UNLOCKING POTENTIAL: EXPLORING THE UNDERUTILIZATION OF FOREIGN TRADE ZONES BY US IMPORTERS FOR COST-SAVING BENEFITS

by

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FOREIGN TRADE ZONES

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Dedication

To my beloved husband, Eduardo Diaz, who has been my mentor and guiding light throughout my entire career. Your unwavering support and belief in me have been the foundation of my success. I am forever grateful for your wisdom, encouragement, and love.

To my daughters, Eli and Estefy, your presence in my life fills each day with purpose and joy. You inspire me to be a better person, and I am grateful for the love and laughter you bring into our home.

To my mother, Alicia Garza, and my father, Carlos Garza (RIP), thank you for always believing in me and instilling in me the values of hard work and perseverance. Your love and guidance have shaped me into the person I am today.

To my brothers, Polo and Carlos Garza, I have strived to be a role model for you both, and I am grateful for your unwavering support and love.

To my four families - the Garza, Montemayor, Diaz and BBF's families - you are my pillars of strength and support. Your love and encouragement have carried me through the toughest of times, and I am blessed to have you in my life.

To all my clients, thank you for entrusting me with your business and allowing me to grow and learn alongside you. Your support and trust have been instrumental in my professional development.

To all the FTZ US Customs supervisors and team at the port of Laredo since 1995, thank you for sharing your knowledge and expertise with me over the past 30 years. Our collaboration in the field of FTZ has been invaluable, and I am grateful for the opportunities to learn and grow with you.

This dissertation is dedicated to each and every one of you who have touched my life in profound ways. Your love, support, and belief in me have been the driving force behind my academic and professional achievements.

With heartfelt gratitude and love,

Norma A. Diaz-Garza Montemayor

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I would like to honor the memory of my father, Carlos Garza, whose belief in my abilities and unwavering support continue to guide me. Though he is no longer with us, his presence is felt in every achievement and milestone of my academic career.

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I would like to extend my gratitude to my four families - the Garza, Montemayor, Diaz and BBF's families - for their love, support, and understanding. Your unwavering support has been a source of strength and comfort, and I am grateful for the sense of belonging and connection you provide.

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Lastly, I extend my heartfelt appreciation to all the FTZ US Customs supervisors and team at the port of Laredo. Your expertise, guidance, and collaboration have enriched my knowledge and understanding of FTZ operations, and I am grateful for the opportunities to learn and grow alongside you.

To everyone who has supported, encouraged, and believed in me throughout this journey, thank you from the bottom of my heart. Your contributions have been instrumental in the completion of this dissertation, and I am forever grateful for your presence in my life.

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Norma A. Diaz-Garza Montemayor

ABSTRACT

FOREIGN TRADE ZONES

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CHAPTER I:

INTRODUCTION

1.1 Introduction

Special economic zones (SEZs) are demarcated geographic areas within a country's national boundaries where business rules diverge from those prevailing in the national territory (Chaisse & Dimitropoulos, 2021). Foreign trade zones (FTZs), also called free trade zones, are among the types of special economic zones (Chigurupati, 2019). The Foreign Trade Zones Act was signed into law in 1934 by U.S. President, Franklin D. Roosevelt (Lane & Liu, 2022). Foreign trade zones are designated areas within U.S. borders that are treated as regions outside U.S. territory for customs purposes and function as special zones with a high degree of global economic openness (Hu et al., 2020; Narula & Zhan, 2019). In 1973, approximately 18 FTZs were operating in the United States across a handful of states, but this number has grown significantly, with over 250 FTZs currently operating across all 50 states of the United States (Seyoum & Ramirez, 2012; Wong, 2020). This growth indicates that the number of FTZs in the United States is significant.

In previous literature, various roles of FTZs have been outlined. One of the critical roles played by FTZs is the facilitation of firms' logistics and global marketing systems through the provision of flexible connections of in-flows and out-flows for various goods that vary from country to country (Tansuhaj & Jackson, 1989). The use of FTZs also involves outsourcing international cost changes in some forms (Swenson, 2007). In FTZ warehouses, goods can be sold, exhibited, broken up, repacked,

assembled, distributed, sorted, graded, cleaned, mixed with foreign or domestic merchandise, manipulated, manufactured, exported, destroyed, or sent into the U.S. customs territory (Tansuhaj & Jackson, 1989). Merchandise in FTZ warehouses is not subject to the import laws and regulations of the United States unless it is extracted from them and sent to U.S. customs (Tansuhaj & Jackson, 1989). FTZs provide various functions within their warehouses and facilitate outsourcing to adapt to international cost changes.

Since the Foreign Trade Zones Act was established, scholars have studied the FTZ program. These studies have focused on the characteristics, benefits, significance, support, and criticisms of the FTZ program (Aggarwal, 2019; Chen, 2019; Cheng, 2019; Yao, 2019; Ye et al., 2022). Free trade zones provide various benefits for companies, including cost-saving advantages such as tax exemptions and/or tax holidays, duty exemptions, streamlined logistics, duty reductions, and merchandise processing fee reductions (Aggarwal, 2019; Chaisse & Dimitropoulos, 2021). Other benefits linked to the FTZ program include the attraction of foreign investment due to the aforementioned cost-saving benefits, generation of employment opportunities within the zones, expansion of foreign trade, provision of superior infrastructure and privileged access, fewer regulations, and enhanced regulatory management through streamlined administrative procedures and stimulation of regional development (Chen, 2019; S. A. Frick & Rodríguez-Pose, 2022; Narula & Zhan, 2019). Various scholars have studied these benefits of the FTZ program.

Although FTZs have benefits, they are not without criticisms. Lane (2020) argued that the establishment of FTZs as a place-based economic policy may lead to uneven distribution of benefits, with some companies benefiting more than others. This spatial inequality could exacerbate existing disparities between rural and urban populations. Lane and Liu (2022) observed that although counties with FTZs experienced increased manufacturing employment, neighboring counties suffered from a decline in manufacturing companies and an increase in unemployment rates. This disparity is reflects the effects of modern capitalism and neoliberalism, where free-market principles are applied within a limited spatial scale and primarily benefit large corporations at the expense of small businesses and local communities (Lane, 2022). The FTZ program has also been criticized for consolidating control over U.S. trade and commerce by corporate actors, allowing prominent consortiums to increase their profits and market control while potentially neglecting the interests of neighboring minority communities and local ecology (Lane, 2022). The criticisms around FTZs revolve around their place-based nature, potential negative impact on local communities, and exacerbation of economic inequality.

Despite these criticisms, the FTZ program is believed to have an overall positive impact on the economy of the United States. The FTZ program provides tariff incentives for companies that conduct their manufacturing operations in the United States, and these incentives result in the creation of manufacturing and service jobs within the FTZs and its immediate surroundings (Wong, 2020). Lin and Xue (2019) supported this claim by reporting that the FTZ program has been considered a "model of success" since its

establishment, almost 90 years ago. The growth and economic development of FTZs across diverse economic contexts are indicators of their success since their establishment (Hall et al., 2023; Naeem et al., 2020). The positive impacts associated with the establishment of FTZs outweigh their negative impacts.

The FTZ program in the United States houses a wide range of products. The U.S. Customs and Border Protection (U.S. Customs and Border Protection, 2020) presented a detailed overview of the products that can be housed in FTZs, the processes that can be performed within FTZs, and the mechanism of transfer of merchandise from FTZs to the U.S. consumer market. According to the U.S CBP, any domestic or foreign product can be placed within FTZs, provided that the product is not prohibited under U.S. laws and does not fall under the following exceptions: products that cannot be lawfully imported into the United States such as explosives and products that may be detrimental to public health and safety. All permitted domestic and foreign products within an FTZ can be sampled, examined, stored, and exhibited (U.S. Customs and Border Protection, 2020). The U.S. CBP also described various statuses (privileged foreign status, non-privileged foreign status, zone restricted status, and domestic status) that affect the classification, entry, and appraisal of products when being transferred from FTZs to the U.S. consumer market.

Results from previous literature guided the conceptual framework for this study. Specifically, discussions on the relationship between the utilization of FTZs and the level of awareness of policies, procedures, and cost-saving benefits of FTZs, and the challenges encountered when using FTZs informed the conceptual framework. The

results suggested that knowledge about policies and procedures related to the logistics of free trade zones is paramount for their utilization. Decision-makers rely on their judgment and knowledge to make a decision (Sarparast & Akhmadeev, 2022). One of the challenges faced by firms regarding the utilization of the cost-saving benefits of free trade zones is policy uncertainty (Narula & Zhan, 2019). Industrialists are unaware of the latest trends across these free trade zones (Naeem et al., 2020). According to Chigurupati (2019), free trade zones fail to attract investors due to piecemeal reforms, weak incentives, and policy reversals. The limited awareness due to the adjustment of policies could be associated with the underutilization of free trade zones.

The size of firms and the resources available to firms may also hinder their utilization of free trade zones. Prior findings revealed that free trade zones require a huge amount of resources for their development and operations, which in turn limit the attraction of investors in the absence of adequate resources (Aggarwal, 2019). Additionally, FTZs in the United States seem to favor large industrial producers compared to small businesses (Lane & Liu, 2022). The aforementioned results support the theory that the size of firms and internal resources may play a role in their decision to use FTZs.

Previous literature has also addressed the relationship between the level of awareness of the cost-saving benefits of FTZs and the utilization of FTZs. According to Lane and Liu (2022), most of the free trade zones are located in urban centers; therefore, neighboring counties may not be aware of these free trade zones and their cost-saving benefits. This finding is supported by S. A. Frick et al. (2019) who reported that the

further an area was from a free trade zone, the less it was impacted by the benefits associated with FTZs. These findings build on the theory that the level of awareness of FTZs and their cost-saving benefits is crucial for FTZ utilization.

The literature also contains discussions of the effect of perceived benefits and risks on FTZ utilization. Risks ranging from business cycles, political upheavals, macro-mismanagement, money laundering, and noncompliance may drift stakeholders such as policymakers away from expanding FTZs, thereby limiting their utilization (Aggarwal, 2019). Lu et al. (2019) reported that a general pessimism surrounds free trade zone programs, especially in developing countries. These findings help build on the theory that perceptions concerning FTZs' benefits and risks may be key in determining the utilization of FTZs for cost-saving advantages.

The goal of this study was to explore why importers in the United States do not take advantage of the cost-saving benefits of using FTZs in their logistics operations. The conceptual framework for this study focused on the factors that influenced importers' utilization of the cost-saving benefits of FTZs in logistic operations. The independent variables included in the conceptual framework were awareness of the cost-saving benefits of FTZs and the challenges of using FTZs in logistic operations. The dependent variable was the utilization of FTZs for cost-saving benefits in logistic operations. Mediating variables included the perceived benefits and risks of FTZ utilization and knowledge about FTZ's policies and procedures, whereas the moderating variables included the various sizes of the importers and the resources available to them.

1.2 Research Problem

FTZs, also referred to as free trade zones, are designated areas within the U.S. territory that are treated as outside the U.S. territory for customs purposes, and they function as special zones with a high degree of global economic openness (Chaisse & Dimitropoulos, 2021; Hu et al., 2020). The Foreign Trade Zones Act was established in 1934 (Lane & Liu, 2022). Since its establishment, researchers have discussed several cost-saving advantages associated with FTZs including duty exemption, duty deferral, duty reduction or inverted tariff, merchandise processing fee reduction, streamlined logistics, and quota avoidance (Lane, 2020; Lin & Xue, 2019; Norgaard & Cartwright, 2022). The characteristics, benefits, and functions of FTZs have also received research interest over the years with scholars discussing the significant growth and development of the FTZ program in the United States since its inception in 1934 (Chen, 2019; Cheng, 2019)

The critical role of FTZs as part of the U.S. trade policy has also been explored, revealing that effective utilization of FTZs is crucial for the economic development of the nation by enhancing trade, attracting foreign investments, and implementing financial transparency (Sarparast & Akhmadeev, 2022; Yao, 2019; Ye et al., 2022). Previous studies have also illustrated the significance of the FTZ program in increasing employment opportunities and promoting the manufacturing of domestic products (Cheng, 2019; Wong, 2020; Yao, 2019). Researchers have also discussed the support and criticisms of the program in terms of its design and implementation (Aggarwal, 2019; Chaisse & Ji, 2020; Meng & Zeng, 2019; Zeng, 2022)

Despite the several cost-saving advantages provided by FTZs, many U.S. importers fail to capitalize on these zones due to two main factors: a lack of accessible information and awareness regarding the FTZ program and its economic advantages and the high costs and consequent limited accessibility associated with establishing and maintaining FTZ operations (Congressional Research Service [CRS], 2020; Lane & Liu, 2022). The limitations in awareness and accessibility of FTZs pose a significant drawback to the program, considering that regions close to FTZs have significantly higher income levels, lower unemployment rates, and superior economic growth compared to those located further away from them (S. Frick & Rodríguez-Pose, 2019; Lane, 2020). The gap addressed in this study was the seeming lack of literature on the reasons why importers in the United States do not take advantage of the cost-saving benefits of using FTZs in their logistics operations.

1.3 Purpose of Research

The purpose of this mixed-methods study was to explore why importers in the United States do not take advantage of the cost-saving benefits of using FTZs in their logistics operations. A quantitative online survey linked to websites of importers' forums and associations and an open-ended survey were used to collect data from personnel in importer companies. Data collection involved sending out a maximum of 100 quantitative surveys and a minimum of 20 open-ended surveys to 50 importer companies in the United States. The researcher employed random probability sampling, which involved posting survey requests on websites of importers' forums and associations and/or sending survey requests to contact people of various importer associations. Participant

recruitment also involved contacting random importer companies in the United States via phone calls and requesting to participate in an open-ended survey. Data analysis included quantitative analysis, thematic analysis of qualitative data, and the integration of the quantitative and qualitative findings to understand the reasons why U.S. importers do not use the cost-saving benefits of using FTZs in their logistic operations.

1.4 Significance of the Study

This mixed-methods study holds high practical significance for multiple stakeholders. The study provides an understanding of the factors that prevent importers in the United States from taking advantage of FTZs in their logistics operations. By addressing these barriers, importers can achieve significant cost savings and streamline their logistics operations, which may lead to enhanced competitiveness in the market. The findings of this study include valuable insights for policymakers and regulatory agencies. A deeper comprehension of the reasons for the underutilization of FTZs by importers may help policymakers and regulatory agencies formulate targeted policies and interventions that promote adaptation and effective use of FTZs, ultimately positively impacting trade policy and economic development in the United States.

The findings of this study have the potential to expand the knowledge base of professionals in the field of logistics and supply management. This knowledge encompasses valuable insights into the strategies for optimizing logistic operations and enhancing supply chain efficiencies, benefiting professionals working in this sector. By shedding light on the reasons for the underutilization of FTZs, the findings of this study can serve as practical guidance by informing decision-making processes for importers,

policymakers, and other stakeholders. As a result, the findings may impact import-related logistics operations positively.

Finally, this study addressed a gap in the literature related to FTZs in the United States. Previous studies include discussions of the growth and development of the FTZ program (Cheng, 2019; Wong, 2020), key contributions of FTZs to U.S trade policy and economic development (Ghosh et al., 2016; Yao, 2019; Ye et al., 2022), FTZs' positive impacts on employment opportunities and domestic manufacturing processes (Wong, 2020), and the support and criticisms of the FTZ program (Lane, 2020; Lane & Liu, 2022; Orenstein, 2019; Zeng, 2022). However, the perspectives of U.S. importers—direct users and potential users of FTZs—were not adequately explored. This study addressed this gap by focusing on importers' perspectives, adding a new dimension to the understanding of FTZ utilization in the United States.

1.5 Research Purpose and Questions

The purpose of this mixed methods study was to explore why importers in the United States do not take advantage of the cost-saving benefits of using FTZs in their logistics operations. To achieve the objective of this study, the researcher sought to answer the following overarching research questions:

Research Question 1

Why do importers in the United States fail to leverage the cost-saving benefits of using FTZs in their logistics operations?

The following sub-research questions were generated to further guide this study:

Sub-Research Question 1

What level of awareness do importers in the United States have regarding the cost-saving benefits of using FTZs in their logistics operations?

Sub-Research Question 2

What challenges do importers in the United States face with regard to using FTZs in their logistics operations?

This chapter included the background of the study, the problem addressed by the study, the purpose of the study, and the significance of the study. It concluded with the research questions that helped fulfill the purpose of the study. The details of the conceptual framework, including a diagrammatic representation of the conceptual framework used in this study, are presented in Chapter II.

CHAPTER II:

REVIEW OF LITERATURE

Despite the several cost-saving advantages of FTZs, many U.S. importers fail to capitalize on these benefits (Congressional Research Service., 2020; Lane & Liu, 2022). The purpose of this mixed-methods study was to explore why importers in the United States do not take advantage of the cost-saving benefits of using FTZs in their logistics operations. Internationally known as free trade zones, FTZs are types of SEZs (Chigurupati, 2019).

According to Chaisse and Dimitropoulos (2021), SEZs are designated geographical areas within a country's borders where specific business regulations differ from those in the rest of the nation. In the United States, FTZs have been defined by researchers as areas demarcated within the U.S borders but treated as though they exist outside the U.S territory for customs purposes; they function as special zones with a high degree of global economic openness (Hu et al., 2020; Narula & Zhan, 2019). According to Omi (2019), in 2019, thousands of FTZ existed across the world and the projection was that the number would keep on increasing over time. This statistic was supported by Wong (2020) who revealed that the number of FTZs across states in the United States increased from 18 in 1973 to over 250 FTZs in 2020. Yao (2019) and Ye et al. (2022) reported that free trade zones are generally located in transport-convenient locations, such as near or within seaports. Lane and Liu (2022) also reported that most free trade zones are located in urban centers. FTZs and SEZs share similar characteristics and have grown since their inception.

Free trade zones have been associated with cost-saving advantages. These cost-saving advantages include tax exemption, duty reduction or inverted tariff, reduction of merchandise processing fee, streamlined logistics, and quota avoidance (Lane, 2020; Lin & Xue, 2019; Norgaard & Cartwright, 2022). Despite the cost-saving advantages of FTZs, a general lack of understanding and awareness of the benefits of using FTZs has been highlighted by several researchers over the years (Bettina Cornwell, 1989; S. Frick & Rodríguez-Pose, 2019; Lane & Liu, 2022). The lack of accessible information and awareness regarding the FTZ program and its economic advantages could be a probable explanation for U.S. importers' failure to capitalize on these cost-saving advantages (Congressional Research Service., 2020). The seeming lack of literature on the reasons why importers in the United States do not take advantage of the cost-saving benefits of using FTZs in their logistics operations is the gap that this study addressed.

To address this gap, the researcher conducted a search of the literature in the following online databases and search engines to come up with the literature review section: EBSCOhost, Google Scholar, ProQuest, PsychINFO, and PsychArticles. The key search terms used to generate articles from the aforementioned online databases and search engines included the following: *special economic zones, free trade zones, foreign trade zones, cost-saving advantages of free trade zones, economic impact of FTZs, importers,* and *logistic operations*. The researcher used these keywords individually and in combinations by applying the Boolean search technique to generate relevant studies from the aforementioned databases and search engines. From the studies generated, only those considered pertinent to the study were included in the literature review. A large

percentage of the studies included in the literature review were published between 2019 and 2023. This inclusion criterion ensured that recent findings were included in the review. To enhance the understanding of the genesis and development of FTZs over time, relevant articles from earlier dates were included in the literature review.

This literature review section includes an expanded background to the research problem discussed in Chapter I. The first section contains a discussion of the conceptual framework of the study. The second section includes a discussion of the history and evolution of free trade zones, benefits and disadvantages associated with FTZs, spillover effects of FTZs, and a comparison of free trade zones in the United States with those in other countries. This section ends with a summary highlighting the gap addressed by this study.

2.1 Conceptual Framework

Qualitative studies either use the theoretical or conceptual framework to guide the research. According to Varpio et al. (2020), a conceptual framework is used to justify why a study ought to be conducted. This justification is done through conducting a literature review to identify what is already known about the phenomenon of interest and existing gaps in the understanding of the phenomenon. Therefore, a conceptual framework addresses the importance of the study and contributes to what is already known from different studies. Varpio et al. defined a theoretical framework as a structured and coherent system of concepts and assumptions derived from one or multiple theories that researchers use to gain a deeper understanding of the phenomena under investigation and facilitate the interpretations of their research findings in a broader

theoretical context. After a rigorous search of theories that could help inform the current study, none was found; therefore, a conceptual framework based on findings from previous studies was deemed appropriate for this study.

A conceptual framework based on results generated from previous studies guided the present study. The studies used to develop the conceptual framework of this study involved explorations of the utilization of free trade zones (Aggarwal, 2019; Chaisse & Dimitropoulos, 2021), the level of awareness concerning policies (Naeem et al., 2020; Narula & Zhan, 2019), procedures and cost-advantages associated with free trade zones(Chaisse & Ji, 2020; Lu et al., 2019), and the challenges encountered in the utilization of free trade zones (Aggarwal, 2019; Lane & Liu, 2022). The conceptual framework used to guide this study focused on factors influencing importers' utilization of FTZs for cost-saving benefits in logistics operations.

Two independent variables were incorporated in this framework. The first independent variable was "awareness of cost-saving benefits of free trade zones." It described the level of awareness among importers regarding the cost-saving benefits offered by free trade zones in logistics operations. The rationale behind the incorporation of this variable in the conceptual framework was the findings from previous studies (Chigurupati, 2019; Naeem et al., 2020; Narula & Zhan, 2019). Sarparast and Akhmadeev (2022) reported that individuals relied on their judgments and knowledge to make decisions. Findings from Naeem et al. (2020) revealed that industrialists were not aware of the latest trends across free trade zones. These results suggested that industrialists were not up-to-date with the new policies, cost-saving benefits, and

procedures in free trade zones. Narula and Zhan (2019) revealed that uncertainties in policies governing free trade zones limited firms and industries from leveraging the associated cost-saving benefits. According to Chigurupati (2019), piecemeal reforms, weak incentives, and policy reversals discouraged investors from using free trade zones. The above findings revealed that the adjustment of policies governing free trade zones limited awareness among stakeholders such as investors and industrialists, leading to their underutilization. This outcome could be a reason why importers in the United States underutilize FTZs in their logistics operations despite their cost-saving benefits.

