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MASTER THESIS

**CHALLENGES AND INTERNATIONAL STRATEGY
APPLICATIONS IN SUPPLY CHAIN MANAGEMENT:
THE CASE OF TURKISH FOOD EXPORTERS**

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ABSTRACT

CHALLENGES AND INTERNATIONAL STRATEGY APPLICATIONS IN SUPPLY CHAIN MANAGEMENT: THE CASE OF TURKISH FOOD EXPORTERS

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The research has been conducted as a survey study to collect data from employees and management of food exporting companies in Turkey in order to discover main supply chain management challenges that are encountered by these firms.

A factor analysis has been applied and the 4 most important factors that result in various other variables that impact food exporters have been discovered to be a poor understanding of supply chain management, demand uncertainty, volatilities in operations and inventory management.

The study recommends that food exporters in Turkey conduct trainings for their employees in order to increase their understanding of supply chain management, implement a demand planning mechanism for their operations, reduce volatility of operations by having a stable and consistent strategy of operations in place and finally, applying well-established effective inventory management systems such as just in time and lean.

keywords: export, challenges, supply chain management, Turkey, demand uncertainty, inventory management, operations volatility

ÖZ

TEDARİK ZİNCİRİ YÖNETİMİNDE ZORLUKLAR VE ULUSLARARASI STRATEJİ UYGULAMALARI: TÜRK GIDA İHRACATÇILARI ÖRNEĞİ

Guluzade, Orkhan

Yüksek Lisans Tezi, İşletme

Danışman: Dr. Öğr. Üyesi Aylin ÇALIŞKAN

Mayıs 2022

Firmaların karşılaştığı temel tedarik zinciri yönetimi zorluklarını keşfetmek amacı olan bu çalışmada Türkiye’de bulunan gıda ihracatçısı firmaların çalışanlarından ve yöneticilerinden veriler toplanmıştır.

Analiz yöntemi olarak faktör analizi uygulanmış ve gıda ihracatçılarına etkileyen en önemli 4 faktörün tedarik zinciri yönetimi konusunda yetersiz bilgi ve anlayış, talep belirsizliği, operasyonlardaki değişkenlikler ve envanter yönetimi olduğu ortaya çıkmıştır.

Çalışma sonuçlarına göre Türkiye’deki gıda ihracatçılarına tedarik zinciri yönetimi bilgi düzeyindeki artışı sağlamak adına çalışanlarına eğitim vermeleri, operasyonları için bir talep planlama mekanizması kurmaları, operasyonlardaki değişkenliği azaltmak adına istikrarlı ve tutarlı operasyon stratejine sahip olmaları ve son olarak ise tam zamanında ve/veya yalın gibi etkili ve verimli envanter yönetim sistemi kurmaları önerilmektedir.

Anahtar Kelimeler: ihracat, tedarik zinciri yönetimi, Türkiye, talep belirsizliği, envanter yönetimi, istikrarsızlık

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Orkhan Guluzade
İzmir, 2022

TEXT OF OATH

I declare and honestly confirm that my study, titled “CHALLENGES AND INTERNATIONAL STRATEGY APPLICATIONS IN SUPPLY CHAIN MANAGEMENT:THE CASE OF TURKISH FOOD EXPORTERS” and presented as a Master’s/PhD Thesis, has been written without applying to any assistance inconsistent with scientific ethics and traditions. I declare, to the best of my knowledge and belief, that all content and ideas drawn directly or indirectly from external sources are indicated in the text and listed in the list of references.

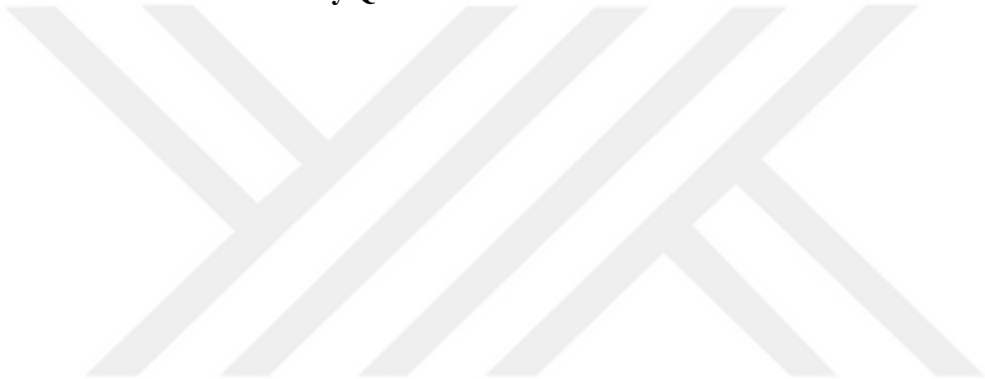
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ABBREVIATIONS

CLM The Council of Logistics Management

CSCMP The Council of Supply Chain Management Professionals

GDP Gross Domestic Product

EU European Union

IT Information Technology

R&D Research and development

ROI Return on investment

SC Supply chain

SCF Supply chain finance

SCM Supply Chain Management

SME Small and medium-sized enterprises

VRIO Value, rarity, imitability, organization

CHAPTER 1

INTRODUCTION

1.1. BACKGROUND

Recent challenges in the supply chain management across the world demonstrated the value of a seamless global supply chain in order for organizations to operate successfully. Logistics activities comprise approximately 10-12% of the world's GDP illustrating the importance of these activities in terms of contribution to economic growth (Crandall, et al., 2009). Given how quickly client expectations change in today's economic environment, it is not surprising that organizations with more efficient supply chains perform better and generate higher returns. As a result, company executives all over the world are working on modernizing their global logistics in order to better satisfy their consumers' needs. (Saldanha, et al., 2015).

Consumer demand patterns drastically shifted as the pandemic took root in March 2020. Increased demand for larger houses, home devices, computer and communications gear, furniture, toys, and recreational equipment was spurred by a shift to working from home, as well as school closures (Aratani, 2021). Even in the best of times, such a drastic transition would have put industry under strain. Manufacturers were unable to overcome gaps between supply and demand throughout the epidemic because they were dealing with continuing labor and material shortages, plant closures, and shipping delays (Aratani, 2021).

Short-term supply shortages are typically resolved swiftly as rising prices lower demand and increased supply restores market equilibrium (Aratani, 2021). However, prices have risen across the economy in many cases significantly but shortages have persisted, counter to basic economic theory about establishing supply-demand equilibrium. These facts have put a particular pressure on organizations to build effective supply chain networks in today's highly volatile global environment (Aratani, 2021).

Organizations need effective supply chain management because it provides several benefits, including increased efficiency, improved ability to deal with demand uncertainty, better transportation management, lower costs, more effective risk management capabilities, and finally, a positive impact on cash flow. (Saldanha, et al., 2015).

1.2. THE CASE OF TURKISH ECONOMY AND EXPORTERS

With more than 84 million population, Turkey has been able to achieve fast economic and social development since the early 2000s. The country was transformed into an upper-middle income country (World Bank, 2020). The country was not also affected considerably by the great financial crisis of 2008.

With a GDP of \$750 billion, Turkey is the world's 19th largest economy. Between 2002 and 2016, the GDP per capita tripled to \$10,512. In 2019, the per capita income was \$8,600 (World Bank, 2020).

Turkey underwent considerable structural changes in the finance sector following an economic crisis in 2001, which, together with subsequent economic and political stability, resulted in an average growth rate of 5% between 2002 and 2014 (World Bank, 2020). Following security worries, a failed coup attempt, and a drop in tourism receipts, Turkey's economy faltered. In 2017, growth jumped to 7.4 percent. Then it dropped to 2.6 percent in 2018 and 0.9 percent in 2019 (World Bank, 2020).

The COVID-19 epidemic hit Turkey severely, causing the economy to shrink by roughly 10% in the second quarter of 2020 (World Bank, 2020).

The services sector, which includes real estate, tourism, financial services, education, and health, accounts for the majority of Turkey's GDP. Agriculture and industry both continue to play major roles. Manufacturing, in the form of home items such as Beko and Vestel, accounts for a substantial share of Turkish exports to Europe (World Bank, 2020).

The tourism and broader services sectors were particularly heavily struck by the pandemic and are currently struggling. The industrial sector has performed better than the others. The Turkish government wants to reduce Turkey's reliance on imports in its

growth and export structure, while also improving its capacities to become a high-tech exporter (World Bank, 2020)..

The World Bank's Doing Business 2019 Report ranks Turkey 33rd out of 190 economies, placing it ahead of several other emerging countries such as India and nearby competitors Romania and Bulgaria. On the ease of starting a business, Turkey ranks 77th out of 190 economies.

Turkey is ranked 61st out of 140 countries in the World Economic Forum's Global Competitiveness Index 2018. Turkey was placed 78th out of 180 nations in the Transparency International corruption index in 2018 (World Bank, 2020).

The New Turkish Commercial Code addresses the demand for more openness and less bureaucracy in Turkish company, as well as directorship flexibility. Strong corporate governance and social responsibility structures are becoming more common in Turkish enterprises (World Bank, 2020).

Turkey is a crucial energy transit country with aspirations to become a European energy center.

Despite successful economic and political strategy in the early 2000s, later years brought more uncertainties as the economy of Turkey faced growing external macroeconomic shocks (World Bank, 2020).

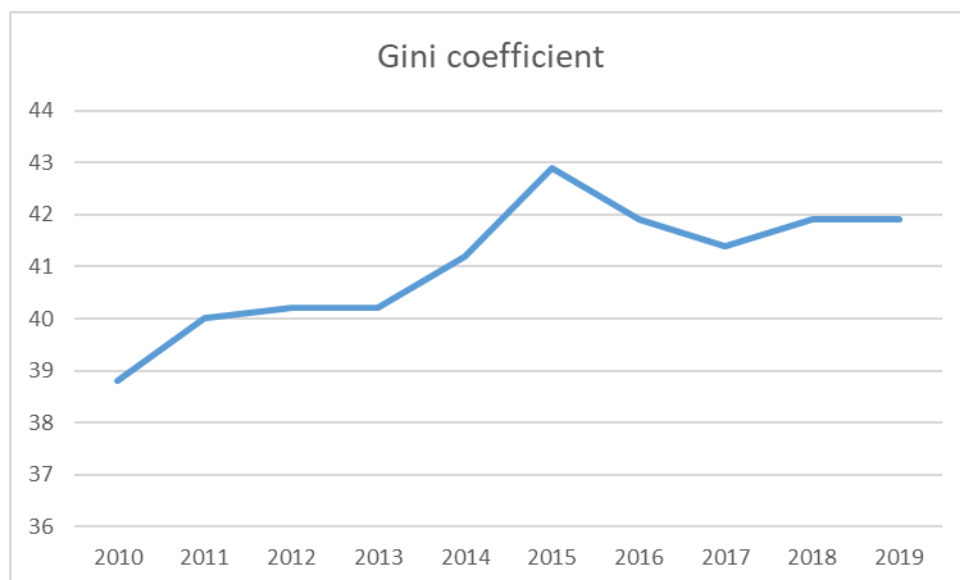


Figure 1. Gini Coefficient

Gini coefficient has been rising since 2010 indicating the rising level of inequality in the country. Although the indicator declined since 2015 but since 2017 the situation with respect to inequality has worsened again illustrating the effect of economic challenges.

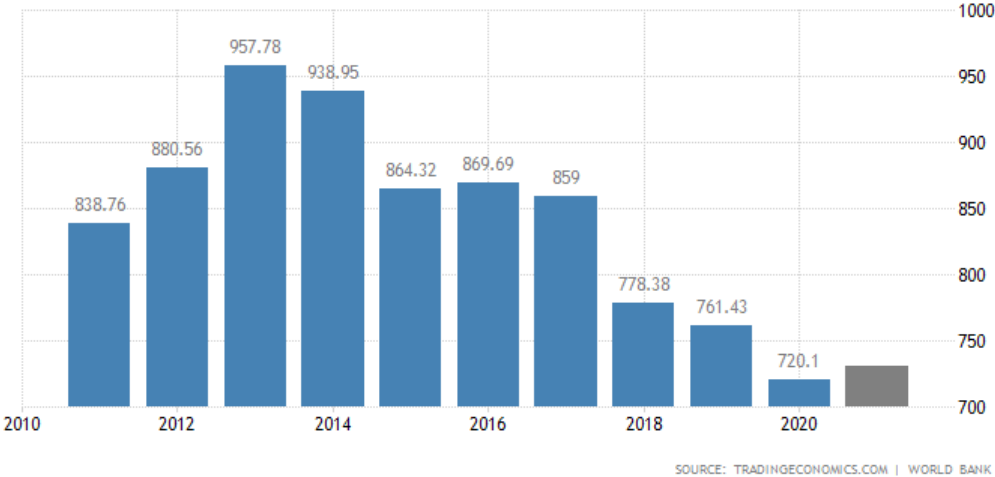
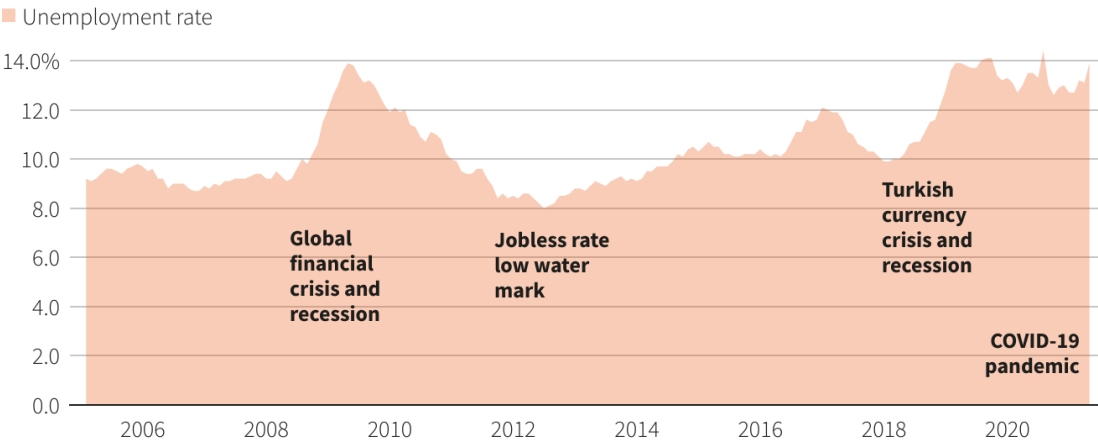


Figure 2. GDP of Turkey

The GDP of Turkey has been declining since 2014 reflecting the fact that the economy has been contracting.



