123rd out of 155 countries and 159th out of 183 countries, respectively. Although Ethiopia has made progress in ranking under the World Bank's *Doing Business* methodology for starting a business, still ranks 93rd in 2010 and there is much room for improvement, compared to the least restrictive country in the world: New Zealand requires only one procedure (Ethiopia: five), which takes one day (Ethiopia: nine).

Uganda's recent improvement in its rankings on the World Bank's LPI is attributed to a successful project to facilitate transit at the Malaba Border Post in Kenya (Arvis et.al, 2010). According to Ciuriak and Preville, (2010), similar efforts by Ethiopia to develop better transportation and border infrastructure connections to Kenya, Uganda and Sudan in particular would support the regionalization of Ethiopia's industrial development while further boosting the development of its trade relations. Furthermore, slow and expensive road transportation due to the absence of rail and seamless Multimodal Transport Operation (MTO), and cumbersome customs procedures are highlighted as significant impacts on TL cost Ciuriak and Preville, (2010).

Based on Total Logistics Concept (TLC) that aims to treat many different elements that come under the broad category of logistics as one single integrated system, it is possible to have a comprehensive look into TL facilitating system components including transport, warehouse, ICT, institutional set up, port facilities and many other need to be considered within the context of the broader international logistics. Thus, the total system should be considered and not just an individual element or subsystem in isolation. Understanding of the concept is especially important when planning for any aspect of international trade logistics in order to boost the quality of logistics services since quality of logistics service affects export competitiveness. However, extant literatures indicate that there is fragmentation of logistics system of Ethiopia (Ciuriak and Preville, 2010; Asnake, 2006). Therefore, the major factors affecting the logistics service quality should be identified, and the degree of the effect should be tested. Similarly, this research was aimed at investigating the major factors affecting ETL performance of Ethiopia. And identifying which of these factors have significant impact on the country's ETL competitiveness.

1.2. Objectives of the Study

The general objective of this research was to look into the salient factors affecting Ethiopian ETL performance and to scrutinize the significance level of factors on export competitiveness. Albeit the spectrums of multilateral trade logistics and myriad export items, this research has specifically addressed unilateral international trade, export trade logistics of some selected export items of Ethiopia (coffee and oilseeds). The scope of the research is limited to export trade logistics particularly focusing on unilateral trade, selected export products of Ethiopia. This is because the selected products receive similar attention and priority from government of the country. Including all export and import products may lead the researcher to a wrong generalization on the trade logistics performance due to huge gap of policy priority and support that exporters receive from government. Therefore, findings of this research cannot be generalized over bilateral international trade logistics of Ethiopia.

2. EMPIRICAL REVIEW

The theoretical framework of this study has addressed various issues of trade logistics. TL has a link with many government and private institutions. It also touches regulatory, economic, political and technological issues of a

nation. This study addresses the determinate factors of export trade logistics of Ethiopia. According to extant literatures TL factors range from firm level (Exporter, Importer) to global agendas. Before directly dealing with TL factors it is import to put measurement metrics. To this end, researchers have put time and cost predictability of international trade deliveries as a key metrics. These include: Clark et.al, (2004), Limao and Venables, (2001), Freund and Rocha, (2010), Hildegunn et.al (2006), Korinek (2011), Arvis et.al (2007) and Li.Y & Wilson, (2009). According to these researchers the ultimate result of efforts towards facilitating international trade by any party whether private or government is to reduce the time, cost and delivery variability of export or import transaction.