The second independent variable incorporated in this conceptual framework was the "challenges of using free trade zones in logistic operations." This variable described the challenges that importers face in the process of using free trade zones for logistic operations. The rationale behind the incorporation of this variable in the conceptual framework was the results from previous studies (Aggarwal, 2019; Lane & Liu, 2022). Aggarwal (2019) revealed that investors with limited resources avoided free trade zones due to the large number of resources required to operate in these zones. To support these findings, Lane and Liu (2022) reported that large industrial producers were more favored by free trade zones compared to small businesses. Naeem et al. (2020) also reported that the operational cost of SEZs such as FTZs was too high for small to medium enterprises, which limited their utilization of these FTZs. The results from these studies revealed that the size of firms and the resources available to them play a crucial role in their decision to use free trade zones. Small-to-medium enterprises are mostly affected due to their size and limited resources. The lack of adequate resources could be a reason why importers in

the United States, especially those in small firms, fail to capitalize on the cost-saving benefits of FTZs in their logistics operations.

The dependent variable incorporated in the conceptual framework of this study was the "utilization of free trade zones for cost-saving benefits in logistics operations." Previous scholars have discussed the cost-saving advantages associated with utilization of FTZs, which include duty exemptions, inverted tariffs, streamlined logistics, tax exemptions, and reductions in merchandise processing fees (Aggarwal, 2019; Chaisse & Dimitropoulos, 2021). Studies have revealed that the level of awareness of the cost-saving benefits of FTZs has an effect on the utilization of these benefits. Lane and Liu (2022) reported that counties neighboring free trade zones may not be aware of their existence and cost-saving benefits. This result is consistent with findings from S. A. Frick et al. (2019), which revealed that areas located far from free trade zones were less impacted by the benefits associated with FTZs. These findings could possibly explain the underutilization of free trade zones by importers in the United States in their logistics operations despite their cost benefits.

Also incorporated in the conceptual framework were mediating variables such as perceived benefits and risks of FTZ utilization and knowledge about FTZ's policies and procedures. As earlier discussed, knowledge about policies plays a crucial role in the decision to use free trade zones. The reason for adding perceptions about FTZs to the framework is that Lu et al., (2019) reported the existence of a general pessimism about free trade zones, especially in developing countries. These perceptions could influence

the decision to leverage the cost-saving advantages of free trade zones in logistic operations.

In summary, the conceptual framework used in this study focused on the factors that influenced importers' utilization of the cost-saving benefits associated with free trade zones in their logistic operations. A diagrammatic representation of the conceptual framework is shown in Figure 2.1. It depicts the interplay of factors that could lead to the underutilization of the cost-saving advantages of free trade zones in the United States by importers in their logistic operations.

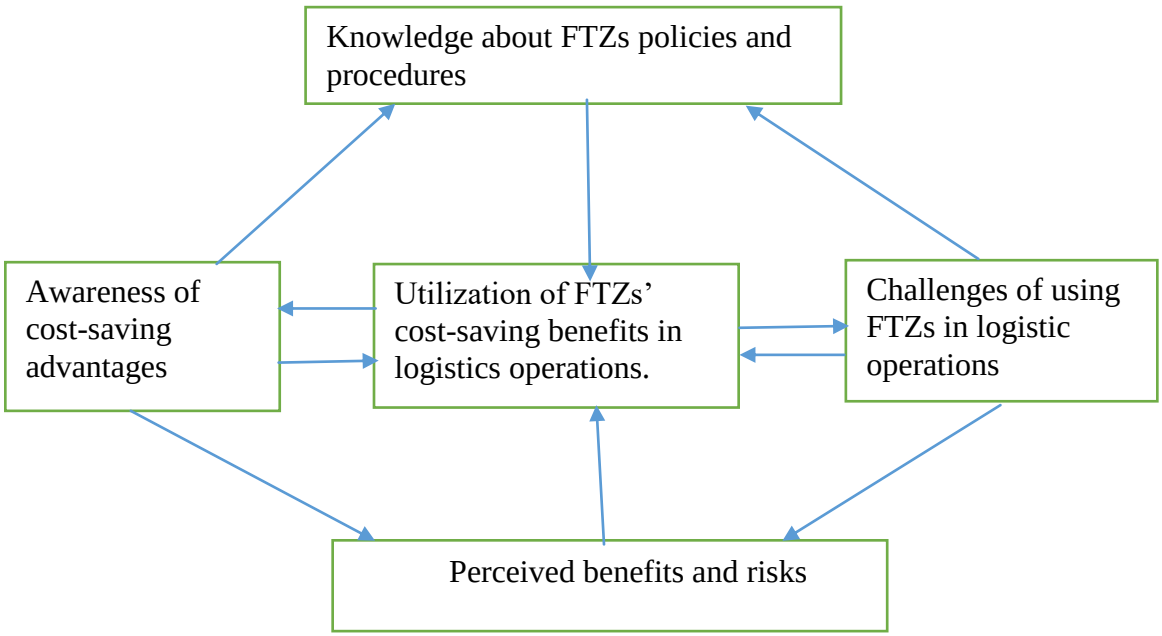

Figure 2.1

Factors Influencing Importers' Utilization of FTZs for Cost-saving Benefits in Logistic Operations

2.2 History of FTZs

FTZs have existed for a long time. Margolies (2019) reported that FTZs in the United States were established during the Great Depression of the 1930s (Margolies,

2019). Around 1929, the United States, along with the rest of the world, experienced a devastating economic collapse that lasted for approximately a decade. This collapse led to a significant disruption of the global economy. During the Great Depression period, the Smoot-Hawley Act of 1930, a protectionist tariff act, was passed by the U.S. Congress (Tiefenbrun, 2015), imposing high tariffs on U.S. imports and exports. The effect of this act was an immediate reduction in U.S. exports and re-exports, which prompted Congressman Emmanuel Cellar to invent foreign trade zones with an aim of counteracting the negative effects brought by the Smoot-Hawley Act (Tiefenbrun, 2015). This idea was accepted and the Foreign Trade Zone Act was signed into law by U.S. President Franklin D. Roosevelt on the 18th of June, 1934 (Lane, 2022). According to Scott (2019), the desire to offset the competitive advantage possessed by foreign companies facilitated the passing of the Foreign Trade Zone Act by the U.S. Congress.

Scott's (2019) observation seems to align with that of the U.S. CBP. The U.S. Customs and Border Protection (2020) specified that in the context of an expanding global marketplace with increasing competition among countries for capital, industry, and jobs, the FTZ program promotes U.S. competitiveness by encouraging firms to operate and expand the production of their merchandise in the United States. These reports are evidence of the FTZ's program aim to enhance the competitive position of the United States and attract investment and employment creation.

The Foreign Trade Zone Act of 1934 allowed the creation of distinct geographical areas, wherein corporations, firms, and even local governments could manufacture raw and processed products, modify these products for re-export without the need to pay

duties, and avoid high tariffs (Lane, 2022). The FTZ program was placed under the newly established FTZ Board, which was a subsidiary of the U.S. Department of Commerce. At present, the U.S. CBP specifies that the roles of the FTZ Board include reviewing and approving applications for the establishment, operation, and maintenance of FTZs, as well as performing administrative duties within FTZs (U.S. Customs and Border Protection, 2020). The FTZ Board essentially oversees the various functions of FTZs. Knowing what FTZs are and their characteristics is important to ease their identification.

2.3 What are FTZs?

Over time, researchers from different parts of the world have defined free trade zones in different ways. However, one common term is needed to improve the identification of different types of zones (Bost, 2019). According to Bost (2019), the term free zone refers to an area that contains companies exempted from laws that would otherwise apply to other companies in the host country, particularly custom-related laws. The U.S. CBP defined free trade zones as secure areas under its supervision that are generally considered areas out of U.S. CBP territory upon activation. The International Trade Administration of the U.S. Department of Commerce defined free trade zones as designated sites licensed by the FTZ Board, chaired by the Commerce Secretary, where special customs procedures are implemented. Various scholars have defined foreign trade zones as designated areas within the U.S. borders treated as regions outside U.S. territory for customs purposes, which function as special zones with a high degree of global economic openness (Hu et al., 2020; Narula & Zhan, 2019). Although one common definition is lacking, similarities exist between the various definitions. Scholars seem to

agree that FTZs and companies that exist in FTZs have special laws that do not apply to companies and areas outside these zones.

FTZs were established for various reasons. Lane and Liu (2022) and the report by U.S. Customs and Border Protection (2020) indicated that the primary purpose for passing the Foreign-Trade Zones Act in 1934 by President Franklin D. Roosevelt was to promote the economy of the United States. Based on their purpose, FTZs have been considered by scholars as types of SEZs (Chigurupati, 2019; Narula & Zhan, 2019). Chaisse and Dimitropoulos (2021) defined SEZs as demarcated geographic areas that exist within a country's national boundary where distinct business rules differ from those prevailing in the national territory. Cheng (2019) further highlighted the special treatment enjoyed within SEZs. He revealed that the rules and regulations that exist within these zones tend to be friendly to investors. Sanabria et al., (2022) reported that SEZs provide economic benefits that promote the national economy. Reports from these studies suggest that SEZs, FTZ included, were established to enhance economic development in their host countries.

SEZs have various characteristics. Narula and Zhan (2019) reported that characteristics of SEZs include relief from customs tax and duties, provision of advanced infrastructure and privileged access, reduced regulations, and improved regulatory management achieved through streamlined administrative processes. The aforementioned characteristics of SEZs are similar to those of free trade zones. The International Trade Administration (n.d.) identified the following characteristics of free trade zones: duty deferral, duty exemption, and access to streamlined customs procedures. García-Alzórriz

and Derkaoui (2020) reported that both SEZs and FTZs offer certain tax and customs exemptions and provide services for the economic activities of their tenants. These studies indicate that FTZs and SEZs share a significant number of characteristics, which explains why the terms are interchangeably used by scholars.

The U.S. CBP presented a detailed overview of the functions of the FTZ program, focusing on the products that can be housed in FTZs, the processes that can be performed within FTZs, and the mechanism of transfer of merchandise from FTZs to the U.S. consumer market. According to the CBP, any domestic or foreign merchandise qualifies to be placed within FTZs, as long as it is not prohibited under U.S. law and does not fall under the following exceptions: merchandise that cannot be lawfully imported into the United States, certain specific merchandise such as explosives, and merchandise that may be detrimental to public health, safety, and interest. All merchandise permitted within the free trade zone can be sampled, examined, stored, and exhibited. Most merchandise can also be manufactured within FTZs, with the exception of clocks and watch parts, as well as merchandise that is subject to internal revenue tax, such as alcoholic beverages, alcoholic beverage-based products, alcohol-containing perfumes, sugar, tobacco products, and firearms (U.S. Customs and Border Protection, 2020).

The U.S. Customs and Border Protection (2020) described various statuses, which when assigned to the merchandise being transferred from FTZs to the U.S. consumer market, affect their classification, entry, and appraisal. These statuses include privileged foreign status, non-privileged foreign status, zone-restricted status, and domestic status. The U.S. CBP's description of how different merchandises are placed under the

aforementioned four statuses is described below. According to the U.S. Customs and Border Protection (2020), the merchandise granted non-privileged foreign status under the U.S. FTZ program include recovered waste from privileged foreign merchandise and domestic merchandise that has lost its original identity. However, before any non-privileged foreign status merchandise is subjected to any manipulation or manufacturing activities, it can be granted privileged foreign status.

For merchandise to be granted privileged foreign status, an importer ought to submit an application to the Port Director requesting privileged foreign status before any alterations or production procedures that may affect the merchandise's classification regarding tariff purposes are made. The merchandise is then assessed and evaluated for classification, and duties and taxes are calculated according to the time the application was made. If such merchandise, whether in its original or altered state, is transferred from the zone for domestic consumption in the United States, the relevant duties and taxes are assessed based on the rate established at the time of granting a privileged foreign status.

Similar to the process of obtaining privileged foreign status, the importer or zone user must submit an application for zone-restricted status on the appropriate U.S. CBP form. Any merchandise moved from the U.S. CBP territory to an FTZ either for storage or fulfillment of legal obligation regarding export or destruction is prohibited from being returned to the U.S. CBP territory for consumption. Only when the FTZ Board finds it appropriate or necessary for public interest can the merchandise be returned to the CBP territory. Merchandise falling under these conditions is granted the zone-restricted status.

Similar to the zone-restricted status, an importer ought to make an application to the Port Director to be granted domestic status on their merchandise. For this application to go through successfully, the merchandise should meet at least one of the following criteria: (a) the merchandise should have been grown, produced, or manufactured within the United States and all applicable internal revenue taxes pertaining to the merchandise must have been paid; (b) if the merchandise had been previously imported, all internal revenue taxes pertaining to the merchandise must have been paid; and (c) the merchandise should have been previously admitted free of duty. Unlike merchandise that falls under the previously discussed statuses, domestic merchandise may be brought into or removed from an FTZ and without the need for a CBP permit. Regardless of the status of the merchandise in the FTZ, there are advantages associated with the utilization of the FTZ program in different parts of the world.

2.4 Benefits of Free Trade Zones

Free trade zones have been associated with multiple benefits. One of the benefits is tax or duty-related benefits. Bost (2019) reported that free trade zones are defined in different ways, including about their tax benefits. He however noted that as much as significant tax benefits existed among free zones, the tax benefits were not as prevalent as they were in the past. According to the Congressional Research Service report (Congressional Research Service., 2020) by Liana Wong, the FTZ program offers zone users various cost-saving advantages such as tax savings, duty deferral, and duty exemption. Findings from the studies highlighted that the FTZ program is associated with tax benefits. However, a gap exists in the examination of the extent of tax benefits that

currently exist in FTZs with Bost reporting that the tax benefits are not as prevalent as they were in the past. Exploring the reasons for the decrease in tax benefits could be valuable in understanding the evolving nature of FTZs.

Foreign trade zones have been linked to positive economic outcomes. Chaisse and Dimitropoulos (2021) revealed that SEZs were new mechanisms that promoted trade and attracted foreign direct investment in their host countries. Chen (2019) found that SEZs were strong catalysts for economic growth and investments by creating an environment of fairness and competition, therefore facilitating trade and investment. Lane and Liu (2022) examined the short- and long-term changes in manufacturing employment after FTZs were added in a county and revealed that there was a significant long-term increase in manufacturing employment in counties where FTZs were added. Lu et al. (2019) revealed that establishing free trade zones was found to have a positive effect on capital investment and increased firms in those areas. The findings from these studies revealed that foreign trade zones promote trade, attract foreign investments, and create employment opportunities. Further studies could be conducted to compare the benefits of FTZ programs to economic development in different countries to provide valuable insights into the varying degrees of their success in enhancing economic development.

Free trade zones offer several benefits, including tax-related advantages. Bost (2019) acknowledged the historical significance of tax benefits in FTZs but indicated a decline in their prevalence. Nevertheless, the FTZ program still provides cost-saving advantages, as revealed in the CSR (2020) report by Liana Wong, encompassing tax savings, duty deferral, and duty exemption. However, a gap exists in understanding the

current extent of tax benefits, necessitating the need for further exploration of the reasons for this decline. Findings from different studies indicate that FTZs are associated with positive economic outcomes such as attracting foreign direct investment, fostering economic growth and trade, and increasing manufacturing employment in counties with FTZs (Chaisse & Dimitropoulos, 2021; Chen, 2019; Lu et al., 2019).

2.5 Spillover Effects of FTZs

Free trade zones have also been associated with spillover effects. S. Frick and Rodríguez-Pose (2019) revealed that areas surrounding SEZs experienced a positive impact on their economic performance. However, the magnitude of the positive impact decreased as the distance from the SEZ to the region out of the SEZ increased. Lane (2020) revealed that counties neighboring free trade zones had significantly higher median household income and more manufacturing firms compared to areas not adjacent to these zones. However, Lane also revealed that regions adjacent to the free trade zones experienced high unemployment rates. These findings are consistent with those of Lane and Liu (2022) who reported that unemployment rates were significant in counties neighboring FTZs. These studies revealed that the spillover effects of FTZs in neighboring counties are both positive and negative.

The divergence in the findings above revealed a gap in the literature. Before this study, the factors that influence the spillover effects of FTZs to neighboring counties had not been explored. Different factors could account for the divergence in the results. Future researchers could investigate the factors that influence the direction and

magnitude of spillover effects to aid in understanding the mechanisms behind the positive and negative impacts of FTZs on neighboring counties.

2.6 Downsides of FTZs

Similar to any other program, the FTZ program has its downsides. Lane (2020) argued that the FTZ program benefited some companies more than others. Foreign trade zones showed similarities with the modern U.S. capitalist system. Big businesses were reported to be the primary beneficiaries of duty deferrals provided by the FTZ program (Lane, 2020). Naeem et al. (2020) reported that the high costs associated with SEZs were unfavorable to small-to-medium enterprises, making them unfit for operating within SEZs. The above studies revealed that big businesses benefited more from the free trade zone programs compared to small and medium enterprises, resulting in an inequality in the benefits of the program. Future scholars could explore the barriers that limit the entry and operation of small businesses in SEZs to foster a more conducive environment for their participation to achieve equality within the program.

The SEZ program can have harmful effects. Chaisse and Ji (2020) explored the issues that SEZs raised under international economic law and found that tax incentives applied in SEZ may cause harmful effects such as tax evasions, which could lead to changes in the competitive circumstances between states. Wong (2020), in the CRS report, revealed that companies believed exemptions and reductions in tariffs may lead to foreign producers outperforming domestic producers. Concerns have also been raised concerning the harmful effects of the FTZ program in reducing tariff revenue in the United States. The findings from the above studies suggest that although FTZs and SEZs

offer certain benefits and incentives, they could also give rise to unintended negative consequences such as reduced competitiveness of domestic industries and decreased government tariff revenue.

The SEZ program has been linked to frequent policy reforms. Chaisse and Ji (2020) reported that frequent policy reforms in SEZs have the potential to lead to indirect expropriation. Chigurupati (2019) agreed with this assertion, reporting that piecemeal reforms and policy reversals discouraged investors from the free trade zones. To circumvent this drawback, foreign investors could use investment treaties to protect their SEZ-related benefits. These findings highlight the importance of policy stability in SEZs to attract and retain foreign investment. Frequent policy reforms and reversals may create uncertainty and risk for investors leading to their limited willingness to invest in SEZs.

Similar to other initiatives, the free trade zone program has both advantages and disadvantages. Lane (2020) observed that the program tended to favor larger companies, especially in terms of duty deferrals. Naeem et al. (2020) found that high costs associated with SEZs posed challenges for small and medium enterprises, resulting in an unequal distribution of benefits. Addressing barriers that prevent small businesses from using SEZs could promote equality within the program. However, concerns have been raised about the harmful effects associated with utilization of SEZs, such as tax evasion and reduced competitiveness of domestic industries (Chaisse & Ji, 2020; Wong, 2020). Frequent policy reforms have been hypothesized to cause uncertainty and hinder foreign investment (Chaisse & Ji, 2020; Chigurupati, 2019). The findings suggest that policy stability is crucial for attracting and retaining investors in SEZs. Future researchers could

further examine the impact of policy reforms and explore the potential solutions that can be applied to safeguard investment in free trade zones.

2.7 Factors Leading to the Success of Free Trade Zones

Previous studies have revealed factors that lead to the success of free trade zones. One of these factors is the availability of infrastructure (Chen, 2019; S. Frick & Rodríguez-Pose, 2023; Sarparast & Akhmadeev, 2022). Chen (2019) reported that building an effective legal infrastructure was an important factor in the success of special economic zones. S. Frick and Rodríguez-Pose (2023) findings conformed to what was reported by Chen. They reported that investors were more drawn to zones that had good industrial infrastructure and service provision. Sarparast and Akhmadeev (2022) conducted a case study in Amirabad port-free zone in Iran and ranked factors that led to its success. They revealed more important factors that led to its success in attracting both foreign and domestic investments, but the existence of facilities and infrastructure such as advanced telephone networks, equipped airports in the region, water, electricity, and high-powered Internet in modern ports ranked third. The findings from these studies highlight the importance of good infrastructure in the success of free zones. Policymakers and zone authorities could use these findings to prioritize investing in infrastructure to foster the long-term success of free zones.

The location of the free zones has also been discussed as a factor that influences the success of free zones. Meng and Zeng (2019) conducted a case study of free trade zones in Shanghai and revealed that most of them had easy access to seaports, waterways, airports, and highway networks. The strategic location of free zones near major

infrastructure enhanced the convenience of exporting goods. S. A. Frick et al. (2019) revealed that firms looked for low-cost locations near large cities. S. Frick and Rodríguez-Pose (2023) supported these findings by revealing that coupling good infrastructure with a strategic location was paramount in drawing investors to the free trade zones. Kuznetsov and Kuznetsova (2019) also revealed that the success of SEZs lay in cities that had a favorable geographic position with an advanced level of industrial development. Sarparast and Akhmadeev (2022) ranked the location of the FTZ as the least factor that influenced the attraction of both domestic and foreign investments in Amirabad port-free zone in Iran. The above studies highlight that the location of free trade zones influences their success by attracting investments. However, the findings revealed that the significance of location factors may vary depending on the specific context and characteristics of each free trade zone. To address this gap, future researchers could explore the specific attributes that make certain locations more or less influential for the success of free zones in different regions.