Note: A pandemic-era government ban on layoffs has capped unemployment since early 2020
 Source: TurkStat

Figure 3. Unemployment rate against the backdrop of key world events

The unemployment rate fell after the financial crisis and recession of 2008 which reached its lowest point in 2012 after which a steady increase in unemployment rate

was observed and the situation worsened after the Turkish currency crisis and Covid-19 pandemic (Jones, 2022).

The chart below demonstrates the worsening currency crisis showing three events and how the value of Turkish lira changed through these years. Gezi Park protest, failed coup attempt and the recent currency crisis have been analyzed (Jones, 2022). The deterioration of economic conditions and loss of trust in the economy are reflected in the significant drop in the value of lira throughout the period.

The origination of the current crisis dates back to 2018 and it is considered as an ongoing crisis. A low value of the Turkish lira, high inflation rate and higher borrowing costs (World Bank, 2020). The underlying causes of the crisis were a high current account deficit and the extent of foreign-denominated debt. In addition, political leadership in the country adopted a different path than the orthodox interest rate policy stance of other central banks worrying investors regarding the future of the lira's value that resulted in an exodus of investments from the country (Jones, 2022). Hence, a combination of wide-ranging factors impacted the value of the currency and overall, affected economic situation in Turkey which hurt all economic actors.



Note: Turkish lira weakest level vs U.S. dollar, weekly
Source: Refinitiv Eikon

Figure 4. *Currency fluctuations against the backdrop of major events*

1.3. RESEARCH AIM, OBJECTIVES AND MOTIVATION

The main research question of the research is: What are the main challenges that are encountered by food exporters of Turkey?

The aim of the research is to reveal key challenges faced by food exporters in Turkey

The objectives are as follows.

- To identify challenges encountered by exporters in Turkey in their supply chains
- To determine the most significant of these factors

The research gap, motivation and importance of the study

The fact that food industry is becoming a central area of the current supply chain crisis in the world and there is a shortage of supplies of different food items in the world currently, this study serves the purpose of finding the most important challenges for Turkish exporters of food in this volatile global environment. As there is no similar major study in the context of Turkey for this industry, the study will also provide an important practical insight for food companies of Turkey.

1.4. STRUCTURE OF THE THESIS

The thesis is structured as below. Literature Review section provides a review of relevant theoretical frameworks to understand supply chain management and potential challenges and presents a critical review of the existing empirical studies in the area. Methodology chapter discusses methodological tools applied in the research such as the type of the research, data collection and analysis process. Findings and discussion section discuss the main themes emerged from the data analysis and presents the main findings of the research. Conclusion chapter summarizes the key points of the research.

CHAPTER 2

LITERATURE REIVEW

This chapter is divided into the review of theoretical perspectives with regards to the challenges of supply chain management and the empirical review of previous academic studies which have investigated supply chain challenges of different sectors (including the food industry) in various country sectors.

2.1. Background, definition and importance of supply chain management

Recent challenges in the supply chain management across the world demonstrated the value of a seamless global supply chain in order for organizations to operate successfully. Logistics activities comprise approximately 10-12% of the world's GDP illustrating the importance of these activities in terms of contribution to economic growth (Crandall, et al., 2009). As the demands of customers change rapidly in today's current business environment, it stands to reason that businesses with more efficient supply chain tend to perform better and achieve a greater level of return. Hence, business leaders across the world are engaged in the processes of transforming their global logistics in order to be able to efficiently serve their customers' needs (Saldanha, et al., 2015).

The Council of Supply Chain Management Professionals (CSCMP) (2004), (which used to be named The Council of Logistics Management (CLM)), a global organization engaged in the SCM practice and enhancement of SCM education and development defined supply chain management as:

SCM integrates all activities that are a part of planning and management in the process of sourcing, procurement, conversion and other activities related to the management of logistics which also include supplier cooperation and coordination as well as cooperation with other third parties such as intermediaries and finally, customers (Therefore, supply chain can be said to include all the activities that a part of the production and delivery of final products and services from suppliers to customers). Hence, it can be argued that supply chain management process includes supply

management and demand management as well as their interaction across firms. CSCMP highlights that SCM covers the management of supply and demand, locating required raw materials, related processes of manufacturing, warehousing and inventory management, order management, and distribution to customers.

A supply chain is therefore defined as a network of companies involved in the performance of various activities and processes so that value is created by them for the final customer (Branch, 2007). SCM is concerned with both improving customer service and reducing the costs and uses integrated and process-oriented approaches for the designing, management and control of the activities in the supply chain so that value can be produced for the end customer (Branch, 2007).

The nodes in the global supply chain is made up of the following stages.



Figure 5. Steps in the global supply chain management process

Effective supply chain management is essential for organizations as it entails several advantages such as improved effectiveness, better capability to address demand uncertainties, better transportation management, reduced costs, more effective risk management capabilities and finally, a positive impact on the cash flows of the organization (Saldanha, et al., 2015)

2.2. FUNCTIONS OF SUPPLY CHAIN MANAGEMENT

The supply chain management process has the following functions.

Purchasing

Purchasing is one of the steps of supply chain management and constitutes its essential part. Organizations need raw materials for the production of goods and purchasing comes into play for this purpose (Giannoccaro and Pontrandolfo, 2002). . In order to effectively function, organizations need to be on time with regards to production and this necessitates timely delivery of raw material purchases. Hence, purchasing requires effective coordination with suppliers and other intermediaries so that delays do not occur in the process (Giannoccaro and Pontrandolfo, 2002).

Operations

Operations is yet another function of supply chain management and this stage has such essential components as demand planning and forecasting (Saldanha, et al., 2015). Demand planning and forecasting are critically important for organizations because they need to identify how many units are needed before committing their resources to the production process. Thus, organizations need to avoid situations in which there is too much inventory or a shortage of inventory that would leave them in a difficult spot (Saldanha, et al., 2015). Hence, inventory management should incorporate such processes as demand planning and forecasting for the purpose of organizations to operate smoothly.

Logistics

Logistics is a complex process which plays a central part in the coordination of such activities as planning, purchasing, production, warehousing and transportation and logistics management is essential for the organizations in order to get their productions to customers without major problems (Saldanha, et al., 2015). Inter-departmental communication is critical in order for the logistics process to work without problems.

Resource management

Production process involves the usage of resources and these resources are made up of such types as technology, raw materials, employee labor and time of the employees. The management of resources is essential, therefore, in order to allocate resources optimally and not to waste them (Standler & Kilger, 2005). Production schedules are

important for organizations, therefore, in order to ensure that the efficiency of resources can be enhanced. The existence of a feasible schedule is important because organizations can ensure that their resources are not strained (Standler & Kilger, 2005).

Information workflow

In order to manage all components of supply chain management operational and on track, it is essential to create effective information sharing between departments and between the organization and third-parties involved in the supply chain (Liu, et al., 2019). Weak information sharing can lead to disruptions in the supply chain of the organization meaning that the critical importance of this component for the organizations should be highlighted (Standler & Kilger, 2005). Thus, visibility and information sharing in the form of effective communication can lead to better outcomes. In summary, it is of critical importance to create a consistent information-sharing system in order to improve the flow of activities in the supply chain (Liu, et al., 2019)

2.3. SUPPLY CHAIN MANAGEMENT COMPONENTS

Supply chain management is made up of the following components.

Planning

This component is of critical importance for the work of supply chain management. In order for the supply chain to work effectively, it is important to create relevant strategies (Liu, et al., 2019). For instance, organizations should assess demand for products/services, and analyze such aspects as cost-profit, human resources and so on so that supply chain network does not have disruptions. In other words, without a plan which includes details of the activities involved in supply chain, then the organization might not be acting prudently as unexpected surprises can lead to negative outcomes such as a shortage of resources or over-spending on resources which are not necessary for the organization (Branch, 2008). Hence, the dynamics of demand and supply in the market are essential to explore before planning supply chain management activities meaning that a comprehensive planning process comes before everything and constitutes a component of supply chain network.

Sourcing

Sourcing is perhaps the most crucial aspect of supply chain management system because it affects both prices and quality of sources materials by the organization (Standler & Kilger, 2005). As a large number of raw materials go into the production of products, it is expected that sourcing is also a complex process involving coordination and cooperation with multiple organizations in the supply chain (Blanco, 2010). Cost effectiveness of the sourcing process should also be highlighted as organizations need to be efficient with the management of their resources. Furthermore, it is also critical to obtain raw materials in time because a failure to do so might lead to reputational damage in front of customers (Branch, 2008).

Quality of products is yet another essential aspect for organizations and to ensure that high quality is present in its products, companies would need to be selective with their sources in the supply chain (Branch, 2008).

Inventory

Inventory maintenance and having a sufficient level of inventory are very important for an effective supply chain management system (Ivanov, 2021). Raw materials and other elements such as ready goods constitute the inventory of the organization. Inventory should be updated on a regular basis so that changes in the demand for it can be integrated into the stock levels maintained by the company (Ivanov, 2021).

If there is no inventory management process in place by the organizations, potential problems are highly likely such as a shortage of inventory or excessive investment in resources that are not needed (Ivanov, 2021).

Production

Production is the stage when final products come into existence and constitutes a critical part of the supply chain management. Production occurs without problems when all other elements of supply chain/network have worked in tandem and there is no shortcoming in the management of one or several of the elements (Ivanov, 2021).

Inventory management, for example, is important for the production to work properly. There are some post-production processes such as testing of the produced goods and packaging (Branch, 2008).

Transportation

Transportation involves moving both raw materials as well as final goods from one place to another (for example, from the producer to the market). Carrying out the transportation process in time without delays is critical so that business processes continue without a breach of continuity (Standler & Kilger, 2005). Otherwise, good quality products would not be able to guarantee high reputation for the firm if it does not manage its transportation process (Balon, et al., 2012).

Safety in the transportation process also plays a critical role for the work of organization because it should be ensure that there is minimal loss or damage to the product during the transportation process. Either in-house or third-party transportation processes can be used by the organizations (Ivanov, 2021).

Return of goods

It is highly likely that some customers will desire to return products even for very renowned brands and the company must ensure that there is a relevant organizational unit that deals with consumer grievances (Balon, et al., 2012).

In other words, businesses should engage with customers in a very responsive manner and recall products in case of a faulty product. A failure to address consumer complaints might create negative reputation with customers (Yadav, et al., 2022).

2.4. NODES OF GLOBAL SUPPLY CHAINS

There are some critical components of supply chain management which can be summarized as the creation of the supply chain network structure, the development of business processes to support supply-chain and finally, managing supply chain activities (Balon, et al., 2012).

Firstly, the supply-chain network is made up of all the firms which create links with one another. This combination is, therefore, the network of the supply chain (Balon, et al., 2012). There are both primary and supporting members of the supply chain network that need to be highlighted. Primary members can be said to be independent companies which are engaged in value-adding activities that eventually lead to the creation of a product or service for a particular customer or market. There are also supporting members which are providers of certain resources which are both tangible

and intangible along the supply chain (Standler & Kilger, 2005). For instance, one example of a supporting member of a supply chain network is a bank that lends money to corporations which engage in the production of a certain product or service.

Moreover, the structural dimensions of the supply chain should be mentioned which are horizontal, vertical and the horizontal position of the focal company within the end points of the supply chain (Ivanov, 2021). Horizontal structure refers to how many tiers the supply chain is made up of. To illustrate, some supply chains are made up of many tiers whereas some others are quite short and made up of only few tiers.

Vertical structure, on the other hand, describes how many suppliers or customers can be found in each tier. Again, the vertical structure of the firm might be narrow (made up of few companies in each tier) or wide (with many companies within each tier) (Ivanov, 2021).

The final dimension explains the location of the company in regards to different distances from the initial source of supply. The firm can be located near or far or in the middle with regards to the points of the end points of the supply chain (Liu, et al., 2019)

Customer value in the form of some output is created as a result of various business processes. All the activities across the supply chain are integrated via the management function. It should be highlighted that upstream and downstream parts of the supply chain can be distinguished that have not been integrated considerably well in many organizations (Liu, et al., 2019). However, modern time requires the integration of supply chain processes in order to gain competitive advantage as a firm (Balon, et al., 2012). These processes include customer relationship management, demand management and product development and so on.

2.5. THEORY OF SUPPLY CHAIN MANAGEMENT AND POSSIBLE CHALLENGES

Theoretical approach to supply chain management

In order to understand supply chain management challenges, the review of relevant theories is essential as provided below. Some key theories which are applied to understand supply chain management are elaborated on next.

- Resource-based view

This theory stipulates that the activities of the purchasing department is influenced by the antecedent processes, primary processes and supportive processes and supply chain management decisions must be based on the resources of the company (Crandall, et al., 2009).

Resource-based view hypothesizes that supply chain management and purchasing can be a sustained competitive advantage for the firm and be considered as internal resource in this sense (Snyder & Shen, 2019). Furthermore, this theory argues that critical make or buy decisions which are critical to the competitive advantage of the firm should be maintained internally whereas those decisions which are non-critical can be outsourced.

As the main point of the resource-based view is the obtainment of competitive advantage through the use of resources of the firm, supply chain of the company is considered as a resource which can equip the firm with a competitive advantage. Nevertheless, it should be highlighted that this condition can only be met if the VRIO framework for the resources of the firm stands. To elaborate, the supply chain network of the firm can be a source of competitive advantage if it is valuable, rare, inimitable and organized (Henson & Mitullah, 2016). If the firm is incompetent in regards to one or more of these attributes, then its supply chain does not provide it with a sustained competitive advantage.

Thus, from the perspective of the resource-based view, organizations face a dilemma of either integrating their whole supply chains from bottom up or keeping only few resources internally and outsourcing the main proportion of their supply chain (Henson et al., 2005). The explanation of resource-based view is that only value-adding segments of the supply chain should be developed internally and non-core activities should be outsourced. Or, some firms might lack resources needed to internally carry out supply chain activities and might have to outsource them.

Moreover, this theory contributes to the selection of supplier contracts and argues for the favor of long-term and fixed contracts in order to obtain competitive advantage. Moreover, the supplier portfolio is preferred to be a combination of suppliers with a lower amount of risk in order to maintain the competitive advantage of the firm and not to face unexpected risks (Henson et al., 2005).

- Transaction cost analysis

This theory is one of the most frequently addressed in order to explain supply chain strategy of businesses. This theory is concerned with the assessment of direct economic factors and their effect on the vertical integration of the business along the supply chain (Branch, 2008). Vertical connection and integration of different elements of organizational supply chain with regards to relationship with suppliers and customers are addressed by transaction cost theory.

The key areas where transaction cost theory affect the supply chain management of organizations are efforts, monitor, problem and advantage (Snyder & Shen, 2019). These factors in turn refer to the following.

-Efforts describe the activities of the firm in the area of establishing and maintaining relationship with suppliers (Snyder & Shen, 2019).