According to the Organisation for Economic Co-operation and Development (OECD), for every 1 per cent saving achieved in transaction costs, the worldwide benefit would be USD43 billion (Sandford & Temby 2010). Hildegunn et.al (2006) find domestic trade costs to be more limiting for international trade than tariffs. According to them, a 10 per cent reduction in the cost associated with importing (exporting) would increase imports (exports) by about 5 per cent. Costs relate not only to the direct cost of transporting products; goods in transit incur indirect costs such as inventory handling costs (Hildegunn et.al, 2006). The longer the transit time, the higher are these costs. Hildegunn et.al (2006) finds that shippers are willing to pay a premium for faster delivery. Some of the factors contributing to high trade costs poor infrastructure, lack of transparent border clearance and high red-tape. Cumbersome Customs and administrative procedures have been found to be a challenge for developing countries in exporting to developed and other developing countries Alberto, (2009), Widdowson (2007). The capacity of customs intelligence also needs further improvement to support risk-based Customs control. Furthermore, Customs needs to abandon the 'gatekeeper' mentality that has traditionally dominated their thinking to embrace trade facilitation measures in a climate of ever-increasing volume of trade and limited resources since it cannot counter all frauds as recognised by Cantens, Raballand and Bilangna (2010) as cite by Yusuf, (2011). Logistics performance is influenced by the availability of quality, competitive private services namely: trucking, customs brokering, warehousing and Communication technologies Arvis et.al (2007). According to Arvis et.al, (2007), the LPI suggests that there are strong synergies among reforms to customs, border management, infrastructure, and transport regulations.

Just as strong logistics performance is associated with increased trade in developing countries; firm-level competitiveness is extremely sensitive to the quality of the logistics environment in which it operates. A firm's competitiveness is affected by cost and performance of its supply chain and thus depends on the overall logistics environment, but the main impact is less through cost than through the predictability of the deliveries. In the international logistics firms have to bear the direct costs associated with moving goods, such as freight costs, port and handling charges, procedural fees (such as bonds), agent fees, and side payments. But they also have to absorb the induced costs associated with hedging for the lack of predictability and reliability of the supply chain (Arvis et.al, 2007). Predictability is central to the overall costs that companies incur in logistics and thus to their competitiveness in global SC.

According to present literatures including: Arvis et.al, (2010), Clark et.al, (2004) and Yusuf et.al (2010), Alberto et.al (2009), Werren et.al (2005) and Limao and Venables, (2001); the most common determinant factors of TL are: quality of infrastructure, competency of private logistics service provides, efficiency of public logistics services providers, good governance and reliability among SC partners). All together confirm that logistics performance is about predictability. In other words, each of the mentioned logistics factors are interdependent in which case poor performance of one factor would neutralize the benefit of a well performing system component Yusuf and Uzzama, (2011), and (Arvis et.al, 2010). Present literatures show that government economic policies have paramount importance in facilitating international trade. The government policy that encourages competitive market attract investment by private sectors in core logistics service areas would play critical roles. Similarly, there is a need to have a competitive Banking, Telecom and ICT service providers of the private sector (Arvis et.al, (2010)

3. METHODOLOGY

The research was intended to explore the Export Trade Logistics (ETL) performance determinants of Ethiopia and identify their degree of impact. Accordingly, the research purpose was to investigate and analysis impacts and hence, the researcher used explanatory research. In this research, both primary and secondary source of data were collected through questionnaire and interview. The target populations of the study those playing direct role in the due course of processing export were clustered as exporters, government and private institutions, logistics agents, truckers and government officials. The sample size was 182 out of 340 different kind of population. Depending on the size and characteristics of the population of the particular cluster, simple random and purposive sampling methods were utilized.

Qualitative and quantitative data analysis methods were used to arrive at a reliable conclusion. Factor Analysis is used to identify a smaller set of salient variables from large set for use in subsequent multivariate analysis. Principal component analysis is applied where the total variance in the data is considered. Rotated

factor matrix is applied for interpretation in line with factor loading plots. Sampling adequacy test and residuals are used to determine appropriateness of factor analysis and model fit, respectively. To this end, the KMO test resulted 0.728 where as the residual is plotted on a scatter gram and found to be random pattern with equal dispersion. Finally, multivariate analysis, multiple regressions was applied.

4. DATA ANALYSIS, DISCUSSION AND INTERPRETATION

4.1. Descriptive Analysis

The frequency analysis of age (68% fall in the range of 31-40 years), position (8.8%, 35% hold manager and division head position) and experience of (40% respondents have 6-12 years). It indicates that mass of the respondents are matured enough, hold an appropriate position and have relevant experience to analyze and judge the impacts of the country's export logistics system on their company's performance. To establish the validity of the instruments a review of the instrument by a panel of experts, and professionals and pilot test were made. Reliability analysis was made for 101 items and the result shows a dimension of 0.806, therefore, the value fulfills the requirement level of reliability.