Studies have also underscored the importance of partnership in the success of free trade zones. Naeem et al. (2020) conducted in-depth interviews with relevant stakeholders in the free trade zone domain. The results from the interviews indicated that public-private partnership would create trust and encourage both foreign and domestic investors to be part of the free trade zones. Meng and Zeng (2019) reported that one of the factors that led to the success of the Shanghai Pilot Free Trade Zone was the existing government enterprise partnership. Khan et al. (2016) revealed that joint ventures were the largest component of foreign direct investment and that this mode of investment led

to the expansion and development of SEZs in China. The findings from these studies suggest that partnerships between public and private sectors play a crucial role in the success of free zones. These partnerships likely contribute to creating a conducive environment for trade and investment. The findings suggest that collaborative efforts between public and private sectors play a crucial role in the achievement and sustainability of free trade zones.

Policies have also been reported to influence the success of free trade zones. Economic policies made by the government and policymakers were reported to have led to the success of Amirabad port-free trade zone (Sarparast & Akhmadeev, 2022). Such policies included liberalization and privatization of the region. Clear development strategies and goals were also linked to the success of the Shanghai Pilot free trade zone (Meng & Zeng, 2019). The findings from these studies revealed that the implementation of supportive economic policies and well-structured development strategies are crucial factors that contribute to the success of free trade zones. This result suggests that governments and policymakers have the potential to shape the growth trajectory of free trade zones by creating a conducive business environment and setting clear objectives.

Another factor that leads to the success of free trade zones is the spillover that come along with its establishment. Narula and Zhan (2019) found that for a SEZ to experience success, the benefits of its establishment ought to intentionally leak beyond the free zone to the neighboring community and beyond. The researchers suggested that the direct, indirect, and induced effects of a SEZ beyond its perimeter determined its success or failure. However, the spillover effects as a factor that influences the success of

free trade zones have been understudied. Future researchers could explore the spillover effects to understand how they lead to the success of free trade zones in different geographical settings.

Several factors have been identified to contribute to the success of FTZs in various parts of the world. Studies have revealed that infrastructure, with good industrial facilities and services, plays a crucial role in attracting investors (Chen, 2019; S. Frick & Rodríguez-Pose, 2023; Sarparast & Akhmadeev, 2022). The strategic location of FTZs, near major infrastructure, has also been reported to enhance exporting convenience and attract investments in the free trade zones (S. A. Frick et al., 2019; Kuznetsov & Kuznetsova, 2019; Meng & Zeng, 2019). Public-private partnerships have been identified as crucial in creating a conducive environment for trade and investment in FTZs (Meng & Zeng, 2019; Naeem et al., 2020). Supportive economic policies and well-structured development strategies equally play vital roles in the success of FTZs (Meng & Zeng, 2019; Sarparast & Akhmadeev, 2022). Although not extensively studied, positive spillover effects experienced by areas beyond the perimeter of the FTZs have contributed to the success of FTZs (Narula & Zhan, 2019). Researchers could explore the specifics of these factors in different geographical settings to enhance the long-term success of FTZs.

2.8 Factors Leading to Failure of FTZs

Researchers have discussed the factors that lead to the failures of free trade zones. Naeem et al. (2020) found that stakeholders of SEZ considered political involvement a major barrier to the development of special economic zones. They reported that the negative political influence did not favor the development of FTZs. Aggarwal (2019)

agreed with these findings, reporting that among many other factors, political upheavals had the potential to repel policymakers away from expanding FTZs. These findings revealed that politics negatively impacts the development of free trade zones.

Policies also play a major in guaranteeing the success or failure of SEZs. A study by Thakur (2023) revealed that ineffective policy interventions were among the factors that led to the unsatisfactory performance of SEZs in India. This finding converged with that of Kuznetsov and Kuznetsova (2019), which revealed that the instability of legislation in SEZs and inconsistencies in policies governing SEZs in Russia worried investors, as keeping track of the ever-changing policies was a challenge. This factor ultimately led to limited investments in SEZs in Russia.

Various factors have been attributed to the failure of free trade zones across different parts of the world in terms of their purpose. Researchers have discussed the negative impact of factors such as political involvement or interference, political upheavals, and the presence of ineffective and ever-changing policies in SEZs (Aggarwal, 2019; Kuznetsov & Kuznetsova, 2019). These factors have been observed to hinder the success of free trade zones by drawing away potential investors from the SEZs. The findings from these studies revealed that suitable policies and an absence of political involvement in the free trade zones would encourage investments in these zones, promoting development within them and leading to their success.

2.9 FTZs in Diverse Economic Settings

As mentioned earlier, specific geographical areas that enjoy place-based advantages such as FTZs in the United States are commonly referred to as SEZs in other

economies of the world. Researchers have approximated the number of SEZs around the world to range from 4,000 to 6,000 (Hall et al., 2023; Naeem et al., 2020; Neveling, 2020). The World Investment Report published by the United Nations Conference on Trade and Development (UNCAD, 2019) seemed to agree with this number, reporting that approximately 5,400 SEZs exist across 147 economies. The UNCAD linked the emergence of these numerous zones to the increasing competitiveness of nations due to internationally mobile investment. According to the UNCAD report, China has the highest number of SEZs, followed by the Philippines, India, the United States, the Russian Federation, Turkey, Thailand, the Dominican Republic, and Kenya. The lowest number of these zones exists in Nicaragua. These findings suggest that free trade zones have been embraced by different countries across the globe.

A significant amount of research has been conducted on SEZs in China and their various impacts. In China, SEZs, in the form of free trade zones, were first established in 2013 through the Chinese government's pilot project called the Shanghai Free Trade Zones (Catellani, 2022; Jiang et al., 2021). According to Li et al. (2022), the establishment of the pilot project of free trade zones has been critical for promoting high-quality economic development in the nation. Liu et al. (2021) noted that China's free trade zone project has been crucial for the country's port transformation, particularly after the devastating impacts that Chinese ports experienced during and after the outbreak of the COVID-19 pandemic. Lu et al. also observed that the establishment of free trade zones in China positively influenced the country's employment, productivity, capital investment, and output. The success of China's SEZs, as presented by Alexianu et al.

(2019), may attract similar implementations in other countries. However, Alexianu et al. (2019) posited that SEZ programs and policies were more likely to succeed if a country-specific approach was taken. The findings from various studies suggest that SEZs have had significant positive impacts on the economic development of China.

A country-specific approach to the development and growth of SEZs may be crucial for developing countries. Chen (2019) noted that the structure, functions, and effectiveness of SEZs significantly varied across developing countries and that those large-scale variations resulted in some SEZs being more successful than others. S. A. Frick and Rodríguez-Pose (2022) noted a common theme among SEZs in diverse settings in their study with SEZ firm managers in Colombia, Nigeria, Ethiopia, Rwanda, South Africa, Malaysia, and Vietnam. They observed that in all the aforementioned countries, SEZ policies, by themselves, had limited impacts on the local economic fabric. This finding converged with that of S. A. Frick et al. (2019) who studied 346 SEZs across 22 developing countries and found that the growth of SEZs in developing countries may not necessarily reflect the socioeconomic development of those countries. This finding was consistent with that of Norgaard and Cartwright (2022) who reported that evidence was limited on the correlation between SEZs and growth of developing countries. A similar study, conducted by S. Frick and Rodríguez-Pose (2023), with 103 firm managers across seven SEZs, suggested that countries should be cautious not to be overly reliant on SEZs as no single set of SEZ policies would work in every economic setting. These findings suggest that a context-specific assessment of the credibility of SEZs is crucial for achieving the desired outcomes in specific regions.

Regardless of the context-specific consequences of SEZs, the SEZ program has been hailed as a major feature of contemporary globalization. Alreshaid (2022) highlighted that the implementation of SEZs was a critical governmental tool for attracting private capital and achieving various benefits, ranging from the creation of employment opportunities to value-addition in the country's economy. Adding to this observation, Zeng (2022) noted that SEZs, as a policy tool, allowed the promotion of industrialization and economic transformation in various economies across the globe. Mohammed (2021) further highlighted that SEZ policies were crucial for strengthening the economy of countries and improving living conditions through the effective facilitation of business and trade. According to Chigurupati (2019), the factors influencing the success of SEZs include appropriate zone development, policy and incentive framework implementation, and management. Aggarwal (2019) highlighted those countries that adopted a well-structured SEZ program that was well aligned with the overall development strategy, executed effectively, and regularly evaluated and reviewed generally succeeded in achieving SEZ-based economic transformation. These studies highlight that SEZs are considered instrumental in facilitating businesses and trade, thereby impacting economies and living conditions positively.

2.10 FTZs in the United States

The United States has not been left behind. Since the mid-1930s, the FTZ program in the United States has witnessed substantial growth (Lane, 2020; 2022; Orenstein, 2019; Wong, 2020). Despite the significance of the U.S. FTZ program, recent

scholarly works on this topic are limited. In this section, the findings from different researchers concerning FTZs in the U.S. context are presented.

The FTZ program and the number of FTZs in the United States have witnessed significant growth over many decades. Cheng (2019) cited the website of the U.S. Department of Commerce to present the current number of FTZs in the United States as approximately 300. Wong (2020) referenced the annual report published by the FTZ Board in 2018 and specified that 195 active FTZs existed among the 260 approved zones, noting that each U.S. state had at least one FTZ. Wong also noted that approximately 3,300 companies used FTZs for their businesses, which employed more than 440,000 people in the United States. Wong posited that the total value of FTZ merchandise then was $794 billion. Overall, as highlighted by Orenstein (2019), the U.S. FTZ program may be the largest and longest-running free trade zone program in the world. These reports suggest that since the inception of the FTZ program, there has been tremendous growth of FTZs in the United States, an attractive area of research for scholars.

Despite the large-scale implementation of the FTZ program in the United States, recent literature works on FTZs in the United States from different perspectives are lacking. According to Lane and Liu (2022), although FTZs in the United States have significantly grown in number since their establishment in 1934, these zones have remained largely obscure to the academic community and the U.S. public. S. Frick and Rodríguez-Pose (2019) supported this report by noting that despite the large-scale growth of FTZs, research on various aspects of their utilization and performance was limited. Perhaps this limited research on U.S. FTZ is reflected by several FTZs being inactive or

failing in the United States (Tiefenbrun, 2013). In this regard, it is critical to understand how the FTZ program is perceived from the perspectives of its users, such as importers, to promote the effective utilization of FTZs for the development of the U.S. economy.

2.11 Global Comparative Analysis of FTZ Models and Policies

Foreign Trade Zones (FTZs) are a type of Special Economic Zones (SEZs) that vary drastically across countries; the policy of every nation differs in terms of regulation, economy, and operations in an attempt to achieve the most from SEZs (Najafzada, 2024). Europe, Asia, and Africa are three other continents and each has its own strategies based on the economic status, legal frameworks, and level of administrative support. In Europe, FTZs are generally intended to improve customs performance and offer tax incentives, which are governed by the strict guidelines of the European Union (EU) (Di Nino et al., 2020). For instance, the Shannon Free Zone in Ireland includes tax incentives and efficient customs, whereby FDI reaches very high levels (Guan et al., 2024). Some of the key differences include: the EU stressing on clear procedures and strict regulatory measures to ensure compliance, on the one hand, and on the promotion of trade liberalization and employment on the other.

In contrast, China and Vietnam along with many Asian countries have followed FTZ models that integrate industrialization, export-led growth, and elaborated FDI attraction (Nguyen & Tien, 2021). Shenzhen Special Economic Zone in China, often considered one of the most successful FTZs, is backed by a set of policies beyond the scope of fiscal incentives that include liberalized labor policies, favorable investment climate, and limited trade barriers (Yusufu & Lu, 2024). This structure has helped

Shenzhen evolve from a city that mainly relied on exports for manufacturing to a world's technological and manufacturing city (Yusufu & Lu, 2024). This strategy is in line with the government of China's industrial policy aims where the FTZs act as vehicles for change and growth. Similarly, in Vietnam, FTZs are vital for export-oriented development whereby policies entail tax incentives and no restrictions to foreign equity to support export and manufacturing sectors.

While FTZs are relatively new in Africa, they are gradually being viewed as critical for economic development and structural transformation. Kenya and Nigeria are some of the countries that have adopted FTZs to improve FDI and employment; however, the legal and bureaucratic framework is comparatively less developed than the models in Asia and Europe (Massil & Eric, 2024). For instance, the Lekki Free Zone in Nigeria, which offers tax exemptions and zero import-duty zones, has been held back by bureaucratic issues and poor facilities (Yusufu & Lu, 2024). However, as opposed to Europe's regulatory-induced and Asia's investment-initiated FTZs, the development of those in Africa may stem from developmental requirements and focused on employment and industrialization, though there are constraints due to a lack of funding coupled with inadequate infrastructure (Guan et al., 2024).

FTZ Policy Innovations across Regions

The development of policy in relation to FTZs remains dynamic as countries continue to look for new strategies to maximize their economic returns and changing structure of the global economy. One such change is the switch to digital customs procedures as a policy measure. Digitalization has been pivotal in increasing the

efficiency of FTZs around the world, especially in Europe and Asia (Jaloliddin, 2023). For instance, South Korea has implemented block chain systems in FTZ customs to try to eliminate unnecessary processes and create more transparency, in addition to preventing fraudulent activities (Kim & Kim, 2020; Su & Wang, 2024). Such processes help track goods in real time, hence making customs procedures effective and minimizing instances of revenue losses due to trade misinvoicing. Likewise, the European Union has also shifted to digital customs for its FTZs, even if the bureaucracy is still stringent to conform with broader EU trade policies.

Another significant policy change is the application of preferential trade agreements that is aimed at increasing the advantages of FTZs through the elimination of tariffs and simplification of trade barriers (Kafando, 2020). Other fulfillment agreements that could possibly transform FTZs across Africa is the African Continental Free Trade Area (AfCFTA) that took effect in 2021, as it enables the products of the FTZs to be transported freely across members of the African Union (Touray & Nyanga, 2024). This preferential agreement approach is different from the 'U.S. FTZ model' mainly because the latter is regionally focused and mainly used to foster the development of domestic industries and employment opportunities. The major aim of the U.S. FTZs is to reduce customs charges on imported goods to the U.S markets and does not necessarily advocate for access to foreign markets (Touray & Nyanga, 2024) Thus, though FTZ policy innovations across regions may have similar objectives of liberalizing trade and attracting investment, the model that the United States has created is highly inward-focused relative to the outward-oriented strategies that are more evident elsewhere (Kafando, 2020).

Comparative Case Studies: Successful vs. Struggling FTZs Globally

Analyzing specific FTZs provides an understanding of what contributes to favorable results and what hinders FTZ performance. The Jebel Ali Free Zone in Dubai (JAFZA) can be considered an example of a well-developed free trade zone that is famous for its geographical position, well-developed infrastructure, and liberal legislation (Robert, 2021). Set up in 1985, JAFZA is advantageously located close to Jebel Ali Port, making it a prime location for international logistics and distribution. The success of Dubai's FTZs is attributed to low taxes, simplified bureaucratic processes, and conducive infrastructure for the operation of MNCs (Mogielnicki, 2021). In addition, companies operating in JAFZA enjoy the benefits of full foreign ownership, more convenient customs procedures, and access to a pool of talents, thereby being an appealing location that encourages trade and investment. The best example of this is JAFZA because the quality of the infrastructure it provides, the efficiency of the regulations in the Free Trade Zone, and its location all have a tremendous influence on the success of this type of zone (Mogielnicki, 2021; Robert, 2021).

However, problems such as political instability, lack of infrastructure and administrative problems have resulted to some of these FTZs failing in the overall intended economic goals and objectives of their establishment. The Nigerian government established the Lekki Free Zone with the aim of spurring industrial development and FDI, which, however has encountered various challenges (Rodríguez-Pose et al., 2022). While the zone provides incentives similar to the successful FTZs are the tax holidays and flexible import policies, investors are sometimes frustrated by logistics problems, lack of

infrastructure, and bureaucratic impediments (Rudzitis et al., 2024). The absence of proper transport networks, for example, impacts negatively on the logistic capacity and discourages foreign investments since movement of goods within and to the zone becomes expensive and time consuming (Rodríguez-Pose et al., 2022). The experiences of the Lekki Free Zone reveal how political restraints and infrastructure actually detract from the envisaged economic advantages of FTZs.

Shenzhen SEZ in China, which is also a case of success, illustrated how the structures of FTZs developed over the years and support the overall national economy. Initially established to entice overseas investors and spur exports, Shenzhen's SEZ has evolved into a dynamic technology hub and manufacturing powerhouse (Tao & Li, 2023). This can be majorly attributed to government support through policies, regulations, infrastructure development, and human capital development that saw Shenzhen transform from an FTZ affiliated to a low-cost manufacturing hub to a technology and innovation city (Feng, 2023). On the other hand, FTZs in less government-backed and infrastructurally weak areas like some regions of Sub-Saharan Africa face challenges in attracting investors and sustaining the zones (Rodríguez-Pose et al., 2022)

2.13 Impact of FTZs on Supply Chain Dynamics and Resilience

Free Trade Zones (FTZs) play an important role in global supply chain networks and provide substantial benefits with regards to the flow of goods, costs, and stock management (Katsaliaki et al., 2021). As strategic warehousing centers, FTZs help in quick and efficient transfer of goods across borders while allowing companies to

centralize their stocks near target markets. An advantage of FTZs is that they offer relief from the customs expenditure in terms of deferred, exempted or minimized duties, which decreases the total logistic costs (Solari et al., 2024). These cost advantages make FTZs especially suitable for industries that require high stock turnover, including electronics and automotive industries that are often characterized by high competition and slim profit margins (Solari et al., 2024).

Reduced logistics costs assumed when operating in FTZs make them strategic links in international supply chains. According to Palazzo and Vollero (2021), U.S.-based FTZs have helped firms to meet parts and materials intended for assembly through paying customs duties on arrival, thus make it affordable to order inventory just-in-time since goods can only be brought to the U.S. market upon need. Also, studies show how FTZs in the Asia-Pacific region and in specific Singapore and Hong Kong help corporations in storing highly demanded inventories in such strategically placed zones saving more on the cost of warehousing in densely populated areas (Rajabova et al., 2020). The structure of the FTZs also provides benefits for inventory purposes in terms of ability to hold buffer stock close to production or assembly areas so as to ensure that there is rapid response to market needs.

Resilience and Risk Management in FTZ Supply Chains

There has been increasing interest in how FTZs contribute to the robustness of supply chain and managing risks that are present nowadays such as in the current pandemic. FTZs provide increased resistance because establishments can source materials from multiple places and optimize warehousing and storage, lessening the

adverse effects of supply chain disruptions (Madzík et al., 2024). During Covid-19 period, FTZs around the globe assisted the stakeholders to maintain the excess inventories, and the companies could have more leeway with the customs procedures that helped in dealing with the problems in production and supply chain (Sultana et al., 2024). For example, FTZs in Southeast Asia experienced a rise in demand as firms stockpiled inventory closer to consumer markets waiting for the supply chain issues (Sultana et al., 2024). This versatility only served to underscore the value of FTZs as strategic resources in continuity planning, as they create an offsite inventory and minimize dependence on sole-sourced systems.

Moreover, FTZs allowed for faster responses during emergency situations since goods could be held or redirected to parts of the FTZ. FTZs were strategically located close to ports and transportation networks which adds more value to them and isolating them from supply disruptions (Katsaliaki et al., 2021). As adaptive arrangements of storage and customs measures, FTZs proved a valuable resource during the COVID-19 pandemic when governments sought to fast-track the customs clearance of critical goods, including medical equipment, through FTZs (Laari et al., 2024). These zones gave companies better control of stocks when there were transit hitches or if ports were congested, availing products to consumers in a way that did not have to strictly depend on regular warehousing. In addition, FTZs are important for diversification initiatives because they enable companies to locate suppliers in various locations other than the domestic market; this minimizes the risks associated with sourcing products from a single country (Raub et al., 2024).

Digitization and FTZ-Enabled Supply Chains

Digitization has become a cornerstone of modern FTZ operations, where digital technologies like blockchain and artificial intelligence (AI) have enhanced transparency, compliance, and traceability within global supply chains. Blockchain technology, in particular, has revolutionized FTZ supply chains by providing a secure and transparent method for tracking goods (Waikar et al., 2022). Artificial intelligence (AI) and the social internet of things (SIoT) also play crucial roles in digital transformation, with traceability being key to enhancing transparency and overall supply chain performance (Khan et al., 2022). These technologies are particularly relevant in the context of sustainable supply chains, as global corporate mandates increasingly emphasize "greening" entire supply chains (Sanders et al., 2019). Blockchain applications within FTZs offer end-to-end traceability, which mitigates risks of fraud and counterfeiting, thus ensuring compliance with regulatory standards across jurisdictions (Paliwal et al., 2020). For example, Dubai's World Logistics Passport (WLP) initiative, a blockchain-based platform that connects FTZs globally, has enhanced the transparency and traceability of goods by creating a digital ledger that tracks the movement of goods from origin to destination (Paul et al., 2024). This initiative highlights how FTZs can leverage digital technologies to promote seamless, secure, and compliant trade across borders.

AI and machine learning (ML) further contribute to FTZ efficiency by predicting demand, optimizing inventory levels, and enabling better decision-making regarding stock management (Kumar et al., 2024; Mallesham, 2022). In particular, AI-driven analytics allow FTZ operators to forecast potential supply chain disruptions and prepare

for contingencies, improving the overall resilience of supply networks. A case study on the Port of Rotterdam, one of Europe's most advanced FTZs, demonstrates how AI integration can facilitate smoother operations by dynamically routing goods based on real-time data, which helps manage congestion and optimize delivery timelines (Raihan, 2023). This digital transformation within FTZs allows companies to anticipate and respond to fluctuations in demand, enhancing both operational flexibility and efficiency.