-Monitor, on the other hand, refers to the fact that the performance of suppliers must be monitored by the organization in order to evaluate the compliance of their performance with the expectations of the firm (Snyder & Shen, 2019).

-Problems also arise in the management of relationships in the supply chain of the firm and they must be resolved by the company in an adequate and quick manner so that the effectiveness and efficiency of the supply chain process is not affected negatively.

-The final element addresses the engagement of suppliers in an opportunistic behavior which should also be evaluated and addressed by the firm (Snyder & Shen, 2019).

- Knowledge-based view of supply chain management

This view of supply chain management argues that the importance of collaboration along the supply chain between partners must be valued as this collaboration can contribute to the performance of the firm to a significant extent (Standler & Kilger, 2005).

The main knowledge-related constructs can be considered as the integration of knowledge internally, the integration of knowledge with customers and finally, the integration of knowledge with customers (Standler & Kilger, 2005). The research has showed that these three constructs are inter-related to a significant extent. Moreover, it was also established that these constructs explain more than 30% of the variance in the firm performance attesting to the importance of knowledge-sharing.

Although there might be limitations of the approach because knowledge-based collaboration might not be effective in all instances, but knowledge-based view of supply chain management highlights the effectiveness of this strategy in many instances when collaboration does not reduce the competitive advantage of the firm (Standler & Kilger, 2005).

- Agency-theory in supply chain management

Agency theory has been used in many organizational contexts but supply chain management researchers have mostly ignored potential applications of this theory and mostly focused on transaction cost economics. Nonetheless, there are cases when conflict of interest is real in the supply chain between partners and the application of agency theory would be highly informative (Harrison, et al., 2006).

Agency theory is relevant when there is a conflict of interest between parties and one party has been given a mandate to do certain activities on behalf of the other. In this regard, some suppliers are indeed positioned to perform certain activities on behalf of the firm meaning that they can act out of their own interest and create a negative outcome for the company (Harrison, et al., 2006).

A conflict of interest also occurs when there is a sufficient level of uncertainty with regards to the outcome. In this instance, there might be a sufficient level of incentive on the part of certain parties to act for their own interest and jeopardize the interests of their supply chain partner (Henson & Mitullah, 2016).

These possibilities have triggered researchers to consider the application of agency theory in supply chain management as a relevant theory.

- Strategic choice theory

This theory focuses on activities that the firm engage in for the purpose of reaching defined goals. There is an impact of supply chain management decisions on critical areas of the performance of the firm which is evaluated using this theory. Some of the questions that strategic choice theory seeks to answer are as follows (Harrison, et al., 2006).

-How supply chain activities of the firm impact the stock price of the company and what is the related effect on profitability?

-How supply chain strategies can be adapted to the organizational life-cycle of the business?

-How various supply chain strategies can be used to support the strategic choices as differentiation or cost leadership of firms?

Nevertheless, this theoretical approach has been criticized for being too focused on policies and governance structure and paying little attention to the execution of plans in a detailed manner (Balon, et al., 2012). Thus, mostly the theory addresses strategic issues concerned with supply chain management and leaves out more granular implementation aspects.

- Institutional theory

Political science has also been applied to analyze supply chain management framework of organizations and it was identified that there are certain principles of institutionalism that affect the entirety of the organization including supply chain management (Harrison, et al., 2006).

The principles of old institutionalism are presented in the Table.

Table 1. Principles of old institutionalism

Legalism	Law and governance are taken into consideration
Structuralism	The structure of the supply chain is important and it shapes the behavior of the firm and its suppliers
Holism	The institution should be studied in a holistic way rather than looking into the parts of the system in an individual manner
Historical	The relevant institutional system exists for each period of time that needs to be considered

Normative analysis	Values and facts are both important in terms of defining institutional behavior
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These old principles have been replaced with relatively new ones and these new principles of institutionalism are as follows.

-Institutions are concerned with society and individuals both in the form of groups and individually. Formal and informal structure of society are reflected in institutions.

-Behaviors which have been demonstrated in a rather stable pattern over time can be institutionalized.

-The members of the institution are also affected by the accepted behavior within these institutions as being a part of it creates a level of commitment.

-There are shared values, principles and beliefs among the members of the institution which are enhanced over time as people stay the member for a longer period.

The principles of new institutionalism illustrate a closer approach to an open system perspective as opposed to rational system characteristics exhibited by old institutionalism.

- Systems theory

System theory considered the impact of biology and argues that the original modeling approaches used by scientists fail to take into consideration the effect of time (Standler & Kilger, 2005). Through time the interaction of system elements change and therefore, the construction of a dynamic system is more relevant to understanding many phenomenon including supply chain of organizations.

The total cost and trade-offs were considered as the key elements in the application of the neoclassical economic theories to logistics (Snyder & Shen, 2019). However, the system theory became the main approach to explaining the functioning of organizational supply chain. The system theory at present mostly focuses on the efficiency-enhancements and the optimization of processes.

- Network perspective theory

Network perspective is another view of the interactions of the organization with its supply chain and it highlights the importance of networks or the relationships with other organizations as part of supply chain management process (Snyder & Shen, 2019).

This theory postulates that as the size of the network grows, it can be expected that the efficiency of the supply chain will increase as well. Nevertheless, a constant expansion of the network of the supply chain of the organization also exposes it to certain risks as expansion occurs in a diverse range of setting. For example, establishing new relationship with suppliers from a new country can also open up the supply chain of the firm to new risks (Snyder & Shen, 2019).

- Summary

To summarize the gist and relevant application of theories, transaction cost analysis is applied so that the cost reductions can be obtained and efficiency is increased in the face of environmental uncertainty.

Resource-based view is applied to stress out the importance of value of internal resources. If supply chain network of the firm is valuable, rare, inimitable and organized, then it can become a strategic advantage for the firm.

Knowledge-based view indicates that knowledge is the source of competitive advantage and knowledge-sharing creates a valuable opportunity for the improvement of the efficiency and effectiveness of the supply chain network as well.

Strategic choice theory creates a set of standards in regards to the effect of supply chain on company performance and provides insights into how company performance can be enhanced through the manipulation of the certain elements of the supply chain network.

Agency theory concentrates on conflicts of interest from the delegation of responsibility and how these conflicts of interest can lead to the negative outcome for the firm vis-à-vis its suppliers.

Opportunities that can be utilized for collaboration are addressed by institutional theory that puts forward a guidance for best practices.

2.6. REVIEW OF PREVIOUS ACADEMIC STUDIES

The challenges facing the food industry participants in the relevant industry in Tanzania have been researched in an empirical study which collected primary data from the local companies and compared the findings to the successful cases of international companies (Ruteri & Xu, 2014). One major challenge for supply chain management of local food companies was identified to be a lack of understanding of supply chain management concepts that led to falling behind of local companies in comparison with international firms. For instance, Tanzanian food companies often did not create any type of coordination and information exchange with their peers and did not realize the importance of collaboration for the supply chain of the firm to work smoothly. This lack of coordination also resulted in a demand uncertainty and volatilities in the operations of companies. Inventory management was yet another challenge for local firms. As a result of lack of resources, capacity and often knowledge, these firms did not apply effective inventory management techniques that could have saved them a considerable level of financial resources and time (Ruteri & Xu, 2014). Hence, local firms faced such issues as an accumulation of inventories in their warehouses which were at excessive levels, a higher inventory cost and other related wastage. In addition, pricing strategy has also been identified to be a considerable issue for especially small and medium enterprises in Tanzania when it comes to managing their supply chain. The price is determined by market forces which are often dominated by large players (Ruteri & Xu, 2014). Large firms, in addition, have a more efficient batch production system that allows them to spread their costs more efficiently over a large number of products. Small firms do not have this advantage which creates a considerable challenge for them in terms of setting a competitive price (Ruteri & Xu, 2014). As their costs are higher than bigger firms, the established market price is not favorable to small firms. Marketing and distribution issues need to be emphasized as well due to the fact that many firms need to distribute their products over big distances including international dispatches. This process includes significant cost and other challenges. Again, small firms are at a relative disadvantage compared to bigger firms with regards to distribution and marketing (Ruteri & Xu, 2014).

Indian companies from various industries have also been studied in order to determine key supply chain issues that they have encountered. One particular area of challenges is related to IT infrastructure of the country. India is an emerging market economically

and the Internet access is not distributed equally (Saldanha, et al., 2015). IT infrastructure, therefore, has stood in the way of implementing effective supply chain management strategies. For example, exporters often lacked Internet connectivity in some of their locations in order to integrate their operations into an ERP system. Likewise, disruptions in the provision of electricity to certain parts of the country also had its say on the continuity of the operations (Saldanha, et al., 2015). Labor shortages with regards to finding the skilled personnel in the area of logistics and supply chain management have also affected the operations of exporters and in general, all companies in the country. Moreover, limited information sharing has also been cited as a key drawback for organizations across India. Supply chain managers in the country emphasized the negative impact of this factor on their operations as theoretically and in the case of global leaders it has been demonstrated that a high level of information sharing helps to improve the efficiency and effectiveness of supply chain management (Saldanha, et al., 2015).

Globalization and economic liberalization have leveled the playing field for all competitors around the world. To compete successfully on a global scale, SMEs must break their value chain isolation (Standler & Kilger, 2005)). Supply chain management can be a crucial instrument for SMEs to address the market's dynamic problems. Through a review of the literature, the goal of this research is to synthesize several topics connected to supply chain management coordination and responsiveness in SMEs. To select the key areas of research, 116 research papers are assessed, the majority of which are from refereed international publications (Standler & Kilger, 2005)). Gaps are identified and a research plan is established based on the review. SMEs have not been extremely proactive in implementing supply chain management, according to the analysis. These companies have a lot of trouble coordinating their operations with other supply chain members. They function in a regionalized manner (Standler & Kilger, 2005)). SME exporters confront numerous challenges due to a lack of resources and inventive capabilities. SMEs must successfully manage their difficulties and supply chain risks to meet the challenges of an open global market. For future study directions, research gaps are indicated in several aspects of the supply chain, such as coordination and responsiveness concerns, service quality issues, and performance benchmarking.

The goal of this research is to investigate various strategic concerns related to SCM adoption in Indian SMEs. A survey of Indian SMEs from various industries was performed (Singh, 2020). Motivations, roadblocks, investment priorities, supply chain practices, and performance are all major constructs of the survey instrument. A total of 1,500 Indian SMEs have been contacted to collect data via a survey instrument. There were 257 completed responses. The SPSS software is used to undertake statistical analysis of the survey data (Singh, 2020). Customers, organizational resources, and inventory management are all common SCM activities. Systems for promoting quick response and quality management are major investment areas. Human resources and knowledge management are currently seen as less important areas for SMEs (Singh, 2020).

India is transforming into a global industrial powerhouse. Increased demand in both domestic and foreign markets is providing the Indian industry with new prospects. As a result of increased rivalry brought on by globalization, Indian firms must now supply cost-effective quality production while adhering to strict delivery timelines. Issues such as poor quality supplies, delayed delivery, and unjustified cost increases will harm the Indian industry's confidence and business potential. Supply chain disruption management is a serious concern for Indian businesses, and it can result in significant tangible and non-tangible losses.

Nigerian construction companies confront significant issues in managing the supply chain, which is critical to the effective completion of construction projects. The issues of supply chain management faced by building contractors in the Lagos Metropolitan Area were investigated in this research. A total of 102 building construction enterprises were surveyed, with 72 responding to a formal questionnaire. The statistical tools utilized to analyze the data were simple descriptive statistics and factor analysis (Saka & Mudi, 2007). According to the findings, most building contractors in the Lagos area buy material locally, have no formal relationships with suppliers, retain suppliers close by, and keep significant inventories of material (Saka & Mudi, 2007). Modern Information and Communication Technology (ICT) is essentially non-existent when it comes to tracking supply and inventory management. Six important factors emerged from a the investigation of problems in the supply chain which were related to the tariffs on import, foreign exchange fluctuations, lead time issues, bad conditions of roads, robberies and costs related to freight. Contractors should take a pro-active role

in the supply chain with regards to certifying their suppliers, and use leanness and modern technology to the material supply chain management, according to the study (Saka & Mudi, 2007).

Another research has analyzed the case of emerging markets in order to determine the key challenges that have been faced by the organizations in these countries with regards to supply chain management. Emerging market country companies are in need of expanding into international markets and they need a high level of competitiveness in their supply chain network so that this process can be accomplished without a drawback (Blanco, 2010). The research has discovered several issues such as customer response issues, asset utilization issue and efficiency problems. Customer response issues have in turn been found to be in the area of poor inventory visibility (there is an issue with regards to IT infrastructure), delays as a result of congestion and weak demand management process. Furthermore, cultural factors have also been found to be a negative impact on the relationship with customers (Blanco, 2010). Asset utilization issues have been identified in the emerging countries to be such things as political instability of countries, volatile economic systems, burden of taxes and low income of local population. The research also discovered such issues as bureaucracy, corruption, fragmented and poorly-developed market infrastructure to be an issue for the efficiency of supply chain management (Blanco, 2010).

Emerging market research also discovered that they have competitiveness issues with regards to supply chain management. To demonstrate, multinational players have gained leadership in the supply chain network globally which have put companies from emerging markets in a disadvantaged position and the negative role of globalization has been highlighted by authors (Liu, Wang, & Long, 2019). A new phenomenon which is called a race to the bottom has become a new reality for emerging market companies and countries as these countries strive to create an attractive environment for international companies by lowering their standards and regulations (Liu, Wang, & Long, 2019). Money received from the flow of global players into emerging countries with lower level of regulation is used by these countries to invest in needed technology and resources in order to allow these countries to reduce their dependence from developed country investments. This strategy is also called a trickle-down impact as emerging economy governments hope that they can eventually catch up with multinational players by cutting back on regulations and attracting these firms into

their countries (Liu, Wang, & Long, 2019). This is a typical case of global imbalances that have been created as a result of the polarization of the supply chain network in the world in favor of developed countries.

The results of a supply chain management (SCM) practice study aiming to detect current trends in UK industrial small and medium-sized firms are presented in this report. The study looks at how SCM techniques have evolved and how customers and smaller suppliers interact. The findings, based on a survey of 288 businesses, show a lack of effective adaptation from traditional adversarial relationships to the modern collaborative "e" – supply chain; identify issues businesses need to address in order to boost the performance of supply chain aspect of their operations and via this improve their overall competitiveness through the positive effect of an effective supply chain.