Table 2: Factors Affecting Export Trade Logistics Performance

Factor	*Factor (% var. explained)*	*Loading*	*Variables included in the factor*
F_1	Institutions' Technical & Administrative capacity (9.4%)	0.912	Error free work
		0.902	Discretionary power
		0.945	Transparent Clearance
		0.979	Layers of decision making
		0.943	Multiple inspection
		0.956	Frequency of disputes & Dispute resolution
F_2	Institutions' Technology for Service provision (8%)	0.900	Modern inspection technology
		-0.895	Authorized economic operators
		0.994	Integrated branches & trade facilitating agencies
		0.923	Electronically lodging & payment system
F_3	Port & Terminal Facilities (13%)	0.917	Private investments in warehouses
		0.921	Container availability at ports
		-0.948	Value added services
		0.915	Material handling equipments at customs and ports
F_4	Terminal Operations (11.3%)	0.903	Multimodal Transport Operations
		0.981	Transshipment time
F_5	FF Service Capacity (7.1%)	0.772	Service provided by FFs
		0.927	Competition in FF sector
F_6	Regulatory Issues in Logistics Ind. (9%)	0.943	FFs are licensed for international shipment
		0.864	FFs are receiving higher emphasis for Gov
		0.826	Government policy encourages FFs
F_7	QSAE and Certifying Institutions (3.2%)	0.894	Laboratory
		0.928	Human resource
		0.823	Applies modern ICT
		0.835	Certificate has international acceptance
		0.931	Works of QSAE are error free
F_8	Transport Operations (15%)	0.886	Transport companies are responsive
		0.834	Transport companies operation system
		0.919	Transport companies cargo security system
		0.719	Transport sector capacity and demand growth
F_9	Telecom & ICT Services (13%)	0.853	Telecom services reliability
		0.934	Telecom service performance consistency
		0.966	Standard telecom services are availability
		0.882	Costs of telecom services
		0.908	Harmonized exporters operational policy
		0.925	ICT installation costs affordability
		0.886	Skilled ICT experts availability
		0.946	Increasing private investment in ICT sector

Source: Researcher's Survey, 2014

4.2. Factor Analysis

In general, both the statistical analysis and interviews indicate that the problem in ETL is connectivity, which has further negative repercussions on predictability of the overall export operation. Predictability is the sine-quo-non of competitiveness in international trade. Consistent to other research findings this research finding reveals that since telecom and ICT services are weak, the connectivity is happened to be very low further causing difficulty of tracing cargo. Based on the factor analysis per cent of variance and factor loadings salient factors and specific variables are identified.

4.3. Logistics Performance Outcomes

A competitive logistics system metrics has already been shifted from conventional ones: cost and time to the new paradigm reliability and predictability of the supply chain. Traders highly value the availability of these services because the predictability and reliability of shipments are more important for firms and may have a more dramatic impact on their ability to compete, Arvis et.al, (2010), Arvis et.al (2008). However, performances greatly vary across countries. Due to differences in the quality and cost of infrastructure services as well as differences in policies, procedures, and institutions, Hausman (2005). Hence, after identifying the determinant factors, ETL predictability of time and cost factors were considered. According to rotated component matrix analysis, variables associated with time scored high factor loadings. Similarly, cost-effectiveness matters, particularly the opportunity costs which are referred as induced costs demonstrated high factor loadings on predictability factor.

Based on the interview held with exporters and Transit Operators, at each stage of the SC decisions are made assuming the worst case scenario. For instance, to set order lead time, exporter must be sure of stock availability, supply market, transport availability, port clearance, its own logistics efficiency and ship arrival. Out of these decision factors exporters cannot be sure regarding supply market, transport (truck availability and transit time), and port clearance. Surprisingly, exporters cannot be certain how long it takes them to collect products from farmers and traders, and even sometimes they doubt the availability of supply at all. The following table indicates the overall predictability of boarder agencies' and ports' processes.