The convergence of digital technologies within FTZs has also fostered the development of "smart" supply chains, characterized by automated customs processing, data-sharing platforms, and integrated logistics networks (Almasri, 2024). As these technologies are implemented, FTZs increasingly function as digital trade hubs, supporting cross-border e-commerce and enabling companies to reach markets with lower barriers to entry. For instance, China's adoption of digital customs systems in FTZs has allowed for expedited clearance times and enhanced data-sharing between customs agencies and companies, reducing delays in high-volume zones like Shanghai's Waigaoqiao FTZ (Zhao et al., 2020). These developments signal a shift towards digital trade, where FTZs facilitate seamless global transactions and make supply chains more adaptable, transparent, and responsive.

2.14 Environmental Impact of FTZs and Sustainable Practices

Free Trade Zones (FTZs) have gained widespread adoption as vehicles for economic development and globalization, yet their environmental impact has raised significant concerns, particularly in regions where regulatory oversight is limited. Research indicates that FTZs in developing economies often contribute to pollution due

to relaxed environmental regulations intended to attract foreign investors (Li et al., 2022). Such zones may sidestep stringent environmental controls that would typically apply in other sectors, leading to increased waste, emissions, and resource depletion. Furthermore, studies highlight that FTZs in Asia and Africa are more likely to exhibit these challenges due to limited enforcement of environmental policies, as governments in these regions often prioritize economic gains over ecological sustainability (Zhang & Zhou, 2023). Consequently, FTZs in these areas can worsen local environmental issues, placing pressure on water resources, air quality, and biodiversity. In China, the establishment of FTZs initially worsened environmental pollution in pilot zones, though these negative impacts diminished over time (Wang et al., 2021). To address environmental concerns, China implemented environmental protection reviews in FTZs, including environmental impact assessment reforms and regulations for dangerous good

Research into the environmental costs associated with FTZs reveals a troubling pattern where industrial activities within these zones, particularly in manufacturing and logistics, tend to contribute disproportionately to carbon emissions and pollution (Wu et al., 2024). For example, studies have demonstrated that the waste output from FTZs in West Africa significantly exceeded that of other industrial regions, largely due to the import of low-standard technologies and less efficient production methods (Eze et al., 2023; Zhang et al., 2022). These studies indicate that while FTZs drive economic growth, their operational models in regions with inadequate environmental protections lead to substantial ecological degradation, underscoring the need for sustainable policy interventions to mitigate these adverse impacts.

2.15 Regulatory Frameworks and Compliance in FTZ Operations

FTZs operate within unique regulatory frameworks designed to encourage trade and investment by offering a blend of tax incentives, reduced customs requirements, and flexible labor laws. However, these regulatory structures vary significantly across regions, impacting labor standards, environmental protections, and economic restrictions within FTZs. While FTZs can positively impact labor standards and social conditions, as seen in the Manaus Free Trade Zone in Brazil (Teixeira, 2020), their effects vary across regions. In China, FTZs have been found to attract foreign investment and improve firms' environmental, social, and governance (ESG) performance (Zeng et al., 2024). Research indicates that FTZs in Southeast Asia often prioritize labor flexibility to attract manufacturing firms, allowing employers more latitude in wage setting, worker hours, and employment benefits compared to standard industrial zones (Bal & Izak, 2020; Vohra et al., 2023). This labor flexibility has been beneficial for attracting foreign direct investment (FDI), although it raises concerns about worker rights and protections.

In contrast, the European Union (EU) enforces stringent regulatory frameworks across its FTZs, mandating adherence to its strict labor and environmental standards (Mcneill, 2021). Scholars argued that these requirements have led European FTZs to adopt advanced environmental safeguards, such as emission control mechanisms and waste management standards, which help mitigate industrial pollution but increase operational costs (Diep, 2023). This regulatory rigor ensures that FTZs in the EU do not compromise the region’s commitment to labor rights and environmental sustainability. Consequently, while FTZs in regions with strict regulatory oversight may face higher

compliance costs, they also align with global standards that promote ethical business practices and environmental stewardship (Syroid, 2024).

Global Regulatory Challenges

Despite the economic benefits of FTZs, they face complex regulatory challenges in managing compliance with international trade laws, tariffs, and anti-dumping policies. Given the transnational nature of trade, FTZs must navigate a labyrinth of international and bilateral agreements, which can impose conflicting demands on trade practices (Silberberger et al., 2021). Research indicates that FTZs operating in Asia frequently encounter regulatory issues related to tariffs and anti-dumping measures (de Souza & Li, 2022). For example, exports from Asian FTZs into the U.S. market can be subject to anti-dumping duties if their prices undercut U.S. producers, complicating compliance for companies aiming to balance cost-effectiveness with market access. Existing regional trade agreement provisions are insufficient to address synergies between SEZs and RTAs, especially for advanced SEZs and deep RTAs (Chi, 2021).

Furthermore, global trade compliance requirements, such as those imposed by the World Trade Organization (WTO), create additional compliance pressures for FTZs. WTO regulations require FTZs to adhere to fair trade practices, preventing dumping or overly favorable subsidies that distort international markets (Weng & Li, 2024). This compliance framework, though essential for equitable global trade, can limit FTZs' flexibility, especially in countries where subsidies and incentives are crucial for competitive advantage. For instance, African FTZs frequently rely on subsidies to attract investors, but these incentives may conflict with WTO norms (Yaseen & Shafi Sofi,

2024). The need to navigate these regulatory nuances adds a layer of complexity, requiring FTZs to implement sophisticated compliance management systems to balance local and international regulatory demands.

Case Analysis: Comparing Strict and Flexible Regulatory Approaches

Regulatory approaches vary globally, with regions like the EU enforcing strict regulations on FTZs and others, such as certain Latin American and African nations, adopting more lenient frameworks to stimulate economic growth (Sukadi, 2024). In the EU, FTZs are subject to high standards for labor, environmental practices, and trade compliance, which significantly shape operational practices (Zhang, 2024). Studies indicate that FTZs within the EU are required to adhere to the bloc's comprehensive environmental and labor laws, which mandate safety standards, fair wages, and emissions control (Gillis, 2021; Romanchyshyna, 2023). For example, Portugal's Madeira FTZ aligns with the EU's stringent policies, making it one of the most regulated zones globally. While these requirements increase operational costs for businesses, they also ensure that EU FTZs maintain high standards for worker welfare and environmental impact, attracting firms interested in sustainable practices

Conversely, FTZs in regions with more flexible regulations can offer reduced compliance costs, potentially attracting investors seeking a low-regulation environment. Research highlights that African FTZs, such as those in Kenya and Nigeria, often emphasize economic incentives over strict regulatory compliance (Su & Wang, 2024). These zones tend to provide greater flexibility in labor and environmental policies to reduce operational costs and attract multinational corporations. For instance, Nigeria's

Calabar Free Trade Zone operates with less stringent labor laws, allowing more adaptable working conditions, which is advantageous for cost-driven investors but raises concerns regarding labor exploitation and environmental degradation (Weng & Li, 2024). The differences in regulatory frameworks between the EU and Africa illustrate a trade-off between economic growth and social responsibility, where stricter regulations align FTZs with international standards at the expense of higher operational costs, while lenient regulations may promote growth but risk ethical compromises (Doval Hernandez, 2022).

2.16 Technology Integration and Digital Transformation in FTZs

The adoption of digital technologies, such as blockchain and artificial intelligence (AI), is transforming customs and trade processes within Free Trade Zones (FTZs), enabling seamless and efficient management of inventory and documentation (Jaloliddin, 2023). Blockchain, for instance, is increasingly leveraged to create tamper-proof records that facilitate transparency and enhance traceability in customs procedures (Treiblmaier & Beck, 2019). Researchers have emphasized that blockchain's decentralized nature mitigates risks associated with document tampering and counterfeit goods, which are prevalent concerns in global trade (Domenicale et al., 2024). By utilizing blockchain, FTZs can establish trust between international trade partners and customs authorities, as transaction records are immutable and verifiable in real-time. For instance, the Singapore Free Trade Zone has adopted blockchain for its trade and logistics platforms, enabling faster customs clearance and reducing administrative delays, thus positioning itself as a leader in digital transformation (Rao et al., 2024).

AI is also pivotal in streamlining customs processes by automating inspections, customs declarations, and risk assessments. AI-driven analytics can assess high volumes of data to detect potential compliance risks and optimize routes based on demand patterns, reducing time and financial costs for businesses operating within FTZs (Razumei et al., 2024). In comparative studies, researchers have found that FTZs with AI-enhanced customs systems, like those in South Korea, experienced an improvement in trade efficiency by up to 20%, as customs bottlenecks were minimized. AI-driven analytics can identify discrepancies in transaction records, facilitating quicker resolutions (Landge et al., 2024). Furthermore, AI technologies, such as the XBNet model, enhance risk management by detecting potential fraud in import activities and emphasizing its efficiency in managing import declaration data rather than broader customs process automation or analytics through advanced algorithms (Novith et al., 2023). These digital tools collectively allow FTZs to enhance their logistical efficiency, positioning them as attractive hubs for global trade.

Smart FTZs and the Internet of Things (IoT)

The integration of Internet of Things (IoT) devices is instrumental in the creation of "smart FTZs," where operational processes are automated, enabling improved inventory management, tracking, and operational cost reduction (Omrany et al., 2024). IoT sensors facilitate real-time monitoring of goods, from entry into the zone to final export, providing FTZ operators and businesses with unparalleled visibility over supply chain movements (Zeng et al., 2024). This real-time data significantly reduces delays and enhances accuracy in inventory tracking, as goods can be monitored continuously,

preventing issues such as misplacement and unauthorized diversions. (Chataut et al., 2023) For example, IoT-enabled devices within the Jebel Ali Free Zone in the UAE contribute to streamlined warehousing by alerting operators to temperature changes or damage, thus preserving the quality of goods, especially in sectors such as pharmaceuticals and food.

IoT also plays a key role in security and compliance, as sensors detect and respond to any anomalies, such as unauthorized movements or access violations. Researchers noted that FTZs adopting IoT-enabled systems experience enhanced compliance with trade regulations, as IoT devices ensure that goods are only handled by authorized personnel, reducing the risk of smuggling and unauthorized modifications (Elgazzar et al., 2022; Wang et al., 2024). The data-driven insights generated by IoT further aid decision-making by enabling FTZ operators to adjust operations in real time, thereby increasing efficiency. IoT's transformative impact on FTZ operations not only improves operational transparency but also strengthens trade security, positioning these zones as critical nodes in global supply chains (Udeh et al., 2024).

Case Studies: Technology-Advanced FTZs versus Lagging Zones

A comparison of technology-integrated FTZs, such as the Shanghai FTZ and Dubai's Jebel Ali Free Zone, with those that lag behind, illustrates the advantages of advanced technology adoption in terms of competitiveness and trade transparency. The Shanghai FTZ, for instance, has implemented blockchain platforms in partnership with logistics firms and government agencies, creating a highly transparent and efficient ecosystem for customs and trade (Gürcan, 2022). These systems reduce manual errors

and improve processing speed, making Shanghai a preferred location for high-tech and high-value goods. Wu et al. (2024) highlighted how blockchain's traceability feature in the Shanghai FTZ has cut down customs clearance time by 30%, contributing to increased trade volumes and positioning the FTZ as a regional leader in digitalization.

In contrast, FTZs in regions with limited technology infrastructure face operational inefficiencies, increased administrative costs, and reduced attractiveness to global investors. For instance, the Bole Lemi Industrial Park in Ethiopia, while strategically located, lacks the technological capabilities seen in advanced FTZs, leading to longer processing times and reduced operational transparency (Guteta & Worku, 2022). These limitations make it difficult for the zone to attract high-tech industries, which prioritize efficient logistics and secure, transparent systems. The absence of digital systems in such FTZs restricts their competitiveness, indicating that digital transformation is essential for FTZs aiming to attract diverse and high-value trade activities (Leão & da Silva, 2021).

2.17 Human Capital, Labor Dynamics, and Workforce Development in FTZs

Labor dynamics in FTZs are complex, and often characterized by varied labor conditions, fluctuating employment rates, and diverse skill requirements, which differ significantly across regions (Nguyen, 2024). Labor conditions within FTZs are frequently influenced by the regulatory environment, economic objectives, and social expectations of the host country (Teixeira, 2020). Dix-Carneiro et al. (2023) showed that labor conditions in FTZs in Asia and Africa vary widely, with some FTZs providing competitive wages and benefits while others exploit low-wage labor. In Southeast Asia,

for example, countries like the Philippines and Malaysia have implemented minimum wage standards within FTZs, resulting in more favorable labor conditions and higher levels of job satisfaction (Chen et al., 2024). However, in Sub-Saharan Africa, certain FTZs offer limited protections, exposing workers to precarious working conditions and low wages, which reduces job stability and affects workforce morale (Weng & Li, 2024).

Employment rates within FTZs also fluctuate based on economic cycles, regional stability, and global market demands. FTZs in emerging economies often create jobs in the manufacturing sector, which typically experiences high turnover rates due to seasonal demand and limited job security (Dix-Carneiro et al., 2023). FTZs in regions such as Latin America and South Asia generate significant employment but often fail to provide long-term employment stability (Abugamza et al., 2024; Holzer et al., 2021). These findings suggest that while FTZs can be instrumental in boosting short-term employment, the sustainability of these jobs depends largely on factors such as workforce skill development and economic diversification, which require focused policy support (Abugamza et al., 2024). These findings highlights a critical link between labor dynamics and the broader economic resilience of FTZs, as regions with more robust labor protections tend to have more resilient workforces capable of adapting to changing market demands (Holzer et al., 2021).

Skill Development and Workforce Training

Skill development and workforce training in FTZs are crucial for enhancing productivity and supporting economic growth, especially in emerging economies where technical skills and vocational training may be limited (Yining & Wu, 2024). Many FTZs

have introduced initiatives to upskill workers in response to the increasing demand for technical expertise and the shift toward automation and advanced manufacturing. Fleddermann et al. (2024) found that programs in the Dominican Republic and Vietnam focus on technical training in electronics and textile manufacturing, equipping workers with the necessary skills to operate sophisticated machinery and adhere to quality control standards. These programs have improved labor productivity and helped reduce turnover rates, indicating that targeted training can significantly impact workforce stability and FTZ productivity.

Skill-building initiatives are also shaped by public-private partnerships and foreign direct investment (FDI), which bring in new technologies and training methodologies. FTZs in China and Malaysia, backed by foreign investment, have developed specialized training centers and vocational programs to meet the skill demands of high-tech industries (Chvanova et al., 2021; Vinayan et al., 2020). These centers offer courses in electronics, logistics, and advanced manufacturing, aligning the workforce's skills with the technical requirements of multinational corporations operating in FTZs. However, the effectiveness of these training initiatives varies, as some regions lack the resources or infrastructure to establish comprehensive training programs (Pingle, 2024). These differences highlight the importance of policy support in ensuring equitable access to skill development across FTZs, which is crucial for achieving long-term economic growth and workforce sustainability.

2.18 Role of FTZs in Global Value Chains (GVCs)

FTZs play a crucial role in enhancing integration within Global Value Chains (GVCs), primarily by facilitating production, trade, and supply chain coordination for multinational corporations (MNCs) (Rudzitis et al., 2024). FTZs enable firms to operate in strategically positioned areas that offer favorable trade policies, reduced tariffs, and streamlined customs processes, all of which are essential for GVC efficiency. Studies by Baldwin and Okubo (2019) suggested that FTZs increase GVC participation by reducing logistical bottlenecks, allowing MNCs to efficiently relocate different stages of production across borders to benefit from cost and time efficiencies. For example, the electronics industry, which often requires complex global sourcing of components, relies on FTZs to manage the extensive network of suppliers, manufacturers, and distribution centers that make up the value chain (Baldwin & Okubo, 2019).

The ability of FTZs to integrate into GVCs also depends on the presence of efficient customs processing and regulatory support, which enables seamless flow across stages of production. Hummels and Schaur (2020) demonstrated that FTZs equipped with digitalized customs processes, such as those in South Korea and the United Arab Emirates, facilitate faster clearance times and reduce the risk of delays. This ease of movement is critical to industries such as automotive and pharmaceuticals, where just-in-time (JIT) production models require reliable cross-border logistics. The analysis revealed that FTZs effectively lowered trade costs and provide flexibility for MNCs, thereby strengthening their positions in GVCs (Hummels & Schaur, 2020).

However, the effectiveness of FTZs in GVC integration depends on various factors in the local business environment. Efficient customs processing and regulatory support are particularly important, as evidenced by the significant negative association between time required for trade procedures and GVC integration (Dovis & Zaki, 2020). Other factors affecting GVC integration include tax payment duration, property registration procedures, and overall trade facilitation measures (Dovis & Zaki, 2020).

Value Addition and Export Competitiveness

FTZs significantly contribute to value addition in various sectors, enhancing export competitiveness and allowing regions to participate more meaningfully in Global Value Chains (GVCs) (Wang et al., 2024). Key industries, such as electronics, textiles, and automotive, are heavily reliant on the value-added processes that FTZs facilitate. In the electronics industry, for example, FTZs enable multinational corporations (MNCs) to perform intermediate stages of production, such as component assembly or testing, before final products are exported, often duty-free (Su & Wang, 2024). Lou et al. (2023) further revealed that electronics FTZs in East Asia, particularly in Malaysia and Thailand, add value by specializing in high-tech assembly and testing operations. These zones have developed expertise in handling sensitive electronics components, thereby positioning themselves as essential links in electronics GVCs.

Textile FTZs also play a major role in value addition, particularly by incorporating advanced manufacturing and finishing processes. These operations allow developing economies, such as Bangladesh and Vietnam, to engage in value-added activities like dyeing, garment finishing, and packaging, rather than merely assembling

components. Studies support this by showing how textile FTZs in South Asia have transitioned from basic assembly to higher stages of production, thus increasing their export competitiveness and economic contribution. This transition is particularly vital for these regions, as it enhances their role within the global textile GVC, enabling them to retain a greater share of the economic benefits generated by trade. Therefore, FTZs are not only nodes for processing but also catalysts for upgrading local industries and boosting export competitiveness456.

GVC Case Examples

A comparative analysis of successful and struggling FTZs offers insights into the characteristics that contribute to their varying roles within global value chains (GVCs). Successful FTZs, such as the Singapore FTZ and the Jebel Ali Free Zone in Dubai, have become critical nodes in GVCs by creating an ecosystem of infrastructure, regulatory efficiency, and business services that attract multinational corporations (MNCs) (Nege & Abegaz, 2024). Singapore's FTZ, for instance, provides cutting-edge logistics and supply chain facilities, tax incentives, and a stable regulatory environment, which together make it a preferred destination for high-value manufacturing and transshipment in industries like electronics and pharmaceuticals (Nege & Abegaz, 2024). Researchers have emphasized that these advantages allow Singapore's FTZ to serve as a pivotal hub, attracting major players in technology and biomedicine who rely on efficient and secure production networks (Nawaz & Koç, 2019).

On the other hand, FTZs that struggle to attract GVC participation often lack the infrastructure, regulatory support, or skilled workforce necessary to integrate effectively

into these networks (Al-Diasti et al., 2024). For example, FTZs in Sub-Saharan Africa have faced challenges in becoming GVC hubs due to weak governance structures, inadequate transport and logistics facilities, and limited financial resources for investing in essential infrastructure (Kuteyi & Winkler, 2022). Studies indicate that, while these zones have potential, they are hindered by logistical inefficiencies and policy constraints, making it difficult for them to attract and retain MNCs. This comparative analysis highlights how successful FTZs combine policy incentives, infrastructure, and human capital to support GVCs, whereas struggling FTZs often lack the necessary alignment of these factors, underscoring the role of comprehensive support systems in achieving GVC integration (Rajabova et al., 2020; Rodríguez-Pose et al., 2022).

2.19 Role of FTZs in Regional Economic Integration and Cooperation

FTZ play a significant role in amplifying the effects of regional trade agreements (RTAs) by enhancing intra-regional trade flows and fostering economic collaboration (Chen et al., 2024). FTZs benefit from reduced trade barriers and standardized regulations that RTAs offer, making these zones attractive for businesses aiming to capitalize on favorable trade conditions (Agrawal et al., 2023). Research indicates that FTZs within NAFTA countries (now USMCA) serve as critical conduits for goods moving between the United States, Mexico, and Canada (Su & Wang, 2024). These FTZs align with RTA provisions on reduced tariffs and harmonized customs procedures, which allow industries, particularly the automotive and electronics sectors, to optimize production networks across borders (Weng & Li, 2024). By leveraging NAFTA's

streamlined trade policies, FTZs contribute to higher intra-regional trade volumes, reduce logistical costs, and stimulate cross-border economic activity.

ASEAN provides another example of FTZs bolstering intra-regional trade through alignment with the ASEAN Free Trade Area (AFTA). Research demonstrates how ASEAN-based FTZs promote regional trade by adhering to AFTA's principles, including the common effective preferential tariff scheme (Moyo, 2023; Nathania Dianzah, 2022). This scheme reduces tariffs among ASEAN members and strengthens regional supply chains by incentivizing multinational corporations (MNCs) to locate intermediate production stages within ASEAN FTZs. For example, electronics and garment production in Thailand and Vietnam has increased due to these FTZs' access to regional markets, furthering the integration goals of AFTA (Zwanbin, 2023). Therefore, the interaction between FTZs and RTAs plays an essential role in reinforcing intra-regional trade and fostering economic synergies among member nations.

Promoting Regional Supply Chain Integration

FTZs are instrumental in building robust regional supply chains by reducing dependency on distant suppliers and encouraging local and regional production networks (Rajabova et al., 2020). The establishment of FTZs near regional trading hubs enables firms to source materials locally, minimizing lead times and reducing transportation costs. Research underscores how FTZs in the European Union and Latin America help foster localized supply chains by encouraging the co-location of suppliers and manufacturers within FTZ boundaries (Agrawal et al., 2023). This proximity to suppliers is particularly beneficial for industries with high input-output linkages, such as the

automotive and aerospace sectors, where component availability is critical for minimizing production delays and optimizing inventory management.