Exporters of Turkey have encountered similar issues to many other emerging country exporters. The development of a competitive supply chain framework is one of the critical issues and funding plays an important role in this process (Abbasi, et al., 2018). Similar to other emerging countries, exporters also find challenges in raising funds for their operations in Turkey. In particular, SMEs have faced challenges in this area in the country. This problem also is also associated with underlying issues such as a lack of financial literacy (as many business people do not even understand which avenues and methods they have that can be tapped into for raising funds), and collateral requirements which constrain the obtainment of funds for many SMEs (Abbasi, et al., 2018). Furthermore, some other challenges have also been identified such as limited access to technology, a lack of rigorous framework for managing risk, and a poor level of cooperation between various parties involved in the supply chain network (Abbasi, et al., 2018).

The case of export-oriented industries in Kenya has also been studied by Henson and Mitullah, (2004) who analyzed the factors that stood in the way of exporters in taking their products to global markets. For example, the case of Kenyan fishing industries is pertinent and it was found in this research that companies in this industry have found it difficult to comply with regulations from such countries as the EU (Henson & Mitullah, 2016). Safety regulations, for example, were one of the primary areas which are regulated by the EU markets (Henson & Mitullah, 2016). Many exporters did not create sufficiently good conditions with respect to hygiene in Kenya and therefore, their exporting was also hindered by regulators in Europe. Hence, the case of Kenyan

exporters demonstrate that how strict regulations can impede the access of exporters to certain markets (Henson & Mitullah, 2016).

The challenges faced by exporters from Costa Rica, Honduras and Nicaragua in the process of taking their products globally have been studied by Lopez and Shankar, (2011). The research shared that logistics costs were a higher proportion of total costs of organizations in the region compared to import tariffs (Lopez & Shankar, 2011). Tariffs have gone down in Latin America over the years as a result of regional trade agreements. Nevertheless, logistics costs have increased substantially (Lopez & Shankar, 2011). Thus, the efficiency of the supply chain operations of exporters from Latin America is affected by logistics costs. Therefore it can be claimed that logistics costs are one of the important challenges faced by exporters of Costa Rica, Honduras and Nicaragua (Lopez & Shankar, 2011).

The case of Indian petroleum companies has also been studied in order to identify key supply chain network issues faced by these companies (Balon, et al., 2012). The findings of the research showed that government policies, adverse weather conditions, and environmental regulation are the most important challenges encountered by these firms whereas resource availability is the least concerning challenge for the firm (Balon, et al., 2012).

Tea sector companies in Kenya have been studied so that their challenges can be revealed with regards to exporting. Some major drawbacks and challenges have been identified that set back tea sector companies in the country. One of these challenges is an access to necessary technology, for example, for upgrading seeds and cultivating higher quality product (Kagira, et al., 2012). A lack of technology is also associated with a lack of financing for small players that have not been able to invest in the necessary technology. Furthermore, the role of cooperation between firms in different parts of the supply chain network has been highlighted similar to many previous researches (Kagira, et al., 2012). Cooperation and information sharing are at their minimum level between the firms in the tea production sector in Kenya which has also been revealed as one of the factors that inhibited the enhancement of the competitiveness of the businesses in the sector (Kagira, et al., 2012).

The ability to respond to change and maintain a consistent level of quality are also among the challenges for exporters as have been determined in the study looking into

the case of small exporters in Zimbabwe. The study investigated the situation with regards to high-value agricultural products. It was shown that small exporters can reach required quality for their products in most instances, however, time taken to respond to changes and new requirements is longer compared to bigger firms as small exporters lack resources to be as flexible as big ones. Moreover, it is also more commonplace for small exporters in Zimbabwe to lack consistency with regards to meeting requirements for export (Henson, et al., 2005). Hence, although it is possible for them to be in compliance with requirements, the issue of maintaining control over the long-term arises in the cases of small and medium sized exporters. In summary, a learning curve of these types of firms is much steeper compared to their larger peers (Henson, et al., 2005).

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The role of the harmonization of the safety rules and regulations of the country where exporters are based has also been found to be highly correlated with the success of the export strategy of firms (Hou, et al., 2015). The Moroccan food companies have been studied in regards to their challenges of export. The study showed that international harmonization process of the food safety regulations has been applied on a countrywide basis and this resulted in a higher degree of compliance with EU-wide and international standards for food safety. As a result, a generally higher degree of compliance with international standards enhanced trust in individual firms as well which can access world markets with fewer problems (Hou, et al., 2015). Therefore,

fostering a competitive environment in the food sector also had an impact on the quality of the products of exporters demonstrating that one major issue for exporters globally is indeed a lack of local coordination for the establishment of globally-compliant regulations and standards (Hou, et al., 2015).

Challenges in the agro food supply chain have also been analyzed through the method of literature review. Firstly, it was identified that sustainability challenges are important for the agro-food supply chain (Yadav, et al., 2022). Circular economy with regards to demand cannot be created due to a lack of knowledge and awareness of farmers, a lack of technology, and poor government policies with respect to regulations of sustainability. Food waste is another challenge in the agro food supply chain which is the result of inefficient handling, poor storage, lack of infrastructure, transportation issues and so on. Food safety and security have been emphasized as yet another challenge faced by consumers in the area as there is poor traceability, lack of advanced technology and corruption (Yadav, et al., 2022). Finally, large number of intermediaries, supply and demand mismatch, poor policy design and implementation and information asymmetry have been other key issues that have been highlighted by consumers in the agro food supply chain (Yadav, et al., 2022).

A research looked into the fresh challenges faced by organizations in their supply chain in light of Covid-19 pandemic. It was revealed that bankruptcy of supply chain partners of firms, big layoffs in industries, global economic recession and long times of recovery, sharp falls in global demand for many products and services, demand disruption, difficulties in forecasting and change in distribution networks have been some of the key challenges that have been encountered by companies in their supply chain (Balon, et al., 2012).

There is debate on the benefits of supply chain partnerships in small and medium-sized firms (SMEs) in recent research. To resolve this debate, more information on how SMEs implement these relationships is needed; an area that has gotten little scholarly attention thus far (Rezaei, et al., 2015). We look at numerous business roles within a supply chain partnership (manufacturing, marketing and sales, purchasing and logistics, research and development (R&D), and finance) in this study (Rezaei, et al., 2015). We studied the association between particular forms of partnerships and the overall performance of 279 high-tech SMEs by collecting data for each individual function. The findings show that partnerships have a considerable positive impact on

total company performance only in the R&D domain (Rezaei, et al., 2015). The findings suggest that some types of supply chain collaborations, such as R&D partnerships, are particularly beneficial to SMEs. The findings add to the literature by explaining why many SMEs do not gain from these relationships.

Table 2. Literature Review on Challenges in Supply Chain Management

Challenge	Drivers	Author
Lack of understanding of scm	Lack of coordination	Ruteri and Xu (2009)
	Lack of information exchange	
	Lack of collaboration	
Demand uncertainty	Lack of information exchange	Ruteri and Xu (2009)
Volatilities in operations	Lack of collaboration	Ruteri and Xu (2009)
Inventory management	Lack of resources	Ruteri and Xu (2009)
	Lack of capacity and knowledge	Ruteri and Xu (2009)
Pricing strategy	Lack of capacity	Ruteri and Xu (2009)
IT infrastructure	Internet access problems	Abbasi et al., (2018); Saldanha et al., (2015)
Shortage of labor	Lack of skilled resources	Saldanha et al., (2015)
Information sharing	Cultural factors and weak demand management system	Saldanha et al., (2015)
Customer relationship	Cultural factors and weak demand management system	Blanco, (2010)

Asset utilization	Lack of capacity and knowledge	Blanco, (2010)
Unfavorable business environment	Locational disadvantages	Blanco, (2010); Yadav et al, (2022)
Competitiveness issues	A larger number of global players	Schotter and Diep, (2013)
Fund raising	Financial illiteracy and collateral requirements	Kagira et al., (2012)
A lack of rigorous framework for managing risk	Financial illiteracy and lack of capacity	Abbasi et al., (2018)
Lack of cooperation	Cultural factors and lack of capacity	Abbasi et al., (2018)
Tough regulations	A need for higher quality products	Hou et al., (2015)
Rising logistics costs	Supply chain issues and inflation	Henson et al., (2015)
Quality issues such as food safety and security	Increased regulatory oversight	Yadav et al, (2022); Henson et al., (2015)
Sustainability challenges	A greater focus on sustainability	Yadav et al, (2022)
Large number of intermediaries	Lack of infrastructure and transportation system, a lack of knowledge and capacity	Yadav et al, (2022)

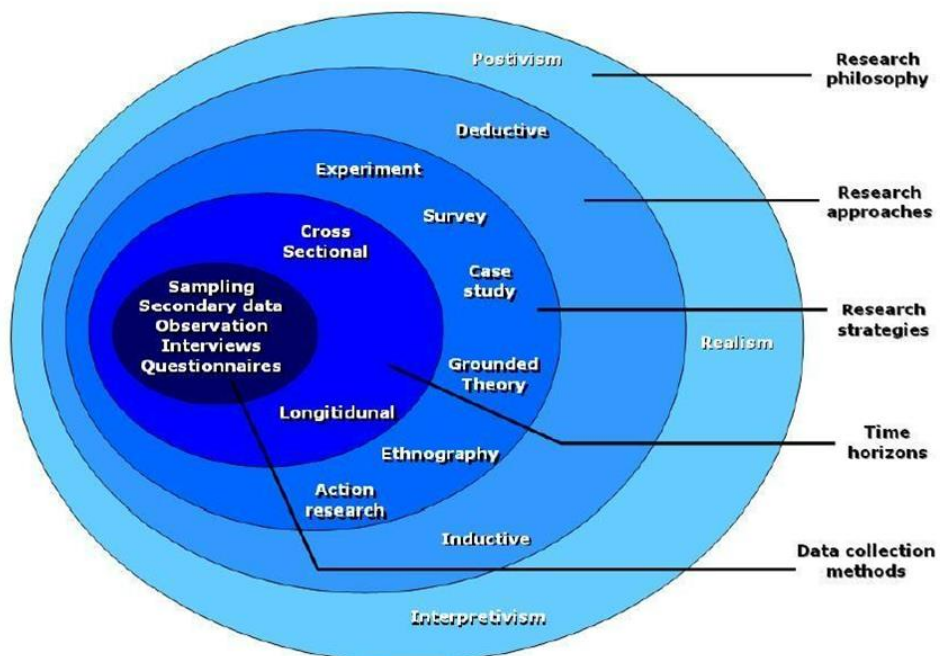
Supply and demand mismatch	Poor demand management systems	Yadav et al, (2022)
Global economic challenges	Unexpected issues such as pandemics and global supply chain crisis	Paul et al., (2021)



CHAPTER 3

METHODOLOGY

Research onion developed by Saunders et al, (2007) has been used in this research for the construction of the methodology of this study.



3.1. RESEARCH PHILOSOPHY

Research philosophy affects the nature of research process and it has a deterministic impact on how research question is posed, and which methods are used for data collection and analysis. Therefore, the selection of the right research method is crucial. A research philosophy is also defined as assumptions about how to data on a phenomena should be collected, analyzed, and applied. The term epistemology (what is known to be true) rather than doxology (what is thought to be true) refers to the many study approaches. The process of changing things believed into things

understood is what science is all about: doxa to episteme. Usually, two main research philosophies are applied to business studies that are positivism and interpretivism (Saunders et al, 2007).

Positivism

Positivists subscribe to the view that there is a single reality. They also argue that observations should be repeatable (Saunders et al, 2007). This frequently entails manipulating reality with only one independent variable to identify regularities in, and build links between, some of the social world's constituent elements. On the basis of previously seen and explained realities and their interrelationships, predictions can be formulated. Positivism has a long and illustrious history. It's so integrated into research culture that studies not based on positivist thinking are simply discarded as irrational in many instances (Saunders et al, 2007).

Interpretivism

Interpretivists think that subjective interpretations of phenomena are critical to understand social sciences. (Saunders et al, 2007). They acknowledge that there may be multiple interpretations of reality, but they insist that these views are part of the scientific knowledge they seek.

Selection of research philosophy for this research

The objectivity of reality has been assumed in this study and previously used frameworks and findings of other studies have been combined to construct a research model. A subjective intervention by the research is not relevant and, therefore, the study has been predominantly in line with the principles of positivist philosophy.

3.2. RESEARCH APPROACH

Inductive approach, also known in inductive reasoning, is initiated through the analysis of data and progress towards theories. Inductive studies are applied when there is no clear theoretical understanding of the phenomenon and this approach looks for patterns (Saunders et al, 2007). Inductive research is looking for patterns in observations and developing theories to explain those patterns through a sequence of hypotheses (Saunders et al, 2007). Inductive studies do not require any theories or hypotheses at

the start of the investigation, and the researcher is free to change the study's course after it has begun.

As a researcher advances through his research using an inductive approach, beginning with a topic, he tends to create empirical generalizations and identify preliminary links. At the outset of the investigation, no hypotheses can be identified, and the researcher is unsure of the type and character of the research findings until the study is concluded (Saunders et al, 2007).

A deductive approach is about developing hypotheses from theories and testing these hypotheses using data that has not been tested before (Saunders et al, 2007). Deductive reasoning is applied to see if a particular finding can be generalized to broader settings. Hypothesis testing is used to apply deductive reasoning (Saldanha, et al., 2015). Deduction has long been popular as a method of social study, and it is most closely identified with a form of classical and logical positivism (Saunders et al, 2007). The hypothetico-deductive approach has been associated with deductive logic in its purest form. On the basis of existing knowledge, this entails creating very specific hypotheses regarding phenomena in general. The theory is subsequently put to the test via an experiment. Hence, if the data can confirm the hypothesis, then the underlying theory is supported as well (Saunders et al, 2007).

Deductive logic is criticized for misrepresenting natural scientific procedures and, more importantly, for assuming that all fields in natural science work in the same way when they don't. Second, it has an inbuilt logic of confirmability; if you hunt for an association, you will almost certainly find it. Third, it concentrates on the relationship between occurrences without providing the thorough analytical explanation that is required to prove causation (Saunders et al, 2007).

The selection of approach for this research

This research relies on the principles of induction for the following reasons.

-Firstly, the study is not generalizable from particular selected Turkish exporters to all of them because there are differences among exporters and their specific challenges and strategies.

-Secondly, the research is also based loosely on various theories which have been combined to develop a survey for primary data collection. The principle of developing

a framework of the study from a widely-accepted theoretical framework cannot be assumed to be the case in this project.

Hence, taking the characteristics of this study into account, induction principles were closer to it and the project has been designed as an inductive research.

3.3. RESEARCH STRATEGY

Depending on the nature of studies, different research strategies can be applied as discussed next.



Figure 6. Research strategies

Case Study: This strategy focuses on a single case and critically analyzes it. Information is gathered from a wide variety of sources and such methods as surveys and interviews can be applied to analyze case studies (Saunders et al., 2007).