Table 3: Logistics Performance Outcomes

S/N	Rotated Component Matrix[a]	Component Predictability	
	Variables	**Time**	**Costs**
1	Exactly tell foreign buyer the delivery time	.849	
2	Exactly know how long it takes to process via ERCA	.803	
3	The same time is required to process all the time	.608	
4	Exactly tell foreign buyer time via Djiboutiport	.729	
5	Pay additional charges to avoid non-delivery	.-.693	
6	Exactly predict how much cost to incur		-.542
7	Incurring opportunity costs of non-delivery		.862

This implies that the upstream SC of the exporters not coordinated which is reflected by less reliability. However, Transit Operators can estimate the maxim and minimum time it takes Ethiopian Revenue and Customs Authority (ERCA) to clear export cargo. Similarly, it is impossible to decide on costs of transport and related expenses. With respect to cost and time predictability, both factor analysis and interview indicate the same result, in the present situation exporter cannot accurately predict cost of delivering a standard container and a specific ton of cargo. Thus, induced costs of ETL are primarily caused by unpredictable and unreliable SC, which is the result of meager connectivity or invisible SC. The SC became invisible because the core processes are loosely integrated. In this case, collaboration, coordination and planning among international trade SC actors become fragmented, overlapped and contradicted. In addition, poorly equipped and configured terminal facilities and operations are major causes of unpredictable time and cost of export trade process of the country, Ethiopia.

4.4. Exporters' Current Competitiveness

Logistics inefficiencies harm the competitiveness of private firms through their effects on both cost and time in highly competitive international markets demanding just-in-time delivery. An exporting firm is said to be competitive in the international market if it can consistently deliver over time, meet JIT requirements and offer competitive price, and achieve overall customers' satisfaction, (Arvis et.al, 2009).

The descriptive statistics, particularly group mean of these variables indicate below average (2.45) performance of current exporters' competitiveness. Similarly, rotated component matrix analysis reveals that on time delivery, missing market opportunities, customer satisfaction, and meeting JIT and low cost requirements have high factor loadings. This implies the international trade actors are aware of these metrics but, Ethiopian exporters are not performing well on delivery time and JIT requirement. On the top of this, catching up critical market opportunities is not possible.

Table 4: Exporters' Current Competitiveness

S/N	Rotated Component Matrix	Component Predictability	
	Variables	**Time**	**Costs**
1	Products are sold because of on time delivery	.795	
2	Exporter miss critical market opportunities	.613	
3	Buyer are happy with current delivery performance	.878	
4	Exporters can meet JIT requirement of buyers		.843
5	Exporters can meet low cost requirement of buyers		.797

Interview results reveal that Ethiopian exporters' delivery performance oscillates between 15 and 30 days under normal circumstance. Nevertheless, during peak times of export and import where ports and ERCA become over crowded it goes up to 20 and 35 for orders with available stock and orders with zero stock, respectively (source: interview with exporters and Transit Operators). Therefore, both the statistical computations and interview results convey that Ethiopian exporters are not competitive in terms of logistical competency.

4.5. Multivariate Analysis (multiple regressions)

It is expected that the correlation among determinant factors, logistics performance outcomes and exporters' competitiveness will indicate significant association according to the theoretical and empirical literatures on which the conceptual framework was based. Logistics performance outcome is measured in terms of process predictability at each stage of the Supply Chain including customs boarder clearing and port operations. Supply Chain predictability highly depends on connectivity of international trade processes. The above salient factors identified by the component analysis are the major factors considered as predictor variable assumed to have an impact on the ETL predictability level of time and cost.