The expansion of regional supply chains through FTZs also strengthens economic interdependence, creating a mutually beneficial environment for FTZs and their host regions (Katsaliaki et al., 2021). Evidence shows that FTZs in East Asia, particularly those in South Korea and China, have led to greater regional collaboration by facilitating supply chain integration within the Asia-Pacific (Chen et al., 2024). Through close collaboration with local suppliers, East Asian FTZs enable multinational corporations (MNCs) to source raw materials regionally, thus strengthening supply chain resilience and economic linkages. As a result, these FTZs contribute to deeper economic integration within regions and reduce the need for relying on geographically distant supply chains, enhancing the strategic economic independence of participating regions (Wang et al., 2024).

Case Studies

Certain FTZs exemplify the role of these zones in driving regional trade and economic integration, while others illustrate the challenges associated with limited regional connectivity due to political or economic constraints (Wang & Kong, 2024). The East African Community's (EAC) Export Processing Zones (EPZs) are a prime example of successful FTZs fostering regional integration (Lin & Zhang, 2024). Research indicates that the EAC's EPZs, especially those in Kenya and Tanzania, have facilitated intra-regional trade by creating a conducive environment for export-oriented industries, such as agriculture and textiles (Lin & Zhang, 2024). These zones benefit from the

EAC's Customs Union, which reduces tariff barriers among member countries, leading to increased trade flows within the community. This intra-regional trade boosts economic growth and supports job creation, reinforcing the EAC's goal of fostering closer economic ties between its member states (Lin & Zhang, 2024).

Conversely, FTZs in politically isolated or economically restricted regions struggle to achieve the same level of integration. Research reveals that FTZs in North Africa, particularly in countries like Algeria, face obstacles to regional trade integration due to restrictive trade policies and political tensions within the Maghreb region (Larguet & Bouakkaz, 2023). These FTZs operate within a fragmented regulatory landscape that lacks the harmonized trade protocols necessary for cross-border collaboration. As a result, North African FTZs remain underutilized and disconnected from potential regional value chains, illustrating how political and economic limitations can inhibit the integrative potential of FTZs (Frikha & Gabsi, 2024; Rodríguez-Pose et al., 2022). The case studies from the EAC and North Africa underscore the importance of supportive political and economic frameworks in determining the effectiveness of FTZs as facilitators of regional trade and integration (Rodríguez-Pose et al., 2022).

2.20 Industry-Specific Applications of FTZs

FTZs play an essential role in the heavy manufacturing sectors, including automotive and electronics, where duty-free import/export benefits significantly enhance operational efficiency and cost-effectiveness. In the automotive industry, FTZs enable manufacturers to import raw materials and components duty-free, which they assemble within the FTZ and later export as finished vehicles (Di Nino et al., 2020). Reports

indicated that FTZs in the U.S., like those in Detroit and South Carolina, serve as strategic hubs for auto manufacturers, enabling them to access global supply chains without incurring tariffs on imported parts (Gracia & Jones, 2023). This setup is especially critical in industries with complex production processes that require the seamless import of high-value components like electronic control units and engines. Similarly, research on the electronics sector demonstrates how FTZs in East Asia, particularly in South Korea and Taiwan, facilitate the efficient import and assembly of semiconductors and other high-tech components (Thorbecke, 2023). These zones are crucial in enabling companies to minimize costs and align with just-in-time (JIT) manufacturing practices, which are central to electronics production.

The duty-exemption benefits of FTZs are particularly advantageous in heavy manufacturing industries with high tariff burdens and complex supply chains. Further studies examine how FTZs in Mexico, such as those along the U.S.-Mexico border, leverage the duty-free import of auto parts under the maquiladora system, allowing automotive and electronics companies to maintain competitive production costs (Mendoza-Velázquez & Rendón-Rojas, 2021). These zones are also designed to maximize efficiency by offering streamlined customs procedures and tax incentives that encourage foreign direct investment (FDI) and stimulate job creation in local economies (Guzman-Anaya, 2023). Through these arrangements, FTZs become essential to industries that rely on complex, multi-tiered supply chains, allowing manufacturers to maintain competitive production timelines and reduce costs associated with tariffs. The

automotive and electronics sectors thus benefit from FTZs as critical facilitators of international trade and cost-effective production (Guzman-Anaya, 2023).

E-commerce and Logistics

The e-commerce sector has seen exponential growth in recent years, and FTZs have become pivotal in supporting this industry's logistics and fulfillment needs. As online retail giants like Amazon and Alibaba expand their global footprint, FTZs provide a means to establish large-scale fulfillment centers and manage last-mile delivery more effectively (Ma & Zhang, 2020). The construction of FTZs under initiatives like China's belt and road has positively influenced e-commerce, food security, and technological innovation, with cultural compatibility and social inclusivity acting as important moderators (Beibei, 2023). Studies reveal how e-commerce companies utilize FTZs to manage inventory and facilitate rapid cross-border order fulfillment. By storing products in FTZs near major urban centers, e-commerce platforms can bypass customs delays and expedite last-mile delivery, which is crucial for meeting consumer expectations for fast delivery times (Karl, 2024). FTZs also reduce the complexities associated with international shipping and tax regulations, enabling companies to minimize overhead costs and pass on savings to consumers (Wang & Kong, 2024).

In addition to fulfillment, FTZs play a critical role in enabling e-commerce firms to conduct high-volume cross-border transactions. Research shows how FTZs in the European Union, such as those in the Netherlands, serve as central logistics hubs that allow e-commerce firms to manage shipments across multiple countries without incurring multiple customs checks (Li, 2021). This configuration not only reduces shipping costs

but also enhances operational flexibility, which is essential in the fast-paced e-commerce sector (Atmojo et al., 2023). By centralizing inventory in FTZs, e-commerce companies gain better control over their supply chains, allowing them to optimize order management systems and improve inventory accuracy (Atmojo et al., 2023). As a result, FTZs become a vital component in the logistics networks of e-commerce companies, supporting the industry's rapid growth by streamlining fulfillment and enhancing cost.

Pharmaceutical and Medical Supplies

In the pharmaceutical and medical supply sectors, FTZs have emerged as critical facilitators of international distribution, especially during health crises where timely access to medical supplies is paramount. According to the Asian Development Bank (2022), FTZs provide an ideal environment for pharmaceutical companies to store and distribute high-value drugs and medical equipment without incurring customs delays or tariffs. Researchers have examined how FTZs in the United Arab Emirates and Singapore have become essential hubs for the pharmaceutical supply chain, where companies use these zones to stage supplies for rapid deployment across Asia, Africa, and the Middle East (Rajabova et al., 2020; Rodríguez-Pose et al., 2022). During the COVID-19 pandemic, FTZs played a crucial role in enabling pharmaceutical companies to meet urgent demand by bypassing the usual customs processes, which expedited the global distribution of vaccines, personal protective equipment (PPE), and other critical medical supplies (Weresa, 2022).

Beyond distribution, FTZs also support the pharmaceutical industry's R&D and manufacturing activities, particularly for companies that rely on imported raw materials

for drug production (Rajabova et al., 2020). Research highlights that FTZs allow companies to import active pharmaceutical ingredients (APIs) duty-free. These components are then used in the production of generic medicines, which are distributed globally (Socal et al., 2023). The availability of FTZs near major research centers and production facilities has thus proven to be an invaluable asset in enhancing the pharmaceutical industry's capacity for large-scale production and distribution. FTZs, therefore, play a critical role in the pharmaceutical sector by supporting streamlined manufacturing and ensuring the rapid, duty-free distribution of essential drugs and medical supplies, particularly during public health emergencies (Rajabova et al., 2020; Socal et al., 2023).

2.21 Future Trends and Policy Recommendations for FTZ Development

In recent years, trends in FTZ development have leaned increasingly towards digitization, sustainability, and specialization in specific high-growth industries like technology and biotechnology (Cheng & Ma, 2023; Wang et al., 2024). The shift towards digital technologies is driven by the need for greater efficiency and transparency in FTZ operations, with digitization offering significant advantages in areas like customs clearance and logistics (Jaloliddin, 2023). For example, recent studies highlight the integration of blockchain technology and artificial intelligence (AI) to streamline customs processes, enhancing data accuracy and reducing the time needed for regulatory checks (Domenicale et al., 2024). Blockchain, in particular, facilitates real-time tracking of goods, enabling stakeholders to access a single source of truth, thereby minimizing disputes and improving operations (Domenicale et al., 2024). This trend towards digital

transformation is expected to continue, especially as global trade volumes rise and demand for rapid, secure trade intensifies.

Additionally, FTZs are evolving to adopt sustainable practices, driven by rising environmental concerns and regulatory pressure. This shift is reflected in policy mandates encouraging lower carbon emissions and waste reduction within FTZs, especially in Europe and parts of Asia (Kumar & Tomar, 2024). According to findings, several FTZs have integrated renewable energy sources, waste management systems, and water-saving measures (Saradara et al., 2023). For instance, the UAE's Dubai South FTZ has implemented sustainable infrastructure with green buildings and renewable energy adoption, setting a benchmark for eco-friendly FTZ (Saradara et al., 2023). Moreover, specialized FTZs focusing on high-value industries, like biotechnology in Singapore's Biopolis or technology hubs in Shenzhen, are emerging as a response to increased demand for innovation-driven sectors (Yan, 2024). These specialized zones provide tailored infrastructure and incentives that attract targeted investment and promote industry clustering, enhancing regional innovation. As digitization and sustainable practices converge with industry specialization, FTZs are adapting to support advanced manufacturing and knowledge-intensive industries, reflecting a significant evolution from traditional models (Schiavone et al., 2022).

Policy Recommendations

With the evolution of Free Trade Zones (FTZs) towards modern, tech-driven operations, policy adjustments are necessary to address the emerging challenges and optimize the benefits of FTZs (Yang, 2024). One crucial area is the need for policies

promoting environmental sustainability within FTZs. Research points out that many FTZs operate in regions with less stringent environmental regulations, which can result in unsustainable practices that negatively impact local communities and ecosystems (Zhuo et al., 2021). To mitigate these effects, policies should mandate environmental impact assessments (EIAs) for FTZ projects and incentivize the adoption of renewable energy, eco-friendly logistics, and waste reduction systems. Introducing tax incentives or subsidies for companies in FTZs that adopt green practices could encourage environmentally responsible operations while enhancing corporate social responsibility (Zeng et al., 2024). Tax incentives promote green innovation and CSR activities, primarily through cash savings and pollution abatement mechanisms.

Equitable labor practices are also critical in the context of FTZs, where labor exploitation can occur due to lax regulations. Hiba et al. (2021) emphasized on the importance of policies that enforce international labor standards within FTZs to ensure fair wages, safe working conditions, and freedom of association for workers. Many FTZs, particularly in emerging economies, rely on low-cost labor to attract foreign investment, often at the expense of workers' rights (Cotula & Mouan, 2021). To address this, policy frameworks need to incorporate protections for labor rights consistent with International Labour Organization (ILO) standards and include penalties for companies that violate these standards (Venkateswarlu, 2023). Additionally, developing an independent regulatory body to monitor labor conditions in FTZs can help enforce compliance and improve labor dynamics (Venkateswarlu, 2023). Finally, enhancing global trade compliance through harmonized policies across FTZs can help mitigate trade disputes

and improve integration with the international trade system (Shermamatova, 2024). Policies that encourage FTZs to adopt global standards for customs processes, tariffs, and anti-dumping measures would facilitate smoother, fairer trade practices on a global scale (Agamagomedova, 2023). International standards, such as those outlined in the Kyoto Convention, aim to unify customs control regulations, establishing minimum compliance levels across countries

2.22 Summary

The literature review revealed that since the inception of the FTZ program in the 1930s, various countries have incorporated the free trade zone program, also known as SEZs in other parts of the world, in their economies. This growth in the number of FTZs could be attributed to the diverse benefits and impacts of the program in their host countries. According to researchers, these benefits include tax exemptions, duty deferrals, duty exemptions, the attraction of investors, creation of employment opportunities, and promotion of industrialization (Bost, 2019; Chaisse & Dimitropoulos, 2021; Chen, 2019; Lu et al., 2019). However, similar to any other program, the FTZ program has some disadvantages. According to previous studies, high unemployment rates have been reported in counties neighboring counties with FTZs (Lane, 2020; Lane & Liu, 2022). The program has also been observed to favor big businesses more than small and medium enterprises, which could account for the limited utilization of the program (Lane, 2020; Naeem et al., 2020). These studies suggest that FTZs have both advantages and disadvantages in their host country.

Researchers have also studied FTZs in the United States. The literature review suggested that the FTZ program has witnessed significant growth and development in the United States (Cheng, 2019; Wong, 2020). As of 2016, FTZs were considered a key part of the U.S. trade policy (Ghosh et al., 2016). The effective utilization of FTZs in the United States has been noted to be critical for its economic development by enhancing trade, attracting foreign investments, and implementing financial transparency (Yao, 2019; Ye et al., 2022). Apart from enhancements in U.S. trade and commerce, the FTZ program has been highlighted as crucial for increasing employment opportunities and promoting the manufacturing of domestic products (Wong, 2020). The findings from these studies suggest that FTZs have had a positive impact on the U.S. economy.

The global landscape of FTZs, a subset of SEZs, showcases diverse regulatory, economic, and operational structures tailored to maximize economic benefits (Najafzada, 2024). In Europe, FTZs enhance customs efficiency and provide tax relief under stringent EU regulations, exemplified by Ireland's Shannon Free Zone, which attracts high levels of foreign direct investment (FDI) through tax benefits and streamlined customs (Di Nino et al., 2020; Guan et al., 2024). Asia's FTZs, such as China's Shenzhen SEZ, focus on rapid industrialization, export growth, and large-scale FDI attraction, benefiting from deregulated labor laws and minimal trade restrictions (Nguyen & Tien, 2021; Yusufu & Lu, 2024). In Africa, FTZs like Nigeria's Lekki Free Zone aim to attract FDI and create jobs but face challenges due to bureaucratic inefficiencies and inadequate infrastructure (Massil & Eric, 2024; Yusufu & Lu, 2024).

Free Trade Zones (FTZs) are crucial in global supply chains, enhancing the efficient movement of goods, reducing costs, and streamlining inventory management (Katsaliaki et al., 2021). They offer cost advantages through deferred duties and exemptions, making them attractive for industries with rapid inventory turnover (Solari et al., 2024). FTZs also bolster supply chain resilience by allowing firms to diversify supply sources and optimize storage, which mitigates the impact of disruptions like the COVID-19 pandemic (Madzík et al., 2024; Sultana et al., 2024). However, challenges such as political instability, inadequate infrastructure, and bureaucratic inefficiencies can hinder their effectiveness in certain regions, indicating a need for further research to maximize their potential (Raub et al., 2024). While the benefits of FTZs in supply chain dynamics and resilience are well-documented, there is still a need for further research on overcoming challenges related to political instability, inadequate infrastructure, and bureaucratic inefficiencies that can hinder their effectiveness in certain regions.

Significant environmental concerns associated with Free Trade Zones (FTZs), particularly in developing economies where regulatory oversight is often limited have been highlighted (Li et al., 2022). FTZs in regions such as Asia and Africa tend to contribute to pollution due to relaxed environmental regulations, leading to increased waste, emissions, and resource depletion (Zhang & Zhou, 2023). While some countries, like China, have implemented environmental protection measures over time to mitigate these effects (Wang et al., 2021), the overall pattern indicates a troubling environmental cost. The integration of digital technologies like blockchain and AI has begun transforming customs and trade processes within FTZs, enhancing transparency and

efficiency (Jaloliddin, 2023). However, the effectiveness and uniform adoption of such technologies remain inconsistent, particularly in regions lacking the necessary infrastructure (Guteta & Worku, 2022).

Regulatory frameworks within FTZs vary significantly across regions, impacting labor standards, environmental protections, and compliance with international trade laws (Mcneill, 2021). The literature indicates that while regions like the EU enforce stringent regulatory frameworks ensuring high labor and environmental standards (Diep, 2023), other regions adopt more lenient approaches to attract foreign investment, often at the cost of worker rights and environmental sustainability (Syroid, 2024). Additionally, FTZs play a crucial role in global value chains, particularly in industries such as electronics and automotive, by facilitating efficient trade and production processes (Baldwin & Okubo, 2019). Yet, there is a need for more comprehensive studies exploring the long-term impacts of FTZs on local economies and ecosystems, especially in developing regions. Moreover, while digitization and sustainable practices are emerging trends, the literature lacks detailed analysis of their widespread implementation and effectiveness across different FTZs (Schiavone et al., 2022).

Despite the relevance and significance of FTZs, scholarly works focusing on the U.S. FTZ program are lacking. Researchers have specifically highlighted that an appropriate understanding of FTZs, their utilization, and their benefits is required, particularly by potential users, such as importers, of these zones (Bettina Cornwell, 1989; S. Frick & Rodríguez-Pose, 2019; Lane & Liu, 2022). The aim of this study was to address this gap in the literature by exploring why importers in the United States do not

advantage of the cost-saving benefits of the FTZ program in their logistics operations. This section concludes Chapter II. Chapter III contains details of how the gap established in Chapter II was addressed by providing details of the research design employed and the rationale behind its use as well as the methodology for data collection and analysis.

CHAPTER III:

METHODOLOGY

3.1 Overview of the Research Problem

The problem addressed by this study was the underutilization of FTZs by importers in the United States despite the cost-saving benefits in their logistic operations. Through a mixed-method approach, the findings of this study are expected to provide valuable insights into the challenges faced by importers when considering using FTZs and the level of awareness of the importers concerning FTZs and their cost-saving benefits. These insights are expected to shed light on strategies that will promote the effective utilization of FTZs in the logistics operations of importing companies in the United States.

3.2 Operationalization of Theoretical Constructs

The purpose of this study was to explore the reasons why importers in the United States do not take advantage of the cost-saving benefits of using FTZs in their logistic operations. To achieve this purpose, the researcher measured two key theoretical constructs, namely, “awareness of cost-saving benefits” and “challenges of using FTZs.” Measuring these constructs helped the researcher understand the level of knowledge the importers had concerning the cost-saving advantages associated with using FTZs and the specific difficulties encountered by importers when considering to use FTZs for their logistics activities.

To measure the awareness of cost-saving benefits, the researcher employed a survey approach. The survey consisted of questions that assessed the importers'

knowledge of FTZs, their understanding of the potential cost-saving benefits, and their familiarity with the policies and procedures associated with FTZ usage. Responses to the aforementioned questions were quantified on a Likert scale to rate their level of understanding, ranging from 1 = *Strongly disagree* to 5 = *Strongly agree*.

To measure the challenges of using FTZs, the researcher also employed a survey approach. The survey consisted of questions about the severity of specific obstacles and difficulties that importers encountered when considering the use of FTZs in their logistics operations. Responses to these questions were quantified on a Likert scale to measure the level of severity of each challenge, ranging from 1 = *Not challenging* to 5 = *Extremely challenging*.

The researcher complemented the quantitative data collected through the surveys that included open-ended questions to gather qualitative insights from the importers. This qualitative data allowed the researcher to gain deeper insights into the importers' perspectives and experiences regarding FTZ awareness and the challenges they encountered. Combining these two data sets was expected to not only enhance the validity of findings but also provide a comprehensive understanding of the factors that contributed to the underutilization of the cost-saving benefits associated with FTZs by importers in the United States.

3.3 Research Purpose and Questions

The purpose of this mixed-methods study was to explore why importers do not take advantage of the cost-saving benefits of using FTZs in their logistics operations in

the United States. To achieve this purpose, the researcher sought to answer the following overarching research question:

Research Question

Why do importers in the United States fail to leverage the cost-saving benefits of using FTZs in their logistics operations?

The following sub-research questions were generated to further guide this study:

Sub-Research Question 1

What level of awareness do importers in the United States have regarding the cost-saving benefits of using FTZs in their logistics operations?

Sub-Research Question 2

What challenges do importers in the United States face with regard to using FTZs in their logistics operations?

3.4 Research Design

The research approach adopted for this study was a mixed-methods research design. Creswell (2021) defined mixed-method research as a study that incorporates the gathering and examination of both quantitative and qualitative data within a single study. Creswell et al. (2003) further posited that the aforementioned data can be collected either simultaneously or in a sequential manner, with an emphasis on their respective importance, and are integrated at one or multiple stages throughout the research process. Mixed-methods research approaches involve the use of both qualitative and quantitative methods in a single study to allow researchers to widen their inquiry with sufficient depth and breadth (Dawadi et al., 2021). This approach allows researchers to draw on the

strengths of both qualitative and quantitative approaches when addressing the research questions of a study.

The integration of qualitative and quantitative methods in a mixed-methods study can occur either sequentially or concurrently (Dawadi et al., 2021). In sequential mixed-methods studies, the collection and analyses of both qualitative and quantitative data are implemented in different phases and each is integrated in a separate phase. In convergent or concurrent mixed-methods studies, qualitative and quantitative data sets are collected concurrently, and the analysis and integration of results occur after data collection is completed (Dawadi et al., 2021). This approach allows the exploration of data from multiple perspectives.

In this mixed-methods study, the approach adopted was convergent mixed-methods design. The researcher expected the convergent-mixed methods design to be optimal for this study because the underexplored phenomenon of the limited utilization of FTZs would be explored from multiple perspectives. Data obtained from qualitative and quantitative methods were expected to provide a deeper comprehension of the diverse perceptions of U.S. importers. A deeper understanding of these perceptions was expected to provide two distinct lenses to understand the levels of awareness and the challenges faced by U.S. importers regarding leveraging the cost-saving benefits of using FTZs in their logistics operations.