A case study can be described in a variety of ways, but the main principle is that it must investigate an event or phenomena in depth and in its natural setting. This is why it's frequently called a "naturalistic" design, as opposed to a "experimental" design

(like a randomized controlled trial), in which the investigator tries to exert control over and influence the variable(s) of interest.

Case studies is used to analyze, describe, or elaborate on occurrences or phenomena in their natural settings. These can be used to investigate and explain causal relationships and pathways that arise as a result of a new policy initiative or service development, for example (Saunders et al, 2007).

Qualitative interviews: Qualitative interviews can be carried out in the form of structured, semi-structured and unstructured format and it is most frequently applied for qualitative data collection. Interviews are hard to carry out at times due to the complexity of planning and the implementation of the process. An interview is a qualitative research approach in which data is collected by asking questions. Two or more people are involved in an interview, one of them is the interviewer who asks the questions (Saunders et al, 2007).

There are various sorts of interviews, which are often distinguished by their structure. Predetermined questions are asked in a predetermined order during structured interviews. Semi-structured interviews are in between unstructured and structured interviews.

Predetermined questions are asked in a specific order in structured interviews. They are frequently closed-ended, with multiple-choice or dichotomous (yes/no) questions. While open-ended organized interviews exist, they are significantly less prevalent. Structured interviews are primarily a quantitative tool due to the types of questions answered (Saunders et al, 2007).

Structured and unstructured interviews are combined in semi-structured interviews. While the interviewer has a rough idea of what they want to ask, the questions do not have to be phrased or ordered in a specific way (Saunders et al, 2007).

Semi-structured interviews are frequently open-ended, allowing for flexibility, yet they are organized around a preset topic framework. As a result, they're frequently referred to as the best of both worlds (Saunders et al, 2007).

The most adaptable sort of interview is the unstructured interview. The order in which the questions are asked is not predetermined. Instead, based on the participant's previous responses, the interview can progress more naturally (Saunders et al, 2007).

By definition, unstructured interviews are open-ended. This adaptability can help you collect extensive information on your subject while still allowing you to spot patterns among participants.

However, because of their versatility, they might be difficult to execute well. Leading questions should be avoided at all costs, as biased responses might lead to reduced dependability or even invalidation of your research (Saunders et al, 2007).

Quantitative survey: This type of data collection is applicable to collect data from a large number of people in a shorter period of time.

Every company in the twenty-first century wants to know what their customers think about their products or services so they can make better business decisions. Researchers can use a variety of approaches to conduct research, but surveys have proven to be one of the most productive and reliable. An online survey is a means of gathering information from a person or a group of individuals regarding a critical business topic. It is made up of structured survey questions that encourage people to reply (Saunders et al, 2007).

Credible survey research can provide these companies with a wealth of data. Survey research is used by the media, other businesses, and even governments to acquire accurate data (Saunders et al, 2007).

The standard definition of survey research is a quantitative approach of gathering data from a group of people by asking many survey questions. Individual recruitment, data collection, and analysis are all part of this research type. It's useful for researchers who want to inform their respondents about new features or trends (Saunders et al, 2007).

In general, it's the initial step toward gathering data fast on popular issues (Saunders et al, 2007).

Survey research methods can be deduced from two key factors: the survey research tool and the amount of time required to do the research.

The main survey research methods can be grouped into three major categories, which are classified according to the medium used to conduct the survey (Saunders et al, 2007):

Email/Online: One of the most common survey research methodologies today is online survey research. The cost of doing an internet survey is quite low, and the results are extremely accurate.

Phone: Survey research conducted over the phone (CATI) might be beneficial in gathering data from a larger segment of the target audience. There is a potential that the cost of doing phone surveys will be higher than that of other methods, as well as the time commitment.

In circumstances where there is a hard problem to solve, researchers conduct face-to-face in-depth interviews. This approach has the highest response rate, but it is also the most expensive.

In addition, survey research can be divided into two categories based on the amount of time it takes:

Longitudinal survey research entails conducting surveys over an extended period of time, typically years or decades (Saunders et al, 2007). This survey research approach collects qualitative or quantitative data from one time period to the next. Respondent behavior, preferences, and attitudes are tracked over time to determine the causes of changes in behavior or preferences. Consider the case of a researcher who wants to learn about teens' eating habits (Saunders et al, 2007).

Cross-sectional survey research: Researchers carry out this type of survey to collect information from a target audience over a period of time. This survey research method is used in a variety of industries, including retail, education, healthcare, and small enterprises (Saunders et al, 2007). Descriptive or analytical cross-sectional survey research is possible. It is rapid and allows researchers to gather information in a short amount of time. When descriptive analysis of a subject is necessary, researchers use the cross-sectional survey research approach.

Variables are measured using four different scales:

A nominal scale links numbers with variables for the sole purpose of assigning names to them, and the numbers typically have no other meaning. It is the most fundamental of the four measuring levels (Saunders et al, 2007).

The ordinal scale has an inherent order inside the variables as well as labels. It determines the order of the variables on a scale, but not the difference value between them.

Interval Scale: When compared to the other two scales, the interval scale is a step ahead. The scale not only establishes a rank and name for variables, but it also specifies the difference between them.

The ratio scale is the most complex measurement scale available, with variables that are labeled in sequence and a calculated difference between them. This scale has a fixed starting point, which means the true zero value is present, in addition to what interval scale orders.

Marketers can benefit from survey research if it is employed for the correct reasons and implemented properly. They will receive meaningful, trustworthy data that they can use to improve the organization's ROI (Saunders et al, 2007).

Other advantages of survey research include:

Mobile and internet surveys require the least amount of financial commitment per respondent (Saunders et al, 2007).

Researchers can conduct surveys in remote places with poor internet availability thanks to the offline survey answer gathering option. This makes data collection and analysis easier and more comprehensive (Saunders et al, 2007).

Respondents can trust: Surveys are extremely safe since respondent information and responses are kept private. Because of their anonymity, respondents are more likely to answer survey questions honestly. If an organization wants explicit responses for its survey research, it must state that the information will be kept confidential (Saunders et al, 2007).

Action-oriented research: A change process is analyzed extensively in this research and this type of research is participatory meaning that the researcher is involved in the process (Saunders et al., 2007).

Although there is debate about the beginnings of action research and how it is currently regarded and practiced, it has been a separate style of inquiry since the 1940s. Kurt Lewin is widely credited with coining the term "action research," though other authors were advocating for similar action-oriented approaches to research at the same time.

Action research is change-oriented, aiming to bring about positive social changes, with the primary focus of the practice being on a problem and its solution. As a result, action research is seen as a type of problem-focused study that bridges the gap between theory and practice, allowing the researcher to acquire useful information in the problem area (Saunders et al, 2007).

The selected strategy for this research

This research has been conducted using a quantitative survey method due to several reasons. First of all, interviews would not be practical in terms of reaching as many participants as surveys highlighting the merit of this method research. Interview process is both time consuming for the research and for participants and can be conducted mostly with the closer circle of the researcher increasing the chances of biases and reducing the reliability of the study. Thus, interviews could not be used for collecting data from a large number of exporters in order to learn about their challenges and strategies which led to the design and implementation of a quantitative survey.

3.4. RESEARCH METHODS

Research methods can be qualitative and quantitative depending on the nature of the research (Saunders et al., 2007).

Qualitative research entails gathering information and understanding about a topic. It is an unstructured, exploratory research strategy for studying very complicated phenomena that quantitative research cannot explain. It does, however, produce concepts or hypotheses for future quantitative research (Saunders et al, 2007).

On the basis of observation and interpretation, qualitative research is used to get an in-depth understanding of human behavior, experience, attitudes, intentions, and motives in order to discover how people think and feel. It is a type of research in which the researcher emphasizes the participants' opinions. Qualitative research includes case studies, grounded theory, ethnography, history, and phenomenology (Saunders et al, 2007).

Quantitative research is a type of research that uses natural science approaches to generate numerical data and hard facts. It uses mathematical, computational, and

statistical tools to demonstrate a cause and effect link between two variables. The study is also known as empirical research because it can be measured exactly (Saunders et al, 2007).

The information gathered by the researcher can be grouped into categories, ranked, or measured in terms of units of measurement. Quantitative research can be used to create raw data graphs and tables, making it easier for the researcher to analyze the results.

The selected method for this research

This study is a quantitative research because it collects survey data from respondents and analyzes this data applying statistical methods.

3.5. TIME HORIZON

A cross-sectional study is a research in which data is collected to evaluate the relationship between variables of interest in a population at a specific point in time (Saunders et al., 2007). The ability to compare multiple samples at one moment in time is the most crucial aspect of a cross-sectional study.

In a cross-sectional study, the researcher simultaneously measures the outcome and exposures in study participants. The researcher follows the study to analyze the exposure and outcomes after the participants have been chosen for it.

Longitudinal studies, like cross-sectional studies, are observational studies in which data is collected from the same sample over a long period of time. Depending on the information needed, a longitudinal study can run anywhere from a few years to decades (Saunders et al, 2007).

Time horizon of this research

This study has been carried out with the use of cross-sectional design as it focuses on the identification of key challenges of exporters of Turkey and strategies they use. The research is therefore, concerned with the current situation in this regard and does not look into the dynamics of challenges and strategies over time. Doing a time-series study would require a different type of data and much longer period of time. However, the approach used in this study is in keeping with the previous empirical studies confirming the reliability and validity of the study design/framework.

3.6. RESEARCH DATA TYPE

Primary data is collected by the researcher for the first time (Crandall, et al., 2005).

Secondary data is the data which had existed prior to the current study. Secondary data is often gathered from online sources such as company publications, government websites and so on.

The selection of design for this research

This project has applied primary data exclusively owing to the fact that there is not ready data that can be applied to learn about the challenges of exporters in Turkey. Turkish exporters are diverse and few studies can be found which concentrated only on specific exporters. These studies cannot be relied on for the completion of the research and therefore, a primary data needed to be collected from participants so that insights into the challenges of Turkish exporters can be obtained.

3.7. DATA COLLECTION

3.7.1. Sampling method

Studying the entire population is not often practical. Sampling is a process that allows researchers to select a suitable sample to base the study on (Crandall, et al., 2005).

There are various types of sampling procedures, which can be split into two categories: probability sampling and non-probability sampling. The researcher starts with a complete population from whom you select your through the application of a probability rule. This manner, all eligible people have a chance to be picked for the sample, and the researcher will be able to generalize the findings from your study more easily (Saunders, et al., 2007).

The selection of sampling for this research

Stratified sampling has been used in this research because exporters have been divided into various groups such as small exporters, medium-sized exporters and large exporters in order to learn their challenges and strategies. Thus, samples from each group were taken to construct the sample meaning that a stratified sampling was used.

3.8. DATA ANALYSIS

Descriptive and inferential statistics can be applied to the analysis of research data (Saunders, et al., 2007). Descriptive statistics analyze data for the evaluation of its distribution and key tendencies. However, descriptive statistics alone cannot be used for drawing conclusions with regards to variables (Saunders, et al., 2007). Therefore, some form of inferential tools is applied by researchers if it is needed to assess the relationship of different variables (impact of independent variables on dependent variables). This research uses descriptive and inferential statistics. Descriptive statistics have been applied to understand the most frequent challenges faced by exporters in their supply chains. Furthermore, correlation analysis measured relationship between variables while finally, factor analysis revealed the most important factors/challenges for food exporters in Turkey.

Correlation analysis

In research, correlation analysis is a statistical approach for calculating and measuring the strength of a linear relationship between two variables. Simply defined, correlation analysis determines how much one variable changes as a result of the change in the other (Saunders et al, 2007). A high correlation indicates a strong association between two variables, whereas a low correlation indicates a weak relationship.

Researchers utilize correlation analysis in market research to assess quantitative data acquired through research methods like as surveys and live polls. They look for linkages, patterns, noteworthy links, and trends between two variables or datasets (Saunders et al, 2007). When one variable increases, the other increases. This is known as a positive correlation. A negative correlation, on the other hand, suggests that as one variable rises, the other falls, and vice versa.

The correlation coefficient is one of the most important statistical terms in this type of investigation (Hardoon, et al., 2004). The correlation coefficient is a unit of measurement used to calculate the intensity of a linear relationship between the variables in a correlation analysis. It is clearly identifiable since it is represented with the symbol r and is usually a value without units that is between 1 and -1(Hardoon, et al., 2004).

A positive, negative, or no correlation between two variables is possible. Consider the following three sorts of examples (Andrew et al, 2013):

Positive correlation: When two variables move in the same direction, they are said to have a positive correlation. When one variable rises, so does the other.

Negative correlation: When two variables move in opposite directions, they are said to be negatively correlated. When one variable rises, the other falls.

Weak/zero correlation: When one variable has no effect on the other, there is no correlation.

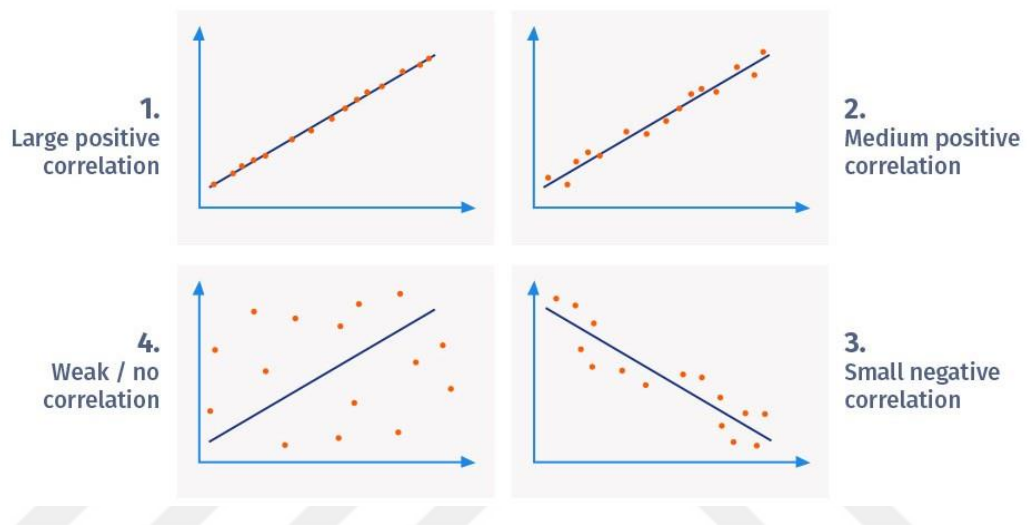


Figure 7. Correlation analysis

Factor analysis

Factor analysis is the process of reducing a large number of variables to a small number of them so that your study data is easier to deal with (Joliffe & Morgan, 1992). The idea behind the factor analysis is that there are underlying important factors that are broader than the visible smaller-level factors that are derived from them. Therefore, factor analysis intends to discover these broad factors that account for the majority of the variation in the model (Cudeck, 2000).