4.6. Time Predictability Factors

Table 5: Regression result of time predictability

	B	**Std. Error**	*β*
(Constant)	7.48	2.169	
Institutions' Administration Capability	.176	.071	.258**
Institutions' Technology application	171	.079	.222**
Terminal Facilities	.542	.089	.793*
Terminal Operations System	.463	.163	.269**
Freight Forwarding	.149	.119	.149*
Transport System & infrastructure	.209	.077	.270**
Telecom & ICT Infrastructure	.196	.086	.269*

R^2 0.939 , Adjusted R^2 0.926 , Standard Error 0.871

*, ** and *** denote significance at the 10, 5 and 1 per cent levels, respectively.

Dependent Variable: time predictability

The significance of the overall regression equation and significance of coefficient for each salient TL factors are tested and found to be significant except institutions' technical and administrative capability as indicated below. The *t* test indicates that all included variables have significant association with time predictability. According to the sample information, calculated sample value for *F* of 11.05 lies beyond upper limit of acceptance region (critical value/table value of 2.95) which implies variables included in the analysis have significant impact on time predictability of the ETL except Institutions' Administration Capability, which is with acceptance region confirming the *t* test. According to the interview held with Transit Operators, they certainly know how long it takes to clear a given exporters cargo. Thus, it is why the *t* test of institutions' technical and administrative capability suggested ERCA has no impact on time predictability.

4.7. Cost Predictability Factors

Although transport costs account for large part of the costs of logistics, high logistics costs usually do not result from poor infrastructure but mostly from delays, rent-seeking and governance issues which increase uncertainty and unreliability along logistic chains resulting in additional costs for importing or exporting products. Delays in customs clearance raise trade costs, particularly opportunity costs for firms that are slower to market and may lose contracts with importers, as well as higher storage fees at the port of entry. Djankov et.al, (2009) and Alberto et.al (2009) find that each day of delay at customs is equivalent to a country distancing itself from its trading partners by an additional 85 km.

The significance of the overall regression equation and significance of coefficient for each salient TL factors are tested and found to be significant. Similarly, the *t* test indicates that all included variables have significant association with cost predictability. According to the sample information, calculated sample value for

F statistic 3.728 lies beyond upper limit of acceptance region (critical value/table value of 2.79) which implies variables included in the analysis have significant impact on cost predictability of the ETL confirming the *t* test. Therefore, it can be inferred that exporters are not sure of how long it takes and how much cost they will incur when they initiate export of a standard container due to failure they will certainly face at any one of the international trade processes run by Transit Operators, customs, ports terminals and carriers. The same idea is shared by majority of interviewed exporters and Transit Operators regarding time and cost certainty.

Table 7: Regression result of cost predictability

	B	**Std. Error**	**β**
(Constant)	16.95	2.396	
Institutions' Administration Capability	.251	.079	.449**
Institutions' Technology application	.127	.087	.191
Terminal Facilities	.210	.099	.354*
Terminal Operations System	.027	.180	.018**
Freight Forwarding	.273	.131	.313**
Transport System & infrastructure	.093	.085	.138
Telecom & ICT Infrastructure	.063	.096	.100

R^2 0.861, Adjusted R^2 0.853 , Standard Error 0.711
*, ** and *** denote significance at the 10, 5 and 1 per cent levels, respectively.
Dependent Variable: cost predictability

4.8. The Impact of Predictability on Exporters Competitiveness

Impact of Time Predictability on competitiveness

The regression analysis reveals that time predictability of processes has strong association with competitiveness of exporters in terms of time. The significance of the overall regression equation and significance of predictability coefficient of time are tested and found to be significant as indicated in the following table. The calculated *F* statistic (4.416) for the impact of time predictability on competitiveness exceeds critical value of 3.079. Therefore, the relationship is significant at $\alpha = 0.01$ substantiating the results of *t* test. Thus, predictability of time is important in explaining export competitiveness by meeting time requirement (on time delivery and JIT requirement).

Table 8: Regression result of time predictability and competitiveness of exporters

	B	**Std. Error**	**β**
(Constant)	6.692	2.107	
Time predictability	.904	.163	.0.35**

R^2 0.938
Adjusted R^2 0.923
Standard Error 0.891
*, ** and *** denote significance at the 10, 5 and 1 per cent levels, respectively.
Dependent Variable: Exporters competitiveness meeting time

4.8.1. The Impact of Cost Predictability on Competitiveness

The significance of the overall regression equation and significance of coefficient predictability of cost are tested and found to be significant as indicated in the following table. The calculated *F* statistic (4.637) for the impact of cost predictability on competitiveness exceeds critical value of 3.55 Therefore, the relationship is significant at $\alpha = 0.01$ substantiating the *t* test. Thus, predictability of cost is important in explaining export competitiveness in meeting low cost.