3.5 Population and Sample

The population of this mixed-methods study consisted of importing companies in the United States. Based on the 2020 data from the United States Census Bureau, a total

of 139,482 companies solely engaged in importing operations across the United States (United States Census Bureau, 2022). For this study, 139,482 importing-only companies in the United States represented the study population. The study encompassed all importing companies linked to any of the 195 active FTZs out of the 260 approved zones in the United States. This approach ensured a diverse data set that represented importing companies associated with FTZs across different states in the United States. The rationale for choosing importing companies associated with FTZs as the study population lay in their relevance to the research question. The large size of the population also offered statistical confidence and an opportunity to gain insights from a diverse and nationally representative data set.

The study sample was a subset of the study population. This sample included a minimum of 50 importing companies in the United States. The proposed study sample included a maximum of 100 quantitative survey respondents and a minimum of 20 open-ended survey respondents. The rationale behind the chosen sample size was to strike a balance between having enough data that could address the research questions effectively and avoidance of an excessively large number of survey responses that would be challenging to manage and analyze. A very small sample size may not have provided enough data points to draw meaningful and reliable conclusions from the study. On the other hand, an overly large sample size (a large number of survey responses) might have been resource-intensive and could have delayed the research process unnecessarily.

3.6 Participant Selection

The researcher used random probability sampling to select the participants. According to Teddlie and Yu (2007), probability sampling is recognized as an effective sampling method in mixed-methods research because of its ability to facilitate the creation of a sample that accurately represents the study population, enhances generalizability, and enables the acquisition of both quantitative and qualitative data. In random sampling, each individual in the defined study population has an equal probability of being selected to participate in the study (Acharya et al., 2013). The random sampling technique ensures that the selection of each participant in a study is independent of the selection of other individuals within the study population (Teddlie & Yu, 2007). Random sampling, for this study, ensured that the researcher generated a representative and generalizable sample of importers in the United States. The use of random probability sampling in the current study ensured a more robust and trustworthy research approach. A representative and generalizable sample was generated, which was essential for drawing meaningful conclusions and making broader implications about the utilization of FTZs by importers in the United States.

Before selecting the participants and data collection, the researcher secured institutional review board (IRB) approval to ensure the ethical integrity of the study. IRB approval ensured that all ethical considerations were met within the study, participants' rights were not violated, and no psychological and physical risks were associated with participating in the study, as highlighted by Sanjari et al. (2014). The participant's voluntary consent form contained an explanation of the purpose of the study, the

voluntary nature of participation, the rights of the participants, any potential risks or benefits of the study, and contact information of the researcher and IRB officials in case a participant wanted to contact the IRB. Because data collection occurred using an open-ended survey via phone call, the researcher read the consent form and asked the participant to give verbal consent, which was recorded before any research-related questions were asked. The researcher documented all agreements and addressed any concerns that any participant expressed relating to the study before their participation. All of the aforementioned procedures were expected to protect participants from ethical violations and enhance the overall quality of the study.

Quantitative data collection adhered to the following process of selecting participants for the study. First, the researcher identified all online available forums and associations of importer companies in the United States. The next step was posting a survey request in the identified forums or sending the survey request to the contact person of the identified importer associations. The survey request included a summary of the study, its potential benefits to U.S. importers, a voluntary consent form, and a SurveyMonkey link to the quantitative survey developed by the researcher. Only those participants who accepted the request and signed the voluntary consent form participated in the study. The researcher attempted to recruit a minimum of 100 quantitative survey respondents for the study.

To collect qualitative data, the following process was adhered to. The researcher first located available contact numbers for importer companies in the United States and then contacted these random importer companies via phone call and requested them to

participate in an open-ended survey on that same phone call. Before proceeding with any research-related questions, the researcher explained the purpose of the study, the voluntary nature of participation, the rights of the participants, and any potential risks or benefits of the study to U.S importers. The participants were then asked whether they agreed to take part in the study and they gave their verbal consent. Only those participants who accepted the request and provided their verbal consent were allowed to participate in the study. The researcher attempted to recruit a minimum of 20 open-ended survey respondents in the study.

3.7 Instrumentation

Because the research instruments used in this study were a researcher-developed quantitative survey and an open-ended survey, the researcher conducted a pilot study that involved a small number of individuals who fit the eligibility criteria. The purpose of the pilot study was to replicate the main study, enabling the researcher to identify potential areas of concern and devise optimal methods to address these issues before commencing the current study, as Malmqvist et al. (2019) advised. The pilot study helped address problems with participant recruitment, data collection procedures, and sampling strategy (Malmqvist et al., 2019). The pilot study procedures for participant selection and data collection followed the same procedures outlined for the main study. The goal of the researcher was to recruit at least three to four participants for the pilot study. This small number allowed the researcher to assess the data collection protocol's acceptability and provide data on improvisation in the main study where necessary.

Data collection for this study involved two data collection instruments: a researcher-developed quantitative survey and an open-ended survey. The quantitative survey addressed the importers' company type, the major type of import products, and the number of years of the company's import business. It also included close-ended questions with 5-point Likert scale responses. The Likert scale included two sets of choices for the closed-ended questions (a) *strongly agree*, *agree*, *not sure*, *disagree*, and *strongly disagree* and (b) *not challenging*, *slightly challenging*, *moderately challenging*, *very challenging*, and *extremely challenging*. The questions focused on the importers' level of awareness of the FTZ program, level of knowledge regarding the cost-saving benefits of using FTZs, level of awareness regarding resources that can help them use FTZs, perceptions on the accessibility of using FTZs for their logistics operations, perceptions on the cost of using FTZs for their logistics operations, the severity of the obstacles and difficulties they encounter when considering the use of FTZs in their logistics operations, and inclinations toward using FTZs for their logistics operations.

The quantitative survey also included a couple of multiple-choice questions about the benefits received or expected to be received by importers and the challenges they encounter when using FTZs for their logistics operations. The quantitative survey included 12 questions. The participants took 5–7 minutes to complete the quantitative survey. Similar to the quantitative survey, the researcher-developed open-ended survey addressed the research questions of the study. The open-ended survey contained questions about the main product or products imported by the importer's company and the number of years their company had been in operation. The researcher then asked

open-ended questions regarding the importers' awareness of the FTZ program, their knowledge of the benefits of using FTZs, their perspectives on the costs and accessibility of using FTZs, and their perceived challenges in using FTZs for their logistics operations. The open-ended survey included four questions. The participants took 10–15 minutes of their time to complete answering the open-ended survey.

3.8 Data Collection Procedures

Data collection occurred in two phases: the quantitative phase and the qualitative phase. For the quantitative phase, the researcher first developed the survey questionnaire administered to the participants. Identification of online forums and associations of importer companies in the United States followed. The researcher then created a SurveyMonkey link to the initially developed quantitative survey questionnaire and then posted it on the identified online forums and associations of importer companies in the United States. Only importers who came across the SurveyMonkey link, filled out the consent form, and were interested in participating in the study filled out the quantitative survey questionnaire. Their responses were automatically available to the researcher through SurveyMonkey after submitting their filled-out survey.

For the qualitative phase, the researcher first identified contacts from random importer companies followed by placing calls to the random importer companies to request their participation in an open-ended survey. If an importer agreed to participate and gave their verbal consent, the researcher informed them that the phone call was being recorded. The researcher then closely followed the developed open-ended survey to

gather information regarding why importers in the United States do not take advantage of the cost-saving benefits of using FTZs in their logistics operations.

3.9 Data Analysis

Data analysis in this study occurred at three different levels: (a) analysis of quantitative data, (b) thematic analysis of the qualitative data, and (c) integration of the quantitative and qualitative findings. Quantitative analysis involved the analysis of data gathered from survey responses. These data were analyzed using frequencies and percentages as well as means and standard deviations to determine the level of awareness of participants and their level of agreement to the challenges. The frequencies of the importers' responses were also estimated.

The qualitative analysis involved the analysis of data gathered from open-ended survey responses using thematic analysis. The researcher first transcribed the audio-recorded phone calls with the importers using an online transcription tool, Konch.ai. The next step was reading each transcript carefully to have a grasp of the importers' responses. The researcher then used data from these transcripts to generate codes, sub-themes, and themes. Hand coding then followed to develop codes. This step entailed reading the transcripts, making notes of relevant points discussed from importers' responses, and adding short phrases or "codes" that represented the essence of the noted points. After completing the coding process, the researcher analyzed the codes to check for codes that conveyed similar essences. These codes were merged to form subthemes. The researcher then used the subthemes to generate final study themes that aligned with the research questions that guided the study.

The researcher then integrated the quantitative and qualitative findings. This phase involved analyzing the statistical results obtained from the quantitative data in tandem with the themes obtained from the thematic analysis of the qualitative data. The researcher correlated the numeric data, which indicated the trends of importers' perspectives concerning their underutilization of the cost-saving benefits of FTZs, with the developed themes. The rationale for performing the correlation was to present possible explanations for the reasons why U.S. importers do not take advantage of the cost-saving benefits of using FTZs in their logistics operations. Integration of the quantitative and qualitative findings provided a comprehensive depiction of the awareness levels, knowledge, resources, and challenges faced by U.S. importers concerning the utilization of the FTZ program.

3.10 Research Design Limitations

Like any other study, this study was not devoid of limitations related to the research design. In this section, the limitations associated with this mixed-method design approach are presented. The quantitative survey included a Likert scale with the following measures: *strongly agree, agree, not sure, disagree,* and *strongly disagree*. Although this helped understand the general trend of the participants' perspectives, the exact response of the participants to the survey questions could not be measured using the Likert scale. To reduce the design limitation of the Likert-scale questions, the quantitative survey also included a couple of multiple-choice questions. Qualitative data collected through the open-ended survey were used to triangulate the findings from the Likert scale questions.

The use of phone calls to conduct the open-ended surveys may have been a difficult method to reach importers who were willing to participate in the open-ended survey. Some importers may have been busy or unavailable during the time of the call, making it difficult to establish contact and obtain their responses. However, considering the huge number of importing companies in the United States, a minimum of 20 importers was expected to be willing to participate in the open-ended survey and provide sufficient and detailed responses that would help understand why importers in the United States do not take advantage of the cost-saving benefits of using FTZs in their logistics operations.

Importers who agreed to participate in the survey over the phone may not have had sufficient time to prepare their responses thoroughly. Because the survey was conducted spontaneously, the participants may not have had the opportunity and time to gather all the necessary information or consider their answers as they would with a more structured survey. However, the aspect of not being aware of the survey up to the moment it was conducted was expected to prompt genuine and spontaneous responses that would be representative of their immediate thoughts and experiences.

3.11 Conclusion

Chapter III included an explanation of the study's research design, participant selection, data collection, and data analysis procedures. Also explained in the chapter were the limitations associated with the study’s research methodology and ethical considerations. Chapter 4 contains the findings of the study in detail.

CHAPTER IV: RESULTS

The gap addressed by this study was the seeming lack of literature on the reasons why importers in the United States do not take advantage of the cost-saving benefits of using FTZs in their logistics operations. The purpose of this mixed-methods study was to explore why importers do not take advantage of the cost-saving benefits of using FTZs in their logistics operations in the United States. To achieve the purpose of this study, the researcher sought to answer the following overarching research question:

4.1 Research Question

Why do importers in the United States fail to leverage the cost-saving benefits of using FTZs in their logistics operations?

The following sub-research questions were generated to further guide this study:

Sub-Research Question 1

What level of awareness do importers in the United States have regarding the cost-saving benefits of using FTZs in their logistics operations? (Mixed-methods question)

Sub-Research Question 2

What challenges do importers in the United States face with regard to using FTZs in their logistics operations? (Quantitative question)

Demographic Characteristics

A total of 160 participants completed the survey questionnaires. However, two participants responded that they did not agree to the use of their data for the analyses of this study and consequently, their responses were excluded from the analyses. Thus, the

final sample included data from 158 participants. Of this sample, 34 participants (21.5%) were aged 40 to 44, 23 participants (13.9%) were aged 30 to 34, 22 participants (14.6%) were aged 35 to 39, and 18 participants (11.4%) were aged 45 to 49. In terms of gender, the number of males (n = 76, 48.1%) was approximately the same as females (n = 78, 49.4%). Four participants (2.5%) responded 'other' as their gender. For the type of FTZs, 95 participants were from general-purpose zones (60.1%) whereas 45 participants were from special-purpose subzones (28.5%). About half of the participants had been engaged in import/export operations for more than 10 years (n = 79, 50%), whereas 45 participants had been engaged for 5 to 10 years (28.5%), and 34 participants had been engaged for less than 5 years (21.5%). For the size of the business, 61 participants were engaged in medium-sized businesses (38.6%), 57 participants were engaged in small-sized businesses, and 40 participants were engaged in large-sized businesses. A majority of the participants regularly imported or exported goods (n = 106, 67.1%). Table 4.1 depicts the frequencies and percentages of the participants' demographic characteristics.

Table 4.1

Frequencies and Percentages of Demographic Characteristics

		Frequency	Percent
Age	18–24	10	6.3
	25–29	12	7.6
	30–34	23	14.6
	35–39	22	13.9
	40–44	34	21.5
	45–49	18	11.4
	50–54	13	8.2
	55–60	11	7.0
	61–65	8	5.1

		Frequency	Percent
	66–70	6	3.8
	Above 70	1	.6
	Total	158	100.0
Gender	Male	76	48.1
	Female	78	49.4
	Other	4	2.5
	Total	158	100.0
Type of FTZs	General-purpose zones	95	60.1
	Special-purpose subzones	45	28.5
	Other	18	11.4
	Total	158	100.0
For what length of duration has your business been conducting import/export operations?	Less than 5 years	34	21.5
	5–10 years	45	28.5
	More than 10 years	79	50.0
	Total	158	100.0
Size of business	Small	57	36.1
	Medium	61	38.6
	Large	40	25.3
	Total	158	100.0
Do you regularly import or export goods?	Yes	106	67.1
	No	52	32.9
	Total	158	100.0

Note. Participant demographic characteristics.

Quantitative Data Analysis

The researcher used quantitative techniques to analyze the quantitative data gathered from closed-ended survey responses. These data were analyzed using frequencies and percentages as well as mean and standard deviations to determine the level of awareness of participants and their level of agreement to the challenges. The frequencies of the importers' responses were also estimated.

Qualitative Data Analysis

The method used to analyze qualitative data in this mixed-methods study was inductive, thematic analysis with the aid of NVivo 14 qualitative data analysis software. The qualitative data analysis followed the six-step thematic analysis procedure described by Braun and Clarke (2019). The six steps, or phases, included the following: (a) becoming familiar with the data, (b) generating initial themes, (c) searching for themes, (d) reviewing themes, (e) defining themes, and (f) writing up (Braun & Clarke, 2019). These steps are described below in detail.

Phase 1: Become Familiar With the Data

The initial step in the analysis of any qualitative data, as Braun and Clarke (2006) pointed out, is to read and reread the transcripts. In this study, the researcher read and reread the data gathered from open-ended survey responses at least three times. The researcher also went through each transcript carefully to have a grasp of the importers' responses. This phase also entailed making notes. By the end of Phase 1 of the thematic analysis, the researcher had become very familiar with the whole body of data.

Phase 2: Generate Initial Codes

During this stage, the researcher begins organizing the data in a manner that is systematic and meaningful (Braun & Clarke, 2006). Coding helps decrease substantial amounts of data into small chunks of meaning (Braun & Clarke, 2019). In this study, the researcher adopted open coding, as there were no predetermined codes. The researcher developed and modified the codes while working through the coding process. When coding, the researcher grouped various excerpts from the open-ended survey that

conveyed comparable meanings. Descriptive phrases were then used to label those codes. When the U.S importers were asked in the open-ended survey why they were not familiar with the FTZ program, Participant 34 spoke about the misconception that FTZs were for big companies, saying, “I've always thought FTZs were more for the big players, not for someone like me.” Similar views were shared by Participant 70, who stated, “In my view, FTZs seem designed for the large players or businesses.” Thus, the researcher assigned these responses to the same code, labeled, “misconceptions about FTZs.” In total, the researcher assigned 291 response excerpts, or participant quotes, to 132 codes. The initial codes and code frequencies are depicted in Table 4.2.

Table 4.2

Initial Code Frequencies

Initial code	Code Frequency in Open-ended Survey
Felt FTZs were out of reach	2
FTZs infrequently discussed	1
Lack of understanding of FTZs and their impact	3
Limited exposure to FTZs	5
Misconceptions about FTZs	3
Never got full information about FTZ	5
Not encountered FTZs in their feed	3
Not encountered FTZs in their information channels	4
Not explored FTZs fully	7
Not had time to learn about FTZs	3
Not heard of FTZs in their conversations	2
Not heard of FTZs in their professional networks	3
Not interested or focused on learning about FTZs	6
Communication gap	3
Complex information hindering understanding	6
Complex regulatory terms	3
Conflicting information from different sources	2
Finding information specific to the industry	2
Information inaccessible and unavailable	4

Initial code	Code Frequency in Open-ended Survey
Lack of clear procedures	4
Lack of current resources	3
Lack of guidance	2
Lack of interest in information	2
Lack of visuals to help with understanding	2
No local and applicable examples	2
Scattered information	2
Technical language	2
Access to real-time information helpdesk, hotline, or chat support	4
Collaborations	3
Distribute guidebooks and brochures	6
Educate and train business owners	7
Free professional consultations about FTZs	5
FTZ information sessions	9

Note. Initial codes and their frequencies in the open-ended survey.

Phase 3: Search for Themes

In this phase, Braun and Clarke (2006) mentioned that the researcher searches for themes in the data. In this study, the researcher examined all the 132 codes and realized that some of them fit together into a theme. Codes that expressed the same meaning were bundled together into a theme. The three codes, 'Not encountered FTZs in their feed,' 'Not encountered FTZs in their information channels' and, 'Not heard of FTZs in their conversations,' were bundled together into a theme because they all showed that the U.S importers had had limited exposure to FTZ program. Similarly, the three codes 'FTZs infrequently discussed,' 'Not explored FTZs fully,' and Misconceptions.' were bundled together into another theme because they revealed that the U.S importers held misconceptions about FTZs and lacked the chance to explore FTZs fully. Overall, the researcher combined the 132 codes into six themes as shown in Table 4.3

Table 4.3

Themes Formed by Clustering Different Themes

Theme Initial Code Clustered to Identify Themes	Theme Frequency in Open-ended Survey
Theme 1: Limited exposure to the FTZ program	33
Not heard of FTZs in their professional networks Not heard of FTZs in their conversations Not encountered FTZs in their feed Not encountered FTZs in their information channels Limited exposure to FTZs	
Theme 2: Misconceptions about FTZs and lack of chance to explore them.	41
Lack of understanding of FTZs and their impact	
Misconceptions about FTZs	
FTZs infrequently discussed	
Never got full information about FTZ	
Not explored FTZs fully	
Theme 3: Complex information and regulatory terms	35
Technical language	
Complex regulatory terms	
Complex information hindering understanding	
Theme 4: Ambiguity and a lack of proper procedures and guidelines	25
Ambiguity	
Lack of clear procedures	
Conflicting information from different sources	
Lack of proper guidelines	
Theme 5: Scattered and inaccessible or unavailable information	27
Information inaccessible and unavailable	
Scattered information	
Finding information specific to the industry	
Communication gap	
Theme 6: Lack of visuals and examples, and a general lack of interest	18
Lack of interest in information	
Lack of visuals to help with understanding	
No local and applicable examples	

Note. Codes collated into themes.

Phase 4: Review of Themes

This stage entails reviewing, modifying, and developing the preliminary themes

identified in the previous stage (Braun & Clarke, 2019). In this study, the researcher not only reviewed but also modified and developed the preliminary themes that were identified in the previous step. The researcher also read the data linked to every theme and ensured that the data, in fact, supported the theme. It was important to ensure that the themes were coherent and unique from each other, and did not contain any overlapping ideas.

Phase 5: Define Themes

This stage, as Braun and Clarke (2006) mentioned, was the ultimate refinement of the themes. The aim of this phase was to identify the essence of what every theme was about (Braun & Clarke, 2019). In this study, the researcher defined each theme clearly. The theme definitions are provided in the qualitative findings section of this chapter.

Phase 6: Writing Up

The end-point of any study is a report, such as a dissertation or a journal article (Braun & Clarke, 2019). The researcher completed this stage by writing Chapter IV of the dissertation. The chapter includes various tables containing the results of the study.

4.2 Results

Sub-Research Question One (Mixed-Methods Question)

Quantitative Results. The following was the first research question: What level of awareness do importers in the United States have regarding the cost-saving benefits of using FTZs in their logistics operations? This was a mixed-methods question, meaning that it was answered using both quantitative and qualitative data.

To address the first research question quantitatively, the level of awareness

responses of the participants were used (see Table 4.4). The participants were provided with seven items to determine their awareness of the different aspects of cost-saving benefits of using FTZs in logistics operations. Their responses were as follows: 40 participants (25.3%) were moderately aware, 45 participants (28.5%) were very aware, and 16 participants (10.1%) were fully aware of the duty deferral and reduction of using FTZs. The mean score was 2.99 (*SD* = 1.21), indicating that the participants were only slightly aware to moderately aware of this cost-saving benefit. In addition, 48 participants (30.4%) were moderately aware, 28 participants (17.7%) were very aware, and 21 participants (13.3%) were fully aware of the reduced MPF for using FTZs. The mean score was 2.91 (*SD* = 1.24), indicating that participants were only slightly aware to moderately aware of this cost-saving benefit. Furthermore, 49 participants (31%) were moderately aware, 28 participants (17.7%) were very aware, and 23 participants (14.6%) were fully aware of the inventory management of using FTZs. The mean score was 2.96 (*SD* = 1.25), indicating that participants were only slightly aware to moderately aware of this cost-saving benefit.