Factor analysis can also be described as dimension reduction meaning that several smaller level of dimensions or variables are condensed into a fewer level of factors which are broader. Hence, as these broader measures that account for the majority of variance of the variables are not often clearly visible, a factor analysis is carried out in order to reveal them (Cudeck, 2000).

Factor analysis is a collection of statistical tools that can be used to uncover the latent factors that drive the data (Saunders et al, 2007). Variance, or how far the numerical values depart from the average, is one of the most essential concepts in factor analysis. When you do factor analysis, you're trying to figure out how the various underlying factors affect the variance in the selected variables. Every component will have an impact, but some will account for a greater proportion of the variance than others, implying that the factor represents the variables it contains more precisely (Cudeck, 2000).

The ability of factors in explaining the variation among variables is expressed with eigenvalue. If the eigenvalue is equal to 1 or greater than 1, then this variable accounts for a greater proportion of variance than a single variable meaning that it can be utilized to reduce the number of variables in the research (Saunders et al, 2007). Factors that have a smaller than 1 value for eigenvalue do not explain the variance for a single factor and they can be removed from the analysis due to their small explanatory power (Saunders et al, 2007).

Factor score is another essential measure. This is a numerical measure of correlation between the variable and the component/factor. Component loading is another term for this correlation or weighting towards a specific factor (Saunders et al, 2007).

Factor analysis is divided into two types: exploratory and confirmatory.

Confirmatory factor analysis

The researcher starts with a hypothesis about the data that they want to confirm or reject in this form of study. The location of the latent variables and the amount of variance they account for will be confirmed – or not – by factor analysis (Saunders et al, 2007).

A prominent type of confirmatory factor analysis is principal component analysis. The researcher will use this strategy to do the analysis and receive many viable solutions that split their data across several elements (Saunders et al, 2007).

PCA will provide a variety of solutions with varying amounts of factors, ranging from simple 1-factor answers to more sophisticated solutions. However, the fewer components included, the less variance in the answer will be accounted for (Saunders et al, 2007).

Exploratory factor analysis

Exploratory factor analysis, as the name implies, is done without a hypothesis. It's a study method that enables researchers to determine whether there are any correlations between the original variables, and if so, where they are located and how they're categorized (Saunders et al, 2007).

3.9. ETHICS

Research ethics encompasses a group of values and beliefs that help to carry out a research process (Barrow, et al., 2007).

The following ethical principles are conducted while having human participants involved in the research:

Informed consent: Any potential rewards, hazards, annoyance, or duties associated with the research that could reasonably be expected to impact their willingness to participate should always be disclosed in advance and in intelligible language (Barrow, et al., 2007). An information leaflet regarding the research and what participation entails, as well as a completed consent form, should be used in most cases. A potential participant must have enough time to contemplate their decision between obtaining the information sheet and giving their consent (Rhodes, 2010).

In order to meet this condition, this research has information sheet attached to the email that contained questionnaire link. Participants were encouraged to familiarize themselves with the research process, the nature of the research and what it involves. A short prompt before the questionnaire also reminds participants that they should be aware of the research meaning that the completion of online surveys sent to participants can be assumed to be on an informed consent as the researcher had taken all precautions in order to inform research participants.

Openness and integrity: Researchers should always be upfront and honest about the objective and content of their research and conduct themselves professionally. Covert data collection should only be done when it is absolutely necessary to obtain the desired study results, when the research purpose is scientifically sound, and when a risk management and harm mitigation strategy is in place (Rhodes, 2010). Participants

should be given access to the results of the research in which they participated and, if necessary, debriefed after they have contributed data.

With regards to openness and integrity, this research was transparent and invited research participants to read the outcome of the research they participated in. Hence, upon the completion of the research, participants will be informed if they want the copy of it. No covert data collection took place and participants have been given every chance to learn about the research process.

Protection from harm: Researchers should ensure that they protect participants from all forms of harm during the research process (Rhodes, 2010).

Questions of the surveys did not involve any area that might cause concern or affect participants psychologically. No other harm could be inflicted as questions are simply about exporting challenges and strategies of the firms of participants.

Confidentiality: Researchers should also preserve the confidentiality of all participants in the research (Rhodes, 2010).

Confidentiality of participants has also been preserved as expressed in Information Sheet for them. Participants' names or any other personal details were mentioned in the analysis part of the research and their names and other details have simply been marked with numbers for the purpose of anonymity. Additionally, participants were also ensured that their data will be deleted from personal devices of the research upon the completion of the study.

CHAPTER 4 FINDINGS AND DISCUSSION

4.1. DEMOGRAPHIC ANALYSIS

Demographic analysis of respondents has been presented below in order to gain a better understanding of the profile of respondents.

Gender

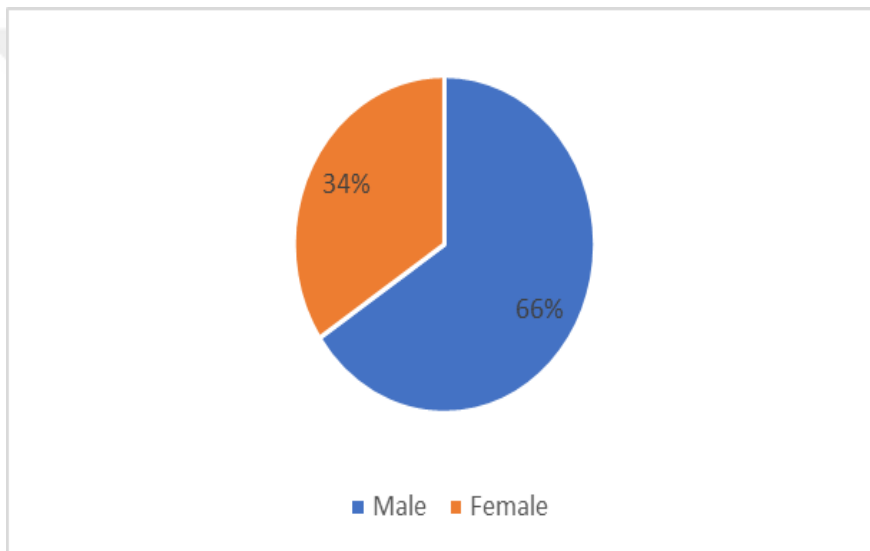


Figure 8. Gender of Respondents

Figure 8 illustrates that the majority (66%) of respondents were males as respondents who agreed to participate in Turkey and who were owners of employees of food exporters happened to be mostly men.

Age

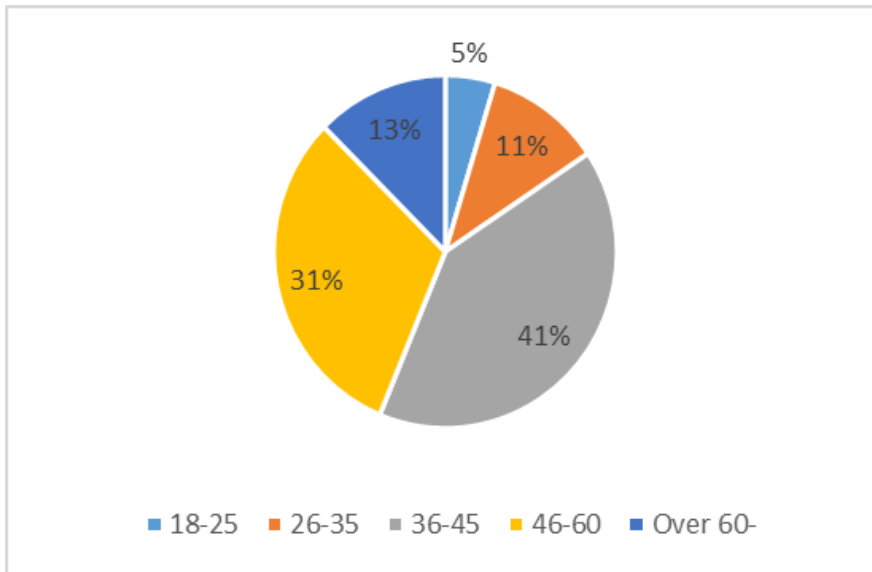


Figure 9. Age of respondents

People who were between 36 and 45 constituted 41% of the respondents and the second biggest category were respondents who were aged between 46 and 60.

Education

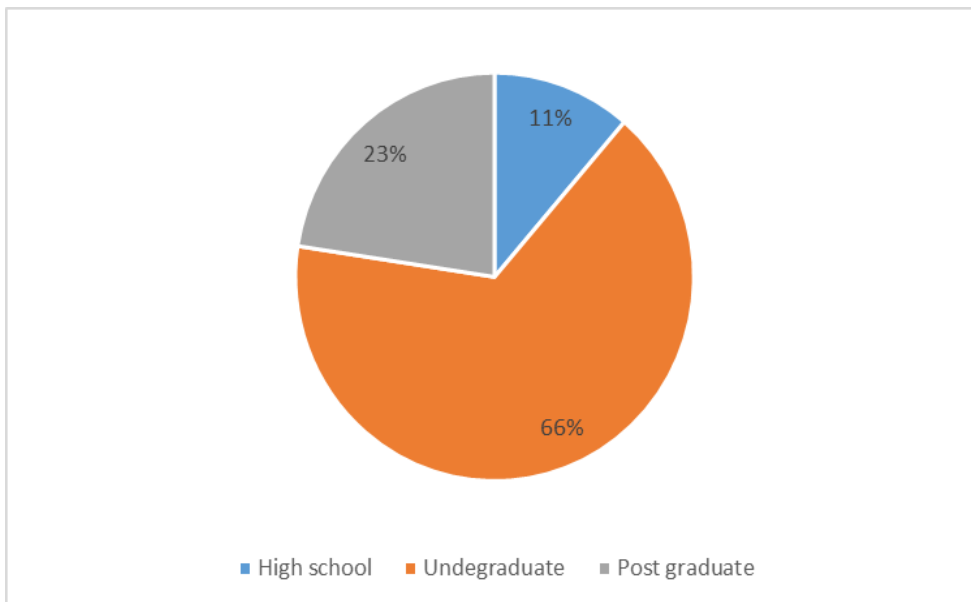


Figure 10. Education of respondents

Most (66%) of respondents had an undergraduate degree whereas the second biggest group had postgraduate education. 11% were school-leavers.

Position

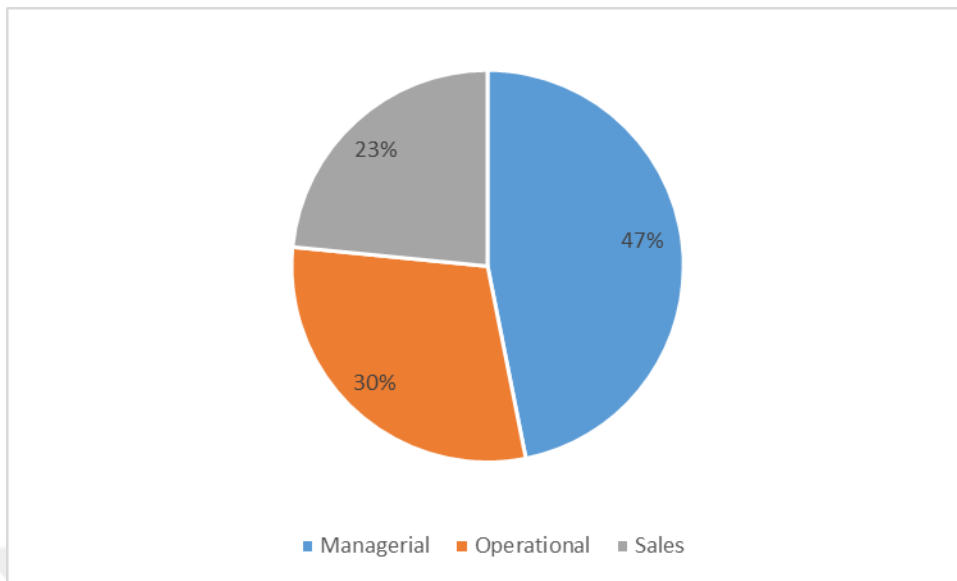


Figure 11. Position of respondents

47% of respondents were managerial staff, 30% represented operations of businesses and 23% were sales people.

Age of companies

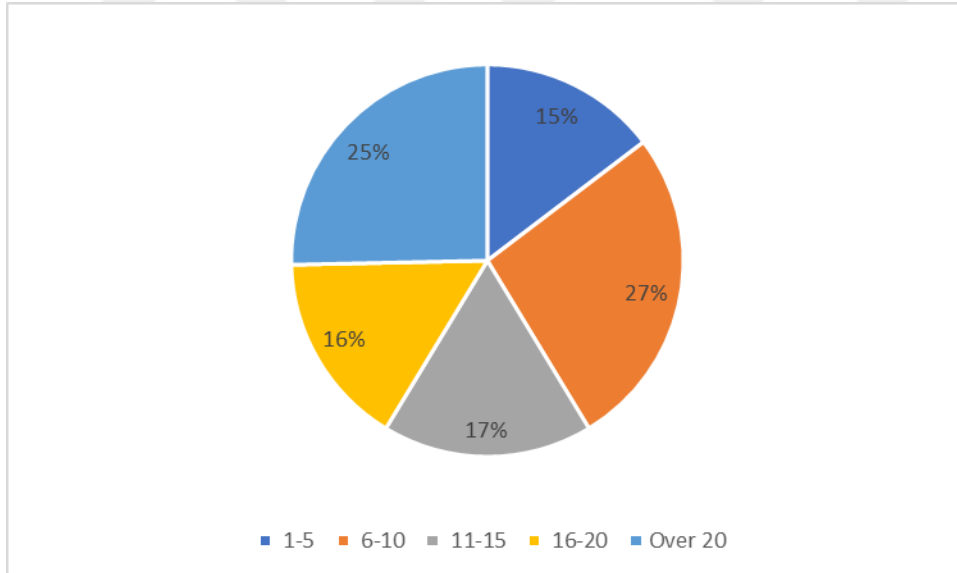


Figure 12. Age of companies

The most populous group is 6-10 years for businesses followed by 1-5, 11-15, 16-20 and over 20 years categories.

Number of employees

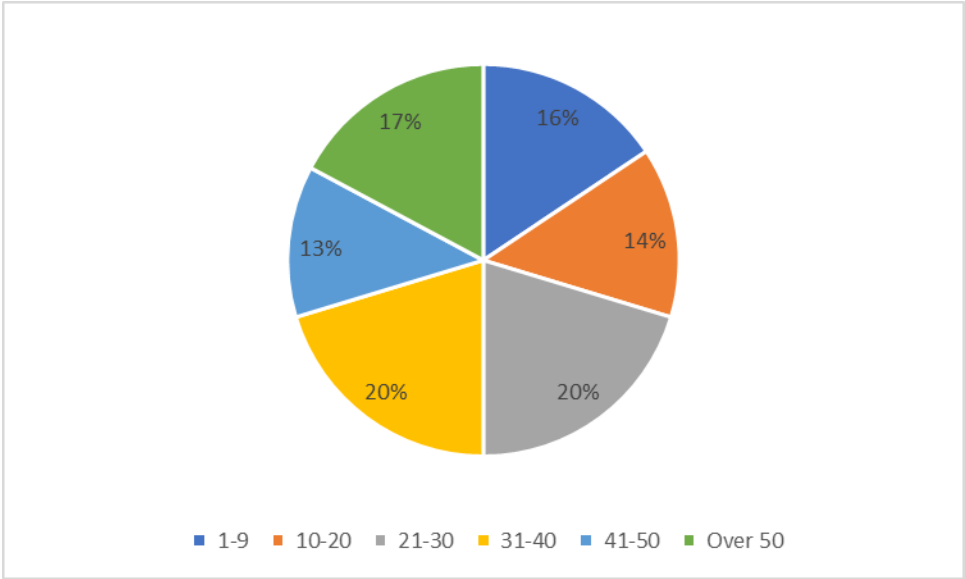


Figure 13. Number of employees

21-30 and 31-40 employee categories had the same proportion of respondents and the smallest representative group was a group of companies with 41-50 employees. Hence, most firms in the sample are small firms.

Capital source

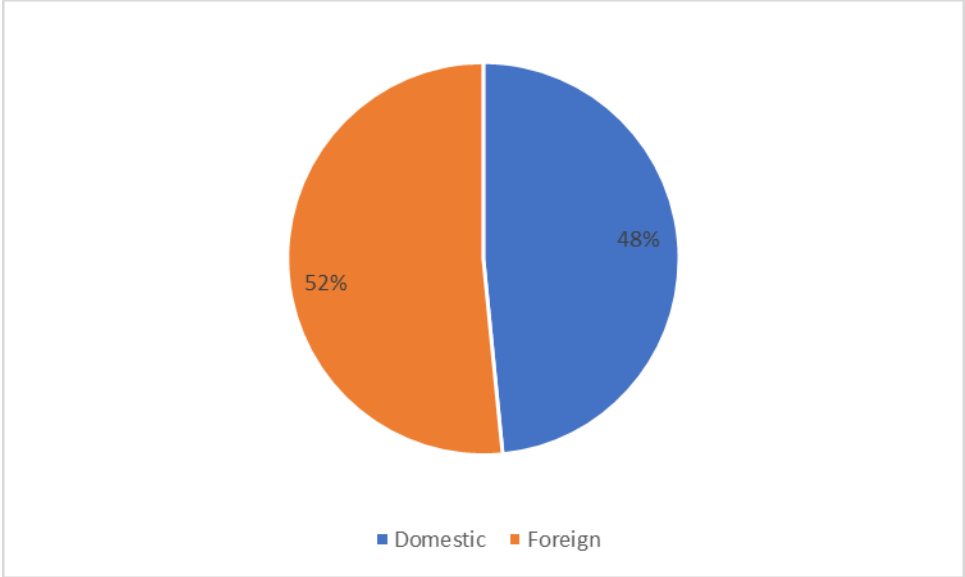


Figure 14. Source of capital

The analysis of the source of the capital indicates that capital of 52% of the firms in the sample came from foreign sources. However, this figure is close to the proportion of the capital originating from domestic sources meaning that the sample companies are split approximately 50/50 in terms of the capital source.

Exports

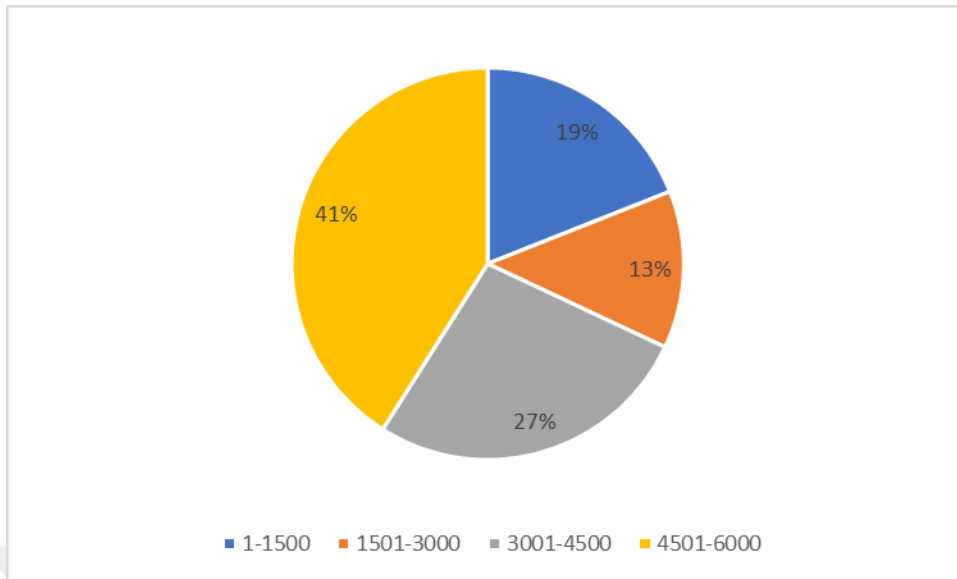


Figure 15. Exports in tonnes

In terms of exports, most firms were active as 41% of the sample exported between 4501 and 6000 tonnes.

Product type

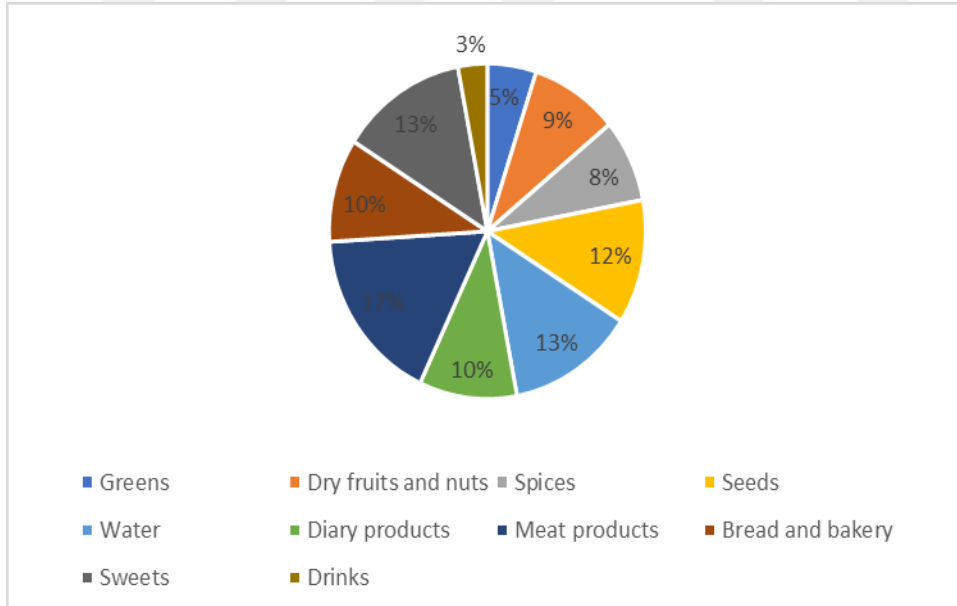


Figure 16. Product type

As the chart above shows there is a high diversity of products with meat products being the largest whereas drinks being the smallest category in the sample.

4.2. DESCRIPTIVE STATISTICS

The answers to the survey questions have been summarized with descriptive statistics. However, the descriptive nature of this analysis does not allow the research to derive conclusions from it.

Table 3. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
f1	65	3.323077	1.251345	1	5
f2	65	3.476923	1.047433	1	5
f3	65	2.876923	1.218448	1	5
f4	65	3.215385	1.218251	1	5
f5	65	3.138462	1.235882	1	5
f6	65	3.276923	1.192525	1	5
f7	65	2.907692	1.155464	1	5
f8	65	3.476923	1.276074	1	5
f9	65	3	1.237437	1	5
f10	65	2.692308	1.261486	1	5
f11	65	3.276923	1.205556	1	5
f12	65	3.492308	1.200561	1	5
f13	65	2.892308	1.300518	1	5
f14	65	2.769231	1.284149	1	5
f15	65	2.938462	1.321421	1	5
f16	65	2.630769	1.244604	1	5
f17	65	2.4	1.272301	1	5
f18	65	3.692308	.9830291	1	5
f19	65	3.507692	1.047662	1	5
f20	65	3.369231	1.193331	1	5
f21	65	3.507692	1.105711	1	5
f22	65	3.415385	1.171168	1	5
f23	65	3.276923	1.09698	1	5

However, the factors with the largest mean represent the most challenging issues for respondents and these factors are as follows (Factors with a higher than 3 mean)

- A lack of understanding of supply chain management
- A demand uncertainty
- Inventory management
- Pricing strategy
- A poor IT infrastructure
- Information-sharing issues related to cultural factors and weak demand management system

- Unfavorable business environment
- Competitive pressures
- Quality issues
- Becoming sustainable
- Large number of intermediaries
- Poor government policies
- Supply and demand mismatch
- Global economic challenges

4.3. CORRELATION RESULTS

Table 4. Correlation analysis

	f1	f2	f3	f4	f5	f6	f7	f8	f9	f10	f11	f12
f1	1.0000											
f2	-0.0121	1.0000										
f3	0.0367	0.1447	1.0000									
f4	-0.0566	0.1142	0.4392	1.0000								
f5	0.2131	0.0448	0.1049	0.2082	1.0000							
f6	0.0648	-0.2075	0.1959	0.2917	0.6097	1.0000						
f7	0.1506	0.2048	-0.0637	0.0254	0.4686	0.3023	1.0000					
f8	0.3130	0.0142	0.1187	-0.0973	0.1655	0.1275	0.1999	1.0000				
f9	-0.1312	0.1326	0.2694	0.3317	0.2759	0.3177	0.1421	0.1286	1.0000			
f10	0.2520	0.1719	0.2698	0.0845	-0.0123	-0.0152	-0.0198	0.2188	0.2402	1.0000		
f11	-0.2467	0.2402	0.2895	0.2460	-0.0681	-0.0433	0.1645	0.1769	0.1571	0.3446	1.0000	
f12	0.2253	-0.0654	-0.1182	0.0118	0.2271	0.1980	0.2248	0.2421	0.0210	0.2254	-0.0093	1.0000
f13	0.1849	-0.1682	0.4254	0.1727	0.0386	-0.0308	-0.1939	0.1632	-0.0388	0.3414	0.0393	0.1346
f14	0.2319	0.0134	0.2811	0.2820	-0.1666	-0.1617	-0.2041	0.0396	-0.0295	0.1677	-0.0085	0.1052
f15	0.3051	-0.2494	0.1699	0.0181	0.0627	0.1002	0.0986	0.1381	0.0956	-0.0115	-0.1853	-0.0102
f16	0.1280	-0.3422	0.0829	0.1254	0.1861	0.2595	0.1172	0.1224	0.0507	-0.0635	-0.0662	0.1026
f17	0.2022	0.2064	-0.0282	0.0645	-0.1848	-0.2492	0.1105	0.0731	-0.0695	0.1363	-0.0020	0.1350
f18	0.2726	-0.0374	0.0331	0.1997	0.1899	0.2471	0.0021	0.1562	0.0899	0.1367	-0.0720	0.2628
f19	0.0755	-0.0532	0.0620	0.1089	0.2828	0.2859	-0.0123	0.0147	0.3375	0.0136	-0.0512	0.0715
f20	0.1072	0.0194	-0.1080	0.0519	0.0390	0.1686	0.0818	0.3443	0.1376	-0.0479	0.0690	0.0238
f21	0.1619	-0.1179	0.0007	0.2307	0.2336	0.3420	0.0006	0.2133	0.2398	0.1025	-0.0133	0.1619
f22	-0.0184	0.0907	0.2006	0.2101	0.1971	0.1513	0.2713	0.4090	0.2264	0.0561	0.3157	0.2301
f23	0.0818	0.0736	0.1194	0.1417	0.1442	0.1435	-0.0042	0.3060	0.2647	0.0964	0.1892	0.1203

	f13	f14	f15	f16	f17	f18	f19	f20	f21	f22	f23
f13	1.0000										
f14	0.3965	1.0000									
f15	0.3598	0.3322	1.0000								
f16	0.2260	0.2978	0.4135	1.0000							
f17	0.1492	0.4208	0.2286	0.2427	1.0000						
f18	0.2059	0.0790	-0.0028	0.0845	0.1124	1.0000					
f19	-0.0166	0.0768	0.0906	0.0981	-0.1665	0.2299	1.0000				
f20	-0.0847	0.0055	0.0840	0.2405	0.1894	0.1516	0.3226	1.0000			
f21	-0.1570	0.0728	0.0431	0.1270	0.0089	0.1891	0.4349	0.2346	1.0000		
f22	0.1529	-0.1431	-0.0034	-0.2040	-0.1552	0.0992	0.0165	0.0451	0.1483	1.0000	
f23	0.0431	0.1015	-0.0420	0.0532	0.0649	0.0368	0.2972	0.2191	0.3460	0.1523	1.0000

Correlation analysis of the factors that have been included in the survey has been presented above illustrating both positive and negative correlation between variables.

Interestingly, however, there are not statistically significant correlations between variables as can be observed from the table.

4.4. FACTOR ANALYSIS

Factor analysis results have been presented next which is the main inferential statistical tool that has been applied in the study.

Table 5. Factor analysis results (all variables included initially)

```
Factor analysis/correlation      Number of obs =      65
Method: principal-component factors  Retained factors =    8
Rotation: (unrotated)           Number of params =  156
```

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	3.73027	1.12582	0.1622	0.1622
Factor2	2.60445	0.30635	0.1132	0.2754
Factor3	2.29810	0.46769	0.0999	0.3753
Factor4	1.83041	0.20368	0.0796	0.4549
Factor5	1.62673	0.23291	0.0707	0.5257
Factor6	1.39382	0.11406	0.0606	0.5863
Factor7	1.27976	0.24786	0.0556	0.6419
Factor8	1.03190	0.11238	0.0449	0.6868
Factor9	0.91952	0.04002	0.0400	0.7267
Factor10	0.87950	0.10510	0.0382	0.7650
Factor11	0.77440	0.05542	0.0337	0.7986
Factor12	0.71898	0.08817	0.0313	0.8299
Factor13	0.63082	0.10069	0.0274	0.8573
Factor14	0.53012	0.07051	0.0230	0.8804
Factor15	0.45961	0.02624	0.0200	0.9004
Factor16	0.43337	0.02620	0.0188	0.9192
Factor17	0.40717	0.08208	0.0177	0.9369
Factor18	0.32509	0.01541	0.0141	0.9510
Factor19	0.30968	0.06222	0.0135	0.9645
Factor20	0.24746	0.01696	0.0108	0.9753
Factor21	0.23050	0.04155	0.0100	0.9853
Factor22	0.18894	0.03955	0.0082	0.9935
Factor23	0.14939	.	0.0065	1.0000

LR test: independent vs. saturated: chi2(253) = 470.40 Prob>chi2 = 0.0000

Factor analysis applied in the project is exploratory factor analysis and Stata has been used to analyze the data collected from the questionnaire results. Factor Eigenvalues have been presented in the Table and these values show how much of the observed variance of the variables/factors in the research is explained by a particular factor. A higher value than 1 indicates an important factor that explains more than variance of a single factor.

The analysis results above show that 8 factors have a greater than 1 Eigenvalue indicating that these factors are important variables in this research. The names of these variables can be taken from the questionnaire questions and presented next.

- A lack of understanding of supply chain management

- A demand uncertainty
- Volatilities in operations are a challenge for your firm
- Inventory management
- Pricing strategy
- A poor IT infrastructure
- Shortage of labor
- Information-sharing issues related to cultural factors and weak demand management system

Hence, according to the factor analysis, these 8 variables are important challenges for food companies in Turkey. In addition, Factor analysis output also shows that the retained number of variables is 8 which means only variables with a higher than 1 eigenvalue are suitable in the selection process.

Additionally, proportion column of the Table 5 above is also informative as it illustrates the proportion of the overall variance among the variables that is explained by a particular factor. Hence, the highest ranking factors explain a greater level of the proportion of the variance which is also reflected in the findings of this study. For instance, a lack of understanding of the work principles of supply chain management comes first in the rankings and it accounts for 16% of the variance of the model. In contrast, global economic challenges were ranked last as a factor that provides a challenge for Turkish food exporters which accounted for only 0.65% of the variance. Furthermore, the model is significant overall as its p value is 0.000 (prob>ch2) indicating that variables account for a significant proportion of the variance of the factors.

Factor loadings and unique variances of factors have also been demonstrated in the next Table for the original analysis that included all factors/variables.

Table 6. Factor loadings (correlations) and unique variances

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Factor8	Uniqueness
f1	0.3672	0.3671	-0.2605	0.4122	-0.0839	-0.1711	0.2090	0.3973	0.2548
f2	-0.0124	-0.1698	0.5437	0.2961	0.1807	0.3099	0.4255	0.2795	0.1999
f3	0.3984	0.2086	0.5244	-0.4044	-0.2346	0.0331	-0.0531	0.1976	0.2612
f4	0.4631	0.0125	0.3387	-0.4523	-0.0199	0.1822	0.2794	-0.3074	0.2599
f5	0.5773	-0.3722	-0.2431	-0.0092	-0.3786	0.1131	0.2226	0.1512	0.2405
f6	0.6036	-0.3673	-0.3058	-0.2531	-0.2716	0.0381	0.0596	-0.0855	0.2572
f7	0.3255	-0.3316	-0.0730	0.4344	-0.3502	0.5313	0.0896	0.0248	0.1765
f8	0.5109	0.0266	0.0632	0.5012	0.0401	-0.1083	-0.4786	0.0935	0.2319
f9	0.5133	-0.2887	0.2208	-0.2791	0.1197	0.1411	0.0249	0.1940	0.4541
f10	0.3315	0.2310	0.4753	0.2013	0.0027	-0.2976	0.1453	0.1595	0.4352
f11	0.1866	-0.1645	0.6857	0.0684	0.0702	0.1539	-0.2452	-0.2564	0.3088
f12	0.3949	0.0362	-0.1138	0.4395	-0.1510	-0.2642	0.1828	-0.3939	0.3554
f13	0.3109	0.6189	0.2205	-0.1243	-0.3362	-0.2673	-0.1516	-0.0180	0.2486
f14	0.2377	0.7309	0.1278	-0.1458	0.1827	0.0804	0.1458	-0.0503	0.3080
f15	0.3078	0.5197	-0.2802	-0.1084	-0.2105	0.2589	-0.2613	0.2910	0.2805
f16	0.3718	0.3934	-0.4078	-0.1779	-0.0544	0.3767	-0.1867	-0.2433	0.2702
f17	0.1052	0.5635	0.0584	0.3516	0.2732	0.4186	0.2306	-0.1722	0.2117
f18	0.4300	0.0904	-0.1343	0.0911	0.0070	-0.3526	0.3857	-0.2786	0.4298
f19	0.4727	-0.1927	-0.2438	-0.2954	0.3955	-0.1675	0.0919	0.2222	0.3505
f20	0.3646	-0.0455	-0.2187	0.1668	0.5227	0.2285	-0.2545	-0.0954	0.3900
f21	0.5338	-0.1802	-0.2137	-0.0928	0.4172	-0.1790	0.0447	-0.0329	0.4192
f22	0.4001	-0.3118	0.3542	0.2194	-0.2525	-0.1376	-0.3291	-0.1353	0.3598
f23	0.4582	-0.1064	0.1244	0.0235	0.4608	-0.0801	-0.1894	0.0838	0.5011

Moreover, the analysis was run after retaining the 8 significant factors and the results are as follows.

Table 7. Factor analysis results (for 8 retained variables/factors)

Factor analysis/correlation
 Method: principal-component factors
 Rotation: (unrotated)
 Number of obs = 65
 Retained factors = 4
 Number of params = 26

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	2.23128	0.74299	0.2789	0.2789
Factor2	1.48829	0.27945	0.1860	0.4649
Factor3	1.20883	0.10827	0.1511	0.6161
Factor4	1.10056	0.38548	0.1376	0.7536
Factor5	0.71508	0.22133	0.0894	0.8430
Factor6	0.49376	0.03837	0.0617	0.9047
Factor7	0.45538	0.14857	0.0569	0.9616
Factor8	0.30681	.	0.0384	1.0000

LR test: independent vs. saturated: chi2(28) = 93.70 Prob>chi2 = 0.0000

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Factor3	Factor4	Uniqueness
f1	0.3453	-0.4642	0.2662	0.4581	0.3846
f2	0.0872	0.1588	0.8158	-0.4443	0.1043
f3	0.3700	0.6200	0.2996	0.4174	0.2147
f4	0.4275	0.7287	0.0380	0.0522	0.2821
f5	0.8280	-0.1069	-0.1687	-0.2099	0.2305
f6	0.7629	0.0936	-0.4760	0.0032	0.1827
f7	0.6106	-0.3442	0.1470	-0.4987	0.2384
f8	0.3801	-0.4400	0.3235	0.4727	0.3338

The table in this case demonstrates that first 4 variables/factors are significant as they have a higher than 1 eigenvalue and they account for variance of the model 28%, 19%, 15% and 14% respectively which are significant explanatory power.

The significant variables in this case are

- A lack of understanding of supply chain management
- A demand uncertainty
- Volatilities in operations
- Inventory management

Again, the model is statistically significant as measured by the probability value (0.000).

Factor loadings also demonstrate that correlation of variables with factors has also increased compared to the previous case illustrating that more relevant factors have been retained in the model.

Hence, it can be argued that 4 most important factors that need to be considered for the export operations of Turkish food companies are a lack of understanding of supply chain management, demand uncertainty, volatilities and inventory management.

There is support for the importance of these factors in literature in previous studies as well.

To elaborate, a lack of understanding of supply chain management results in an unproductive organization of the resources of the firm and its unpreparedness for uncertainties in global supply chain networks (Standler & Kilger, 2005). Hence, a poor understanding of supply networks also leads to a poor level of preparedness and a lack of proper strategy which eventually creates massive challenges for organizations.

Secondly, demand uncertainty has been discovered to be a critical factor that is a significant challenge for firms. Food suppliers in Turkey, therefore, finds it difficult to predict the demand and prepare accordingly, Demand management is a complex process involving forecasting and relevant supply chain management strategy that are integrated into the main strategy of the business and projecting the demand in a correct way would reduce uncertainty faced by companies (Branch, 2008).

Volatilities in operations have been another significant challenge and this challenge refers to the fact that businesses do not have a consistent strategy of operations and they tend to change the elements of business operations frequently. This has been linked with uncertainty for the business outcomes and a negative impact on the operations of the business.

Inventory management has also been cited as the major challenge. If companies do not have an integrated inventory management strategy that reduces costs and increases responsiveness of the business to external factors, then it is likely that the business will experience difficulties frequently (Ivanov, 2021). It was, therefore, no surprise to discover that this factor was a major difficulty for Turkish food exporters.



CHAPTER 4

CONCLUSION AND RECOMMENDATIONS

In summary, this research has analyzed major supply chain challenges for food exporters of Turkey. 65 respondents have participated in the survey research that has been carried out between employees and managers of food exporters in Turkey. The analysis of the results has been carried out using descriptive and factor analysis in order to reveal the most important factors that explain the challenges faced by food exporters.

Factor analysis results demonstrated that the 4 major challenges encountered by food exporters in Turkey are;

- A lack of understanding of supply chain management
- A demand uncertainty
- Volatilities in operations
- Inventory management

Hence, a poor knowledge of supply chain networks was an impediment for the construction of a relevant effective policy and a demand uncertainty was the result of a lack of demand planning processes. Furthermore, volatile operations such as changes that are introduced to various elements of business by management and an effective inventory management have also been cited as key challenges by respondents.

The findings of the study have both similarities and differences with the current literature on challenges in food supply chain management. For example, with the research that is conducted in Tanzania, this study has similar outcome which both found the lack of understanding of supply chain management concepts that led to failing behind local companies with international firms (Ruteri & Xu, 2014). Differently, in the study of Saldanha et al. (2015), IT infrastructure was found the most important challenge. Which has stood in the way of implementing effective supply chain management strategies. Even both Turkey and India are emerging markets it is

surprising that the same outcome hasn't be reached. This thesis also have some differences with studies conducted in other industries but the same on investigating supply chain challenges. For example, in a study on building construction (Saka & Mudi, 2007) six important factors emerged from the investigation of problems in the supply chain which were related to the tariffs on import, foreign exchange fluctuations, lead time issues, bad conditions of roads, robberies and costs related to freight. Differently in the food supply chain studies, this research is also included, money related issues were not even among the top five difficulties. This result is quite interesting because similar to other emerging countries, exporters also find challenges in raising funds for their operations in Turkey. In particular, companies have faced challenges in this area in the country. This problem also is also associated with underlying issues such as a lack of financial literacy (as many business people do not even understand which avenues and methods they have that can be tapped into for raising funds), and collateral requirements which constrain the obtainment of funds for many enterprises. In addition, a latest study on SCM reveal that because of COVID-19 pandemic, bankruptcy of supply chain partners of firms, big layoffs in industries, global economic recession and long times of recovery, sharp falls in global demand for many products and services, demand disruption, difficulties in forecasting and change in distribution networks have been some of the key challenges that have been encountered by companies in their supply chain (Balon, et al., 2012). Perhaps the economic problems, which are now an integral part of life in Turkey, blinded the respondents and caused them to focus on other problems of the supply chain.

The outcomes of the study reveal several managerial implications too which lead construct the following recommendation for food exporters in the Turkey:

-Firstly, trainings should be organized for employees to understand supply chain management better along with engagement with them in a daily business environment in order to emphasize the cooperation with supply chain members of the firm.

-Secondly, a demand planning mechanism (Such as quantitative forecasting models, for example) should be introduced and implemented.

-Next, business operations should be made more consistent and reliable in order to reduce volatilities

-Finally, effective inventory management system such as lean manufacturing and just in case systems should be implemented in order to reduce waste and increase effectiveness.

This research has some limitations. The first is the sample size that reached is not enough to conduct impact measurement analysis methods. Therefore, next studies can measure the impacts of each supply chain management challenges on company performance both in terms of customer satisfaction/loyalty and financial performance. Structural Equation Modeling or basically a multiple regression model can be used. Second, this research focuses on only food exporters. In the future, a comparison can be made with others sectors with the same challenges. Furthermore, country comparison can also be achieved in future studies.



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APPENDIX 1 – Survey Questions

Demographic questions

1. What is your gender?

Male

Female

2. What is your age?

18-25

26-35

36-45

46-60

Over 60

3. What is your educational qualification?

High school diploma

Undergraduate

Post-graduate

4. What is your position in your firm?

Junior level

Mid-level

Senior level

Managerial

Owner

5. Total work experience

6. Experience in current position

7. Age of the firm

8. Employee number

9. Source of capital

Domestic

Foreign

10. Total exports (in TEU or in volume)

11. Products that mostly exported

Please select the proper answer for you.

1. A lack of understanding of supply chain management such as lack of information exchange and lack of collaboration among other members of your supply chain are a challenge for your firm.

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

2. A demand uncertainty is a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

3. Volatilities in operations are a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

4. Inventory management is a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

5. Pricing strategy is a challenge for your firm

- I strongly agree
- I agree
- Neutral
- I disagree
- I strongly disagree

6. A poor IT infrastructure is a challenge for your firm

- I strongly agree
- I agree
- Neutral
- I disagree
- I strongly disagree

7. Shortage of labor is a challenge for your firm

- I strongly agree
- I agree
- Neutral
- I disagree
- I strongly disagree

8. Information-sharing issues related to cultural factors and weak demand management system is a challenge for your firm

- I strongly agree
- I agree

Neutral

I disagree

I strongly disagree

9. Customer relationship management is a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

10. Asset utilization problems which arise from lack of capacity/knowledge and weak demand management system are a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

11. Unfavorable business environment such as political system, corruption, locational disadvantages and economic factors is a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

12. Competitive pressures such as a large number of competitive rivals are a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

13. Fund-raising problems such as a lack of knowledge of potential funding sources and collateral requirements of financial institutions are a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

14. A lack of rigorous framework for managing risk (due to financial illiteracy and lack of capacity) is a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

15. A lack of cooperation is a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

16. Tough regulations are a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

17. Rising logistics costs are a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

18. Quality issues such as food safety and security are a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

19. Becoming sustainable is a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

20. Large number of intermediaries is a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

21. Poor government policies are a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

22. Supply and demand mismatch is a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree

23. Global economic challenges such as the effect of global pandemic and a supply chain crisis are a challenge for your firm

I strongly agree

I agree

Neutral

I disagree

I strongly disagree