Table 9 Regression result of predictability and competitiveness of exporters in terms of cost

	B	**Std. Error**	**β**
(Constant)	1.197	1.768	
Cost predictability of Processes	.329	.137	.27 6**

R^2 0.901
Adjusted R^2 0.899
Standard Error 0.774
*, ** and *** denote significance at the 10, 5 and 1 per cent levels, respectively.
Dependent Variable: Exporters competitiveness meeting low cost requirement

When SCs become visible, logistical process outcomes can be predicted accurately. Arvis et.al (2009) examined the impact of transport predictability in an empirical application. Gains on transport costs from corridor facilitation (2.2 days on average saved per truck, which amounts to 286 USD) and inventory level is halved with consequent cost savings of 800 to 1,000 USD per shipment, which amounts to 25% of the transport

cost. Hence, the most powerful leverage to reduce overall logistic costs is optimizing the predictability and the smooth functioning of the transit process.

Therefore, the adverse effect of poor connectivity of ETL is unpredictable and less reliable SC. Consequently, exporters would be exposed to a quandary situation: losing critical market opportunities, hedging inventory and pay extra fees to fasten delivery. The same logic holds true for Ethiopian ETL where exporters are losing market opportunities because they consider the maximum time and cost when dealing with buyers since they are not sure of time and cost. Similarly, it is mandatory to hold stock so as to meet at least 15 days delivery requirement, which otherwise takes more days and push exporters out of market. Unfortunately, exporters cannot hasten delivery even by paying extra fees since there is only one mode of transport relatively similar transit time. But an exporter may look for new trucks that are faster as compared to the old ones. Consequently, an exporter needs to pay slightly higher rate.

5. CONCLUSIONS AND IMPLICATIONS

The eventual conclusion of this study is that generally, the factors are intricate and interdependent. The integration and coordination challenges among trade facilitating institutions can be addressed in a short term strategy whereas hurdles related to alternative modes of transport and SC connectivity takes longer time, huge investments and policy changes. The holy grails of international trade logistics dimensions: predictability and reliability of SC have imposed a significant impact on exporters' competitiveness. Exporters are not sure of how long it takes and how much cost they will incur when they initiate export of a standard container due to delay they will face at any one of the international trade processes. The time variation ranges between 15-30% depending on availability of stock. Out of international logistics costs freight costs significantly vary ranging between 25-40%. As long as losing critical market opportunities, longer delivery time, inability to meet JIT requirements and long export order preparation time are concerned; exporters are not logistically competitive in the international market.

Although there are encouraging efforts of government to enhance trade facilitating public institutions, particularly the improvements in consciousness of ERCA, the remaining factors associated with technology application and coordinated clearance are unchanged. As a result, the gains from effectiveness of ERCA in prioritizing exporter over imports and allocating dedicated staffs are being negated by the losses of time in manual and multiple inspections. Integration and coordination among trade facilitating institutions is one of the significant element that Ethiopian ETL is lacking. Indeed, almost all such institutions are conscious of what and how quickly they have to process exporters. But, they lack the necessary technology and machineries to enhance and sustain the current performance. Hence, these institutions are just doing it quickly because of sense of urgency placed on by government.

Private institutions especially carrier companies mostly prefer transporting imports due to price and volume gains. Consequently, exporters would face two challenges: using old and/or inefficient trucks that spends 3 days in transit, and spending one or two days while looking for new trucks. However, the effect of using old trucks that are readily available and using new trucks after some waiting time is the same. This implies that in the transport sector intermodal competition should be encouraged. Finally, there is a need to connect the nodes of ETL through hard (infrastructural), soft (regulatory) and ICT.

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