For the value-added services, 42 participants (26.6%) were moderately aware, 31 participants (29.6%) were very aware, and 29 participants (18.4%) were fully aware that using FTZs assists in value-added services. The mean score of 3.09 (*SD* = 1.28) indicated that more participants were aware of the cost-savings benefit of value-added services of using FTZs than the participants who were unaware. Regarding the question whether the participants were aware of the streamlined customs procedures of using FTZs for logistics, 45 participants (28.5%) were moderately aware, 34 participants (21.5%) were

very aware, and 17 participants (10.8%) were fully aware of this cost-savings benefit. However, the mean score of 2.89 (*SD* = 1.22) indicated that more participants were not aware of this benefit compared to those who were aware of it.

In addition, 34 participants (21.5%) were moderately aware, 40 participants (25.3%) were very aware, and 21 participants (13.3%) were fully aware of the supply chain optimization of using FTZs. The mean score was 2.94 (*SD* = 1.32), indicating that participants were only slightly aware to moderately aware of this cost-saving benefit. For the inverted tariff benefits, 48 participants (30.4%) were moderately aware, 40 participants (25.3%) were very aware, and 21 participants (13.3%) were fully aware that using FTZs assists in inverted tariff benefits. The mean score of 3.08 (*SD* = 1.22) indicated that more participants were aware of the cost-savings benefit for inverted tariff benefit of using FTZs than participants who were unaware.

Table 4.4

Level of Awareness of Cost-Savings Benefit of Using FTZs

		Frequency	Percent	*M*	*SD*
C1 - Duty Deferral and Reduction	Not at all aware	21	13.3	2.99	1.21
	Slightly aware	36	22.8		
	Moderately aware	40	25.3		
	Very aware	45	28.5		
	Fully aware	16	10.1		
	Total	158	100.0		
C2 - Reduced Merchandise Processing Fees (MPF)	Not at all aware	23	14.6	2.91	1.24
	Slightly aware	38	24.1		
	Moderately aware	48	30.4		
	Very aware	28	17.7		
	Fully aware	21	13.3		
	Total	158	100.0		

C3 - Inventory Management	Not at all aware	22	13.9	2.96	1.25
	Slightly aware	36	22.8		
	Moderately aware	49	31.0		
	Very aware	28	17.7		
	Fully aware	23	14.6		
	Total	158	100.0		
C4 - Value-Added Services	Not at all aware	19	12.0	3.09	1.28
	Slightly aware	37	23.4		
	Moderately aware	42	26.6		
	Very aware	31	19.6		
	Fully aware	29	18.4		
	Total	158	100.0		
C5 - Streamlined Customs Procedures	Not at all aware	24	15.2	2.89	1.22
	Slightly aware	38	24.1		
	Moderately aware	45	28.5		
	Very aware	34	21.5		
	Fully aware	17	10.8		
	Total	158	100.0		
C6 - Supply Chain Optimization	Not at all aware	29	18.4	2.94	1.32
	Slightly aware	34	21.5		
	Moderately aware	34	21.5		
	Very aware	40	25.3		
	Fully aware	21	13.3		
	Total	158	100.0		
C7 - Inverted Tariff Benefits	Not at all aware	20	12.7	3.08	1.22
	Slightly aware	29	18.4		
	Moderately aware	48	30.4		
	Very aware	40	25.3		
	Fully aware	21	13.3		
	Total	158	100.0		

Note. Awareness level.

Qualitative Results. The gap addressed by this study was the seeming lack of literature on the reasons why importers in the United States do not take advantage of the cost-saving benefits of using FTZs in their logistics operations. The purpose of this mixed-methods study was to explore why importers in the United States do not take

advantage of the cost-saving benefits of using FTZs in their logistics operations. This section contains the qualitative results. Six themes in total emerged from the qualitative data. The results of the qualitative data analysis are organized by themes. Table 4.5 contains a summary of the themes that addressed sub-RQ1, which was a mixed-methods question. A maximum of 50 participants completed the open-ended survey.

Table 4.5

Sub-Research Question 1 and Themes

Research Question	Themes used to address the research question
Sub-RQ1: What level of awareness do importers in the United States have regarding the cost-saving benefits of using FTZs in their logistics operations?	Theme 1: Limited exposure to the FTZ program Theme 2: Misconceptions about FTZs and lack of chance to explore them. Theme 3: Complex information and regulatory terms. Theme 4: Ambiguity and a lack of clear procedures and guidelines Theme 5: Scattered and inaccessible or unavailable information Theme 6: Lack of interest, visuals, examples, and current resources

Note. Six themes were developed from the qualitative data

Theme 1: Limited Exposure to the FTZ Program. Data supporting this theme were drawn from 26 out of 50 open-ended survey participants. The findings revealed that one of the reasons why many participants were not familiar with the FTZ program was that they had limited exposure to the FTZ program. Participant 49 spoke about having limited exposure to FTZs, saying, “Admittedly, I have only had limited exposure to FTZs. They seem quite complex and beyond my current understanding and ability.”

Participant 99 reported that over the years, he has come across FTZs very few times, saying, “In all my years, FTZs rarely crossed my path.” Similar views were shared by Participant 82 who noted, “Never stumbled upon it.” Likewise, Participant 90 reported that he has not come across FTZs many times, stating, “It might just be a sign of the

times, but I've really not come across much about Free Trade Zones." According to Participant 80, "My usual information channels don't seem to focus much on FTZs."

To sum up, the participants indicated that limited exposure to the FTZ program is a major reason why they were not familiar with the FTZ program. Data from 26 open-ended survey participants contributed to this theme. The next sub-section addresses the second theme.

Theme 2: Misconceptions About FTZs and Lack of Chance to Explore them Fully. Twenty-seven open-ended survey participants contributed to this theme. The findings indicated that another major reason why many participants were not familiar with the FTZ program was their misconceptions regarding the FTZ program and a lack of chance or time to fully explore them. Participant 34 talked about the misconception that FTZs are mainly for large companies, saying, "I've always thought FTZs were more for the big players, not for someone like me." Participant 70 shared similar views, noting, "In my view, FTZs seem designed for the large players or businesses."

The participants also indicated that they were not familiar with the FTZ program because they had not had the chance or time to explore it fully. Participant 7 stated, "Honestly, I have been so swamped, I haven't had the chance to explore FTZs properly." Similarly, Participant 66 remarked, "I've heard of it but not had the chance to dig deeper, maybe after this."

According to Participant 19, "I have been super busy and haven't really gotten around to checking out Free Trade Zones." Participant 16 mentioned, "I've never tried learning about or exploring them." Participant 23 stated that she has also not fully

explored FTZs. She commented, “I remember skimming something about FTZs once, but it didn't stick.” Participant 28 talked about a lack of time to explore FTZs, saying, “FTZs have been sort of on my list, but I haven't really gotten into them yet. No time really.”

In summary, misconceptions about FTZs and a lack of chance to explore them were another major reason why the U.S. importers who took part in this study were not familiar with the FTZ program. More than half of the open-ended survey participants contributed to this theme. The third theme is presented in the next sub-section.

***Theme 3: Complex Information and Regulatory Terms*.** Data supporting this theme were obtained from 29 out of 50 open-ended survey participants. Per the findings, a notable difficulty that the participants encountered while trying to find information about the FTZ program comprised complex information and regulatory terms. Participant 40 spoke about complex information, saying, “Couldn't find concise information, all too difficult.” According to Participant 45, the information was “too complex.” Similarly, Participant 99 noted, “Difficulty understanding information, it just sounds too complex.”

Participant 5 mentioned complex regulatory terms, stating, “Struggled to understand complex regulatory terms.” Participant 38 talked about being intimidated by legal jargon, saying, “Extremely overwhelmed and intimidated by the legal jargon.” Participant 65 stated that technical terms served as a barrier, saying, “Technical terms without definitions; felt like a barrier.”

To sum up, the participants indicated that a notable difficulty in finding information about the FTZ program was complex information and regulatory terms. The

theme was supported by data from 29 open-ended survey participants. The theme helped address the first research question.

Theme 4: Ambiguity and a Lack of Clear Procedures and Guidelines. Data supporting this theme were drawn from 26 out of 50 open-ended survey participants. According to the participants, another difficulty that they encounter when seeking information about the FTZ program include ambiguity and a lack of clear and proper guidelines and procedures. Participant 72, "Lack of clear guidelines and where to access." Participant 155 reported that there is "not much guidance on how to proceed." Speaking about ambiguity, Participant 64 stated in the open-ended questionnaire, "Ambiguity in cost-benefit analysis." Participant 86 talked about confusion, saying, "Presence of confusion." Participant 85 mentioned, "Lack of guidance on how and where to start with FTZ knowledge."

In summary, the participants indicated that ambiguity and a lack of clear and proper guidelines and procedures were other difficulties that they encountered in trying to find information about the FTZ program. Over half of the open-ended survey participants contributed to this theme. Theme 4 helped address the first research question.

Theme 5: Scattered and Inaccessible or Unavailable Information. Twenty-five open-ended survey participants contributed to this theme. The findings indicated that the other difficulty commonly encountered in finding information about the FTZ program included scattered and inaccessible or unavailable information. Speaking of scattered information, Participant 30 reported that the "Information [is] scattered." According to Participant 60, the information is, "Not readily available and accessible." Similarly,

Participant 78 mentioned unavailability of information, saying, “No information available, no information [regarding] where to access materials.”

The participants also spoke about the difficulty experienced in finding information for specific industries. Participant 92 noted that he had experienced difficulty finding “information tailored to my specific industry.” Participant 82 talked about conflicting information, stating, “Found conflicting information across different sources.”

In summary, the participants reported that information being scattered, inaccessible, or unavailable was a major difficulty they encountered in finding information about the FTZ program. A total of 25 open-ended survey participants contributed to this theme. The final theme, Theme 6, is presented in the next sub-section presents.

***Theme 6: Lack of Interest, Visuals, Examples, and Current Resources*.** Data supporting this theme were derived from 26 out of 50 open-ended survey participants. The findings showed that a lack of visuals to help with understanding, local and applicable examples, and current resources, as well as a general lack of interest also contributed to the participants’ difficulty in finding information concerning the FTZ program. Participant 70 indicated that he was uninterested in finding the information. Specifically, this participant mentioned a “lack of interest” in finding information about the FTZ program.

Participant 93 mentioned a lack of visuals to help understand the information, saying, “I want more visual aids like videos or infographics to help understand FTZ better.” Speaking about a lack of examples, Participant 59 said, “Lack of local and

applicable examples." The participants also talked about a lack of current resources. According to Participant 34, there are, "No straightforward resources." Participant 42 mentioned, "Difficult to find updates; resources seemed outdated."

To sum up, the participants mentioned a lack of current resources, local and applicable examples, and visuals to help with understanding the information as difficulties they encountered in finding information about FTZs. Over half of all open-ended survey participants contributed to this theme. The theme helped address the first research question.

Sub-Research Question Two (Quantitative Question)

The following was the second research question: What challenges do importers in the United States face with regard to using FTZs in their logistics operations? As it was a quantitative question, it was addressed only with the quantitative data. The challenges of using FTZs are presented in Table 4.6. Eight challenges to using FTZs were considered in the survey. According to the results, 38.7% of the participants (n = 61) agreed and strongly agreed that knowledge and awareness were absent. In addition, 34.8% of the participants (n = 55) agreed and strongly agreed that there were complex administrative procedures. A total of 57 participants (36.1%) agreed and strongly agreed that the fees and investment were a challenge, 54 (34.2%) agreed and strongly agreed that there were geographical restrictions, 63 (39.9%) agreed and strongly agreed that there are industry-specific difficulties, and 57 (36.1%) agreed and strongly agreed that there were supply chain disruptions and flexibility issues. For the perceived risk and uncertainty, 57 participants (36.1%) agreed and strongly agreed, whereas 59 participants (37.4%) agreed

and strongly agreed that there were limited resources and knowledge. In analyzing the mean scores for the challenges responses, the highest mean score was observed for complex administrative procedures, industry-specific difficulties, and perceived risk and uncertainties (M = 3.04). Therefore, these were the challenges mostly encountered by the participants.

Table 4.6

Challenges to Using FTZs

		Frequency	Percent	*M*	*SD*
D1 - Absence of Knowledge and Awareness	Strongly Disagree	26	16.5	2.98	1.34
	Disagree	38	24.1		
	Neutral	33	20.9		
	Agree	35	22.2		
	Strongly Agree	26	16.5		
	Total	158	100.0		
D2 - Complex Administrative procedures	Strongly Disagree	18	11.4	3.04	1.19
	Disagree	33	20.9		
	Neutral	52	32.9		
	Agree	34	21.5		
	Strongly Agree	21	13.3		
	Total	158	100.0		
D3 - Fees and Investment	Strongly Disagree	27	17.1	2.91	1.31
	Disagree	39	24.7		
	Neutral	35	22.2		
	Agree	35	22.2		
	Strongly Agree	22	13.9		
	Total	158	100.0		
D4 - Geographical Restrictions	Strongly Disagree	21	13.3	2.95	1.22
	Disagree	39	24.7		
	Neutral	44	27.8		
	Agree	35	22.2		
	Strongly Agree	19	12.0		
	Total	158	100.0		

D5 - Industry-Specific Difficulties	Strongly Disagree	23	14.6	3.04	1.32
	Disagree	38	24.1		
	Neutral	34	21.5		
	Agree	36	22.8		
	Strongly Agree	27	17.1		
	Total	158	100.0		
D6 - Supply Chain Disruptions and Flexibility	Strongly Disagree	24	15.2	3.03	1.26
	Disagree	28	17.7		
	Neutral	49	31.0		
	Agree	34	21.5		
	Strongly Agree	23	14.6		
	Total	158	100.0		
D7 - Perceived Risk and Uncertainty	Strongly Disagree	23	14.6	3.04	1.30
	Disagree	33	20.9		
	Neutral	45	28.5		
	Agree	29	18.4		
	Strongly Agree	28	17.7		
	Total	158	100.0		
D8 - Limited resources and knowledge	Strongly Disagree	24	15.2	2.99	1.33
	Disagree	40	25.3		
	Neutral	35	22.2		
	Agree	32	20.3		
	Strongly Agree	27	17.1		
	Total	158	100.0		

Note. Challenges encountered by the U.S importers.

When the participants were asked whether they felt more inclined to explore or consider incorporating FTZs into their logistics operations to capitalize on potential cost-saving benefits, a majority of them responded yes (n = 105, 66.5%). When asked how confident they were that FTZs could offer significant cost savings for US importers, 52 participants (32.9%) responded very confident whereas 53 participants (33.5%) responded somewhat confident. Table 4.7 contains a summary of the overall attitudes of the participants.

Table 4.7

Overall Attitudes

		Frequency	Percent
E1	Yes	105	66.5
	No	53	33.5
	Total	158	100.0
E2	Not confident at all	20	12.7
	Not very confident	33	20.9
	Somewhat confident	53	33.5
	Very confident	52	32.9
	Total	158	100.0

Note. Participants' attitudes.

4.3 Summary of Findings

Summary of Sub-Research Question 1 Findings

In this study, sub-Research Question 1 was, "What level of awareness do importers in the United States have regarding the cost-saving benefits of using FTZs in their logistics operations?" As this was a mixed-methods question, it was addressed using both quantitative and qualitative data. The participants were provided with seven items to determine their awareness of the different aspects of cost-saving benefits of using FTZs in logistics operations. For the duty deferral and reduction of using FTZs, the mean score was at 2.99 (*SD* = 1.21), indicating that participants were only slightly aware to moderately aware of this cost-savings benefit of FTZs. Regarding reduced MPF for using FTZ, the mean score was 2.91 (*SD* = 1.24), indicating that participants were only slightly aware to moderately aware of this cost-saving benefit. For the inventory management of using FTZs, the mean score was 2.96 (*SD* = 1.25), suggesting that participants were only slightly aware to moderately aware of this cost-saving benefit of FTZs. For the value-

added services, the mean score of 3.09 (*SD* = 1.28) demonstrated that there were more participants aware of the cost-saving benefit of value-added services of using FTZs than participants who were unaware.

The mean score of 2.89 (*SD* = 1.22) for streamlined customs procedures indicated that more participants were not aware of the streamlined customs procedures of using FTZs for logistics compared to those who were aware of this benefit. The mean score of 2.94 (*SD* = 1.32) indicated that participants were only slightly aware to moderately aware of the supply chain optimization of using FTZs. For inverted tariff benefits, the mean score of 3.08 (*SD* = 1.22) indicated that more participants were aware of the cost-savings benefit for inverted tariff benefits of using FTZs than participants who were unaware.

The reasons for not being familiar with the FTZ program varied. As revealed by the qualitative data, the reasons included limited exposure to the FTZ program, misconceptions about FTZs and a lack of chance to explore them fully, and complex information and regulatory terms. Other reasons comprised ambiguity and a lack of proper procedures and guidelines; scattered and inaccessible or unavailable information; and a lack of interest, visuals, examples, and current resources.

Summary of Sub-Research Question 2 Findings

Sub-Research Question 2 was as follows: What challenges do importers in the United States face with regard to using FTZs in their logistics operations? This was a quantitative question. Per the findings, the majority of the participants, or about 38.7% of all participants (*n* = 61), agreed and strongly agreed that they lacked knowledge and awareness. About 34.8% of the participants agreed and strongly agreed that the

administrative procedures were complex, 57 participants agreed and strongly agreed that the fees and investment were a challenge, 54 agreed and strongly agreed that there were geographical restrictions, 63 agreed and strongly agreed that there were industry-specific difficulties, and 57 agreed and strongly agreed that there were supply chain disruptions and flexibility issues. For the perceived risk and uncertainty, 57 participants agreed and strongly agreed, whereas 59 agreed and strongly agreed that there were limited resources and knowledge. Thus, these were the main challenges encountered by the participants. Most participants (n = 105, 66.5%) indicated that they felt more inclined to explore or consider incorporating FTZs into their logistics operations to capitalize on potential cost-saving benefits. Besides, a majority of the participants felt either very confident (n = 52, 32.9%) or confident (n = 53, 33.5%) that FTZs could offer significant cost savings for U.S. importers.

4.4 Conclusion

The purpose of this mixed-methods study was to explore why importers in the United States do not take advantage of the cost-saving benefits of using FTZs in their logistics operations. Quantitative data were analyzed using frequencies and percentages as well as mean and standard deviations to determine the level of awareness of participants and their level of agreement to the challenges. The frequencies of the importers' responses were also estimated. Qualitative data gathered through open-ended surveys were analyzed through inductive, thematic analysis. The first sub-research question was, "What level of awareness do importers in the United States have regarding the cost-saving benefits of using FTZs in their logistics operations?" (a mixed-methods

question). In the quantitative portion of this study, the participants were provided with seven items to determine their awareness of the different aspects of cost-saving benefits of using FTZs in logistics operations. For the duty deferral and reduction of using FTZs, the mean score was 2.99 (*SD* = 1.21), suggesting that the participants were only slightly to moderately aware of this cost-savings benefit of FTZs. Concerning reduced MPF for using FTZ, the mean score was 2.91 (*SD* = 1.24), revealing that the participants were only slightly to moderately aware of this cost-saving benefit. For the inventory management of using FTZs, the mean score was 2.96 (*SD* = 1.25), suggesting that the participants were only slightly to moderately aware of this cost-saving benefit of FTZs. For the value-added services, the mean score of 3.09 (*SD* = 1.28) demonstrated that more participants were aware of the cost-saving benefit for value-added services of using FTZs than the participants who were unaware.

The mean score of 2.89 (*SD* = 1.22) for streamlined customs procedures indicated that more participants were not so aware of the streamlined customs procedures of using FTZs for logistics compared to those who were aware of this benefit. A mean score of 2.94 (*SD* = 1.32) suggested that the participants were only slightly to moderately aware of the supply chain optimization of using FTZs. For inverted tariff benefits, the mean score of 3.08 (*SD* = 1.22) indicated that more participants were aware of the cost-savings benefit for inverted tariff benefits of using FTZs than participants who were unaware. As revealed by the qualitative findings, the reasons for not being aware of the FTZ program were limited exposure to FTZ program, misconceptions about FTZs, a lack of chance to explore them fully, and complex information and regulatory terms. Ambiguity and a lack

of proper procedures and guidelines; scattered and inaccessible or unavailable information; and a lack of interest, visuals, examples, and current resources were the other reasons.

The following was the second sub-research question: What challenges do importers in the United States face with regard to using FTZs in their logistics operations? (a quantitative question). Being a quantitative question, sub-research question 2 was addressed using quantitative data only. The findings demonstrated that a majority of the participants, or 38.7% (n = 61), agreed and strongly agreed that knowledge and awareness about FTZs were absent, 34.8% agreed and strongly agreed that there were complex administrative procedures, and 57 participants agreed and strongly agreed that the fees and investment was a challenge. Additionally, 54 agreed and strongly agreed that there were geographical restrictions, 63 agreed and strongly agreed that there were industry-specific difficulties, and 57 agreed and strongly agreed that there were supply chain disruptions and flexibility issues. For the perceived risk and uncertainty, 57 participants agreed and strongly agreed, whereas 59 agreed and strongly agreed that there were limited resources and knowledge. Therefore, these were the key challenges encountered by the participants.

Most participants (n = 105, 66.5%) indicated that they felt more inclined to explore or consider incorporating FTZs into their logistics operations to capitalize on potential cost-saving benefits. A majority of the participants also felt either very confident (n = 52, 32.9%) or confident (n = 53, 33.5%) that FTZs could offer significant

cost savings for U.S. importers. The research summary, implications, conclusions, and recommendations of the entire study are provided in Chapter V based on these findings.

CHAPTER V:

DISCUSSION

This study encompassed an investigation of the operational efficacy and impacts of FTZs in the United States, focusing on the disparities in utilization and understanding among importers. The methodology employed in this study was a mixed-method approach. Data were collected from key stakeholders, including leading importers and industry experts, through structured interviews and surveys to investigate the subtleties of FTZ implementation and its perceived advantages. This study revealed major gaps in stakeholders' awareness and operational difficulties that hamper the optimal utilization of FTZs. Similar studies in the literature included recommendations of improved education outreach and simplified regulatory procedures. This section contains a discussion of the findings of the data collected in detail and the associations of these insights with the broader economic theories and previous research, thus paving the path to a full discussion of potential strategies to optimize FTZs in the following sections.

5.1 DISCUSSION OF RESULTS

The researcher discovered that the importers, who could grasp the potential cost savings and operational efficiency using FTZs, were not fully informed about the ways and benefits of using FTZs. García-Alzórriz and Derkaoui (2020) observed that stakeholders from the FTZs have a limited understanding of these concepts, which significantly weakens the business model and reduces the effectiveness of the FTZs as tools for economic development. The information available about FTZs is at the surface level and not deep enough to guide the decision-making process. Consequently, such

FTZs may not be well known among potential stakeholders in emerging economies where the dissemination of information is not robust, which might be the case when FTZs lack the comprehensibility of the message.

The study findings revealed operational problems as the main constraints hindering the successful use of FTZs. The researcher identified regulatory compliance, high initial costs, and complex regulations as the primary barriers. The same concerns were also addressed by S. A. Frick et al. (2019) in their research on the economic geography of SEZs, which emphasized the requirement of dynamic and financially viable models to attract and keep investments in developing countries. S. Frick and Rodríguez-Pose (2023) explained that operational simplicity and visible economic benefits are crucial factors for SEZs investment. The results imply that the U.S. FTZs will not be able to fully exploit their potential if the operational problems identified above are not addressed.

The researcher also discovered a notable difference in the use of FTZs in different sectors and regions. Importers who bring in quality goods or face higher external tariffs often encounter problems in using FTZs. These results are also supported by the case study of Ghosh et al. (2016) who showed that FTZs provide significant advantages in manufacturing and export-oriented regions. As a result, the feasibility of establishing FTZs increases with proximity to existing zones, suggesting that FTZs are not uniformly effective across different regions. These findings align with the research by Hall et al. (2023) who noted that the advantages and disadvantages of SEZs vary between zones.

5.2 Discussion of Research Question One

This research revealed a significant gap in U.S. importers' awareness of the operational benefits and cost-saving opportunities offered by FTZs. Most importers were not well educated about FTZs and how they could be used to improve the efficiency of their logistics strategies and reduce operational costs. This result aligns with Aggarwal's findings (2019), highlighting a significant gap in targeted educational and informational efforts on FTZ advantages. The literature includes evidence that the main reason for the lack of user engagement with FTZs is the absence of clear and accessible information that can help eliminate misconceptions about FTZ operations (Lane & Liu, 2022). The mismatch between the theoretical benefits of FTZs and their practical application is a crucial factor that hinders the usage of FTZs. The identified themes align with the theories of better educational outreach and regulatory simplification that aim to enhance U.S. importers' adoption rates of FTZs. The communication of this information would be highly beneficial for the policymakers to improve the efficiency and usefulness of the FTZs, as suggested by Aggarwal and further explained by Lane and Liu (2022).

The researcher found that the regulatory complexity associated with FTZs is a major barrier that prevents the importers from leveraging these zones. The legal and procedural environment is considered the biggest hindrance, which is why the rules and regulations should be reformed to make the FTZ procedures more straightforward and, hence, more accessible and less complicated for importers. This result aligns with the literature discussed by Narula and Zhan (2019) who identified regulatory complexity as the factor discouraging potential FTZ participants. Narula and Zhan posited that

simplifying the procedures could be one of the reasons why FTZs are more attractive to businesses and, therefore, increase the adoption of FTZs in global trade practice. These researchers also highlighted the theoretical aspects of the problem and concluded that policy clarity and simplicity are the foundation of successful economic policies.

The researcher also studied the economic consequences of the underutilization of the FTZs, and the findings revealed that some businesses fail to benefit from the economic advantages they can acquire from these zones. The practical data obtained align with the literature discussion, demonstrating that FTZs lead to economic benefits such as duty deferral and tax exemptions crucial to businesses' competitive advantage (Chaisse & Dimitropoulos, 2021). The utilization of these benefits is pointed out as the lost chance to improve business efficiency and economic growth. This idea will provide approval for using the FTZs as an economic development tool, per the existing theories in the literature.

5.2 Discussion of Research Question Two

The findings of this study highlighted that the biggest importers in the United States use technology tools such as automation and blockchain to improve efficiency and ensure compliance in FTZs. These training initiatives are tailored to build the expertise required by the workers to operate effectively within the FTZs. Importers' commitment to employee training proves they are serious about compliance with the FTZ regulations. The necessity of the training program is foundational for the sustainability and positive impact of the zones. The issue of this training is widely reported in the literature. Aggarwal (2019) highlighted that considerable knowledge of FTZ operations exists

among the stakeholders, but educational interventions are required. These academic perspectives emphasize the significance of competent personnel in unveiling the full potential of FTZs. Aggarwal emphasized in his study that targeted educational programs are beneficial and essential for fostering an environment of compliance and efficiency within FTZs.

This study showed that U.S. importers prefer to develop comprehensive training programs so that their staff deeply understand FTZs and successfully implement best practices. The aim of this training is to provide workers with the required skills for effective FTZ operations. Importers undertake to train their employees to adhere to FTZ regulations, showing responsibility. Training is an essential part of creating and managing such zones, as without it, the sustainability and advantages of the zones cannot be guaranteed. This training method has been widely studied and is well-documented in academic literature. Aggarwal (2019) emphasized that a significant difference exists in knowledge among the stakeholders related to FTZs. He proposed that educational interventions be aimed at helping stakeholders to eliminate this problem. This academic reflection on the role of qualified human resources in FTZs clearly shows how education programs for such zones need to be targeted and even mandatory to create a climate that is more conducive to efficiency and effectiveness.

The strategic intent behind the educational program advancement demonstrates the importers' proactive attitude toward creating an environment of constant learning and adaptability for the members of their teams. In the fluid environment of international trade, the aptitude for staying well-informed and adaptable is highly beneficial. The

programs not only address the present knowledge gaps but also equip the workforce with the skills needed to master future changes and challenges in FTZ legislation and practices. Through employee education, businesses gain both resilience and competitiveness. This education commitment will likely result in long-term gains in compliance rates and better-utilized FTZs. The attention to training, as shown by Aggarwal (2019), suggests a more general industry trend where constant improvement and learning are critical to coping with international trade.

The findings showed that successful importers usually collaborate with logistics providers, the government, and other players. Such partnerships with other entities are key factors for FTZs' success. The importers, through the incorporation of various stakeholders, can enhance the efficiency and compliance of their FTZ operations. This effectiveness is realized due to the mobilization of the knowledge and assets of all the stakeholders so that the activities will be operational and compliant with all the regulatory requirements. This opinion is supported by Margolies (2019) who pointed out that through FTZs, collaboration will result in more effective compliance strategies and better resource management. The coordination between sectors becomes cost-effective through collaborative efforts, and the environment is created for compliance where the shared knowledge, skills, and expertise make detecting and preventing violations faster and easier.

The findings highlighted that importers implement proactive strategies regarding regulatory compliance in FTZs. Policy changes, regulatory updates, and participation in discussions related to zones are meant to ensure they are in line with the law and the best

they can be. This action-oriented method is consistent with the views of Narula and Zhan (2019) who emphasized the importance of analyzing and forecasting regulatory changes to derive maximum benefit from FTZs. Lane and Liu (2022) highlighted the fluidity of FTZ policies, asserting that firms must always grab their chances.

CHAPTER VI:

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

6.1 Summary

The results obtained in this study indicated that FTZs offer several cost savings and operational efficiencies. However, it is unclear how much importers know about these benefits, which may prevent them from fully realizing the potential advantages of using the zones. The inability imposed by operational difficulties and regulatory barriers limits the possibility of free trade zones being efficient tools for economic development. This research also exposed the industry-wide and regional bias in using FTZs. Hence, the access and benefits from FTZs do not remain the same. For the importers of higher-value goods or those more affected by the external tariffs, the trade-offs of FTZs should be more attractive, which means that the incentives given by FTZs should be more suited to other buyers.

This research highlighted the importance of strategies that emphasize raising FTZ awareness and simplifying the regulatory environment. Educational plans and procedures can be streamlined to enlarge comprehension and accessibility, leading to FTZ uptake by industries and regions. The researcher also proposes a policy reform agenda that includes solutions to some of the operational difficulties, thus making FTZs more appealing and beneficial to a larger number of companies. The disparity in FTZ effectiveness between different regions also allows localized strategies to be devised to ensure that FTZ benefits can be equally accessed and used.

6.2 Implications

The results of the first theme indicated limited awareness of the FTZ program among importers. This limited exposure is detrimental to the capacities of businesses to maximize the advantages that arise from using FTZs, which makes it necessary for regulatory bodies and FTZ authorities to intensify their informational efforts. These campaigns should be designed not only to inform but also to make the activities in FTZs transparent using clear, short, and provocative communication approaches. Initiatives may include collaboration with trade associations, developing an extensive online resource, and periodic seminars that touch a broad segment of potential and existing importers.

The second theme revealed the common misperception of the role and advantages of FTZs, which is further aggravated by the absence of possibilities for importers to experience these advantages directly. This finding implies a user-friendly platform that will allow the businesses to replicate the FTZ operations and achieve a reduction in costs and streamlined operations. The regulators and the FTZ operators could jointly organize the open houses and virtual tours, and the simulation software could be developed to allow the businesses to test drive the FTZ functionalities, which may define a good learning experience and dispel the misconception, which may help stimulate interest.

The findings of the third theme highlighted that the complexity of information and the jargon-laden regulatory terms related to FTZs discourage importers from interacting with FTZs. To fight this, simplification and clarification of all communication materials are necessary. Official documentation, guidelines, and websites of regulatory bodies

should be revised to be user-friendly and accessible to non-specialists. Workshops aimed at legal and procedural clarity could also be used as platforms for importers to ask questions directly to officials and receive advice tailored to their specific concerns.

The fourth theme findings highlighted that ambiguity in procedures and lack of clear guidelines hindered effective FTZ utilization. This vagueness may result in procedural errors and discourage potential users. To solve this problem, creating a standardized set of procedures and disseminating them through digital, printed, and personal consultations are advisable. Developing the centralized advisory service under the FTZ administration could also offer ongoing assistance and eliminate any uncertainties in real-time, thus promoting a more transparent and accessible environment.

The fifth theme highlighted the dispersal of critical data on how FTZs are run, making it hard for businesses to enjoy the full benefits of FTZ participation. Having all FTZ-related information in one user-friendly online portal would greatly improve access. This portal may contain FAQs, how-to guides, regulatory updates, and contact details of direct support meant for beginners in FTZs and veterans seeking advanced operational tips.

The findings from the sixth theme indicated a lack of engaging and educational materials about FTZs, contributing to general disinterest and underutilization of the zones. Reversing the situation requires creating visually appealing content that explains FTZ operations in an easy-to-understand manner. It could involve the establishment of video tutorials, infographics, and illustrative case studies that would spotlight the successful FTZ projects. Refreshing resources promptly to reflect the current economic

situation and the growing benefits of FTZ use will be vital in sustaining the attention of importers and their involvement.

The quantitative findings of the study indicated differences in awareness of the cost-saving advantages of using FTZs and, therefore, the need for focused educational initiatives. Such programs should be tailored to the awareness levels of various groups within the importer community, possibly defined by industry, size, and prior exposure to FTZs. Customized educational programs can ensure that all prospective and current users of FTZs possess the required know-how to make informed decisions about their participation in this initiative.

6.3 Recommendations for Future Research

Future studies should be broad in scope to include participants from various segments of the import industry to ensure that the findings represent the entire market. Stratified random sampling can be employed to obtain different views from importers with varying levels of FTZ understanding and company sizes. This method allows researchers to study the barriers and motivations specific to each category. The survey results could be exploited to develop the FTZ use-promoting strategies focused on different groups of people. This data type could bolster the advocacy of FTZs, as it displays the wide-ranging industries' needs and responses.

Researchers should also consider longitudinal studies that will follow the effectiveness of policy changes and educational efforts on using FTZ over time. Such a strategy would involve monitoring the trends and the long-term impact of these changes, which would finally bring more clarity to the forces at work. Longitudinal studies will

also be a useful source of information to determine whether the rise in FTZ use is sustained or whether the initial interest will fade away. Longitudinal data could be useful when policymakers and practitioners formulate policies and practices for the FTZs. Besides, this research method will allow policymakers and business leaders to make decisions supported by data rather than based on one-time snapshots.

The lack of quantitative studies involving an assessment of FTZs impacts on businesses economically is a significant problem. Such studies can help determine the advantages of using FTZs by performing a detailed cost-benefit analysis. By comparing firms that have FTZs and those that do not, researchers may provide empirical evidence of the financial gains that may be realized. This information may be very important for businesses still doubtful about adopting FTZs. It would also help sharpen the economic arguments for FTZs, making them more convincing to the decision-makers and business executives.

It is crucial to conduct in-depth studies into the regulatory and administrative barriers, which now prevent FTZ utilization. Researchers should attempt to identify the legal provisions and the administrative aspects of the import regime that are most cumbersome for the importers. Consequently, several suggestions could be provided for simplifying the procedures that make it difficult for people to participate. Eliminating the complexity of entrance and performance procedures may increase the FTZ's appeal among possible users. The objective of this approach would be to make FTZ management more efficient and enhance importer satisfaction.

6.4 Conclusion

This research on the underutilization of FTZs by U.S. importers yielded important findings on the obstacles that prevent the widespread use of these zones. The probe of a significant range of problems, from lack of information and misconceptions to complex trade policy measures and scattered information, has resulted in customers underusing the FTZ program to its full capacity. The study's qualitative results revealed six primary themes that encapsulate the core challenges faced by importers: the limited exposure to FTZ program, misconception about the benefits and operations of FTZs, technical terms and information, unclear procedures, a lack of centralized information, and a general lack of engaging visuals and updated resources. These findings suggest a huge gap between the theoretical economic benefits of the FTZs and the real experiences of the importers, indicating that many of them are reluctant to use these economic opportunities due to informational and legal barriers.

The quantitative results indicated only a slight to moderate awareness among participants about the cost-saving benefits of FTZs, further emphasizing the need for improved educational outreach and communication strategies. The results are a call for a multifaceted approach to the reform of marketing and management of FTZs. Through simplifying access to information, explaining the regulations and procedures, and using targeted educational initiatives, it is possible to overcome the current underutilization and achieve optimal engagement.

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APPENDIX A:

DATA COLLECTION

To collect quantitative data, the following process was adhered to when selecting participants for the study. The researcher started by identifying all online available forums and associations of importer companies in the United States. The researcher then posted a survey request in the identified forums or sent the survey request to the contact person of the identified importer associations. The survey request included a brief summary of the study, its potential benefits to U.S. importers, and a consent form and a SurveyMonkey link to the quantitative survey developed by the researcher. Only those importers who accept the request and sign the consent form were selected to participate in the study.

Before participants were selected and data collected, IRB approval was secured to ensure the ethical integrity of the study. IRB approval ensured that all ethical considerations were met within the study, participants' rights were not violated, and that no psychological and physical risks were associated with participating in the study (Sanjari et al., 2014). The participant's voluntary consent form contained an explanation of participants' rights and contact information of the researcher and IRB officials should a participant want to contact the IRB. No participant in this study had any professional or personal relationship with the researcher. The researcher documented all agreements and addressed any concerns that were expressed by a participant relating to the study prior to participation in the study. All of the aforementioned procedures aimed to protect participants from ethical violations and enhance the overall quality of the study.

APPENDIX B:

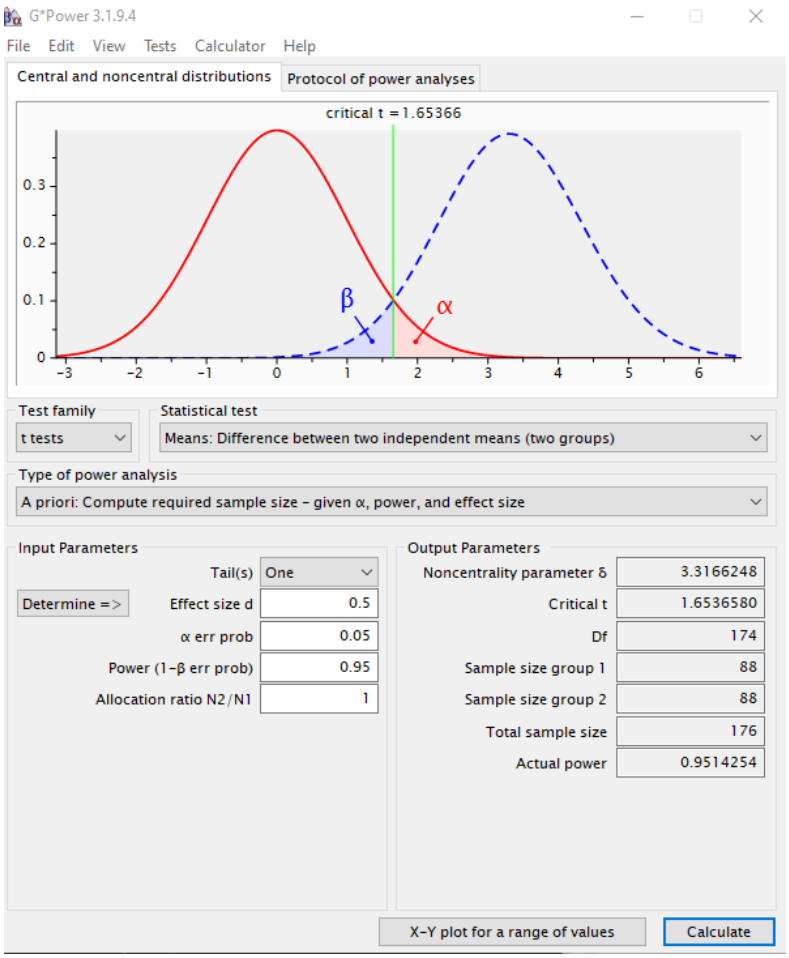
INSTRUMENTATION

The research approach employed in this study was a mixed-methods research design to understand why U.S. importers have underutilized Foreign Trade Zone (FTZ) benefits. Two constructs were examined: (a) Awareness of cost-saving FTZ benefits and (b) Challenges of using FTZs. This instrumentation section includes a description of the quantitative survey and qualitative survey used to collect data on these constructs. Details include instrument development, pretesting, content, and administration procedures. The quantitative survey included closed questions and Likert scales to measure awareness. The qualitative survey contained open-ended questions to gain in-depth perspectives. Together, these instruments allowed a comprehensive exploration of the research problem and questions. Power analysis was used to determine the sample size of the study, whereas reliability analysis was used to test the reliability of the instrument.

Power Analysis

A priori power analysis using G-Power was used to determine the required sample size for the study. Based on the research question involving a comparison of two independent groups, t tests family of statistical tests was the most appropriate. Specifically, an independent samples *t*-test was used to analyze any differences between the means of the two groups. An effect size of 0.5 was input, seeking a moderate effect that would be meaningful. With a desired statistical power of 0.95, there was a high aim to detect real effects if present. The G-Power analysis revealed the total sample size needed was 176 participants split evenly between the two independent groups, with 88 participants

allocated to each group. This sample size calculation helped ensure enough data was collected to properly address the research question.



APPENDIX C:

QUESTIONNAIRE

Section 1: Quantitative Survey

Part 1: Company Information

What type of importing company do you work for?

1. Product importer
2. General merchandise importer
3. Other (please specify)

What is the major type of product your company imports?

1. Manufactured products
2. Agricultural products
3. Mineral/petroleum products
4. Other (please specify)

How many years has your company been involved in import operations?

1. Less than 5 years
2. 5-10 years
3. More than 10 years

Part 2: FTZ Awareness and Knowledge

I am aware of what Foreign Trade Zones (FTZs) are and their purpose.

1. Strongly Agree
2. Agree
3. Not Sure
4. Disagree
5. Strongly Disagree

I understand the potential cost savings benefits of using FTZs for logistics operations.

1. Strongly Agree
2. Agree
3. Not Sure
4. Disagree
5. Strongly Disagree

I am familiar with the policies and procedures for utilizing FTZs.

1. Strongly Agree
2. Agree
3. Not Sure
4. Disagree
5. Strongly Disagree

FTZs are easily accessible for use in our logistics operations.

1. Strongly Agree
2. Agree
3. Not Sure
4. Disagree
5. Strongly Disagree

The costs of using FTZs are reasonable for our logistics needs.

1. Strongly Agree
2. Agree
3. Not Sure
4. Disagree
5. Strongly Disagree

Part 3: Utilization and Challenges

Have you thought about using FTZs for logistics?

1. Yes
2. No

Please indicate the severity of any challenges your company faces in considering the use of FTZs for your logistics operations:

1. Not challenging
2. Slightly challenging
3. Moderately challenging
4. Very challenging
5. Extremely challenging

What are the main challenges your company has received or expects to receive from using FTZs?

1. Complex application and approval process

2. Transportation/inventory issues within the FTZ
3. Record keeping requirements related to utilizing an FTZ
4. Costs associated with using an FTZ
5. Other challenges (please specify)

Part 4: Utilization Intent

How likely are you to use FTZs for logistics in short or long term?

1. Very likely
2. Somewhat likely
3. Not sure
4. Somewhat unlikely
5. Very unlikely

Section 2: Open- ended Survey

How would you describe your level of awareness about FTZ programs prior to this conversation?

What do you see as the main benefits of using FTZs for logistics operations?

What factors discourage your company from utilizing FTZs?

How accessible do you view the process for applying to use an FTZ